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10/01/98

705 59
Class Subc
ISSUE CLASSIFICATION

U.S. UTILITY PATENT APPLICATION

SCANNED <i>bw</i>	O.I.P.E. <i>RG</i>	PATENT DATE JUN 25 2002
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SECTOR	CLASS <i>35</i>	SUBCLASS <i>4</i>	ART UNIT	EXAMINER <i>Hewitt</i>
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PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION							
ORIGINAL		CROSS REFERENCE(S)					
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
705	59	705	50	51	53	57	
INTERNATIONAL CLASSIFICATION							
S06F 17/60							

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☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg. <i>2</i>	Figs. Drwg. <i>2</i>	Print Fig. <i>1</i>	Total Claims <i>19</i>	Print Claim for O.G. <i>18</i>
☒ a) The term of this patent subsequent to _____ (date) has been disclaimed. ☐ b) The term of this patent shall not extend beyond the expiration date of U.S. Patent No. _____	<i>[Signature]</i> Hyung-Soo Sohn Primary Examiner (Primary Examiner)			NOTICE OF ALLOWANCE MAILED <i>3-28-02</i>	
				ISSUE FEE <i>W</i> Amount Due <i>\$640.00</i> Date Paid <i>4-22-02</i>	
☐ c) The terminal _____ months of this patent have been disclaimed.	<i>[Signature]</i> (Legal Instruments Examiner)			ISSUE BATCH NUMBER	

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(LABEL AREA)

Formal Drawings (*2* shts) set
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SEARCHED				SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
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705	51	10/2/00	CHZ	Used Web in an attempt to identify parent	10/2/00	CHZ
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	58			~~SEARCHED~~ in an attempt to identify parent and grandparent	11/3/02	
380	59	10/2/00	CHZ			
713	187	10/2/00	CHZ			
	189					
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705	1			~~SEARCHED~~ Searched N/and Family tree	2/19/02	CHZ
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SEARCHED				SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
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	58			~~SEARCHED~~ in an attempt to identify parent and grandparent	11/3/02	
380	59	10/2/00	CHZ			
713	187	10/2/00	CHZ			
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		search	CHZ			

INTERFERENCE SEARCHED			
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POSITION	INITIALS	ID NO.	DATE
SEE DETERMINATION	DD	108972	
D.I.P.E. CLASSIFIER	DD	108971	10-14-98
FORMALITY REVIEW	DD	108971	10-20-98

INDEX OF CLAIMS

✓ Rejected N Non-elected
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Claim	Final	Original	Date
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US006411941B1

(12) **United States Patent**
Mullor et al.

(10) **Patent No.:** **US 6,411,941 B1**
(45) **Date of Patent:** **Jun. 25, 2002**

(54) **METHOD OF RESTRICTING SOFTWARE
OPERATION WITHIN A LICENSE
LIMITATION**

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Ramat Hasharon (IL)

(73) Assignee: **Beeble, Inc.**, Newport Beach, CA (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

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(22) Filed: **Oct. 1, 1998**

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(52) U.S. Cl. **705/59; 705/50; 705/51;
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(58) Field of Search **705/51, 54, 56,
705/57, 58, 59, 1, 50, 52, 53; 713/187,
189, 200**

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Primary Examiner—Hyung-Sub Sough

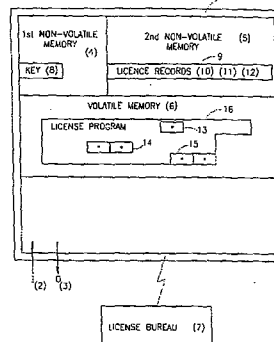
Assistant Examiner—Calvin L Hewitt

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Jeffri A. Kaminski

(57) **ABSTRACT**

A method of restricting software operation within a license
limitation that is applicable for a computer having a first
non-volatile memory area, a second non-volatile memory
area, and a volatile memory area. The method includes the
steps of selecting a program residing in the volatile memory,
setting up a verification structure in the non-volatile
memories, verifying the program using the structure, and
acting on the program according to the verification.

19 Claims, 2 Drawing Sheets



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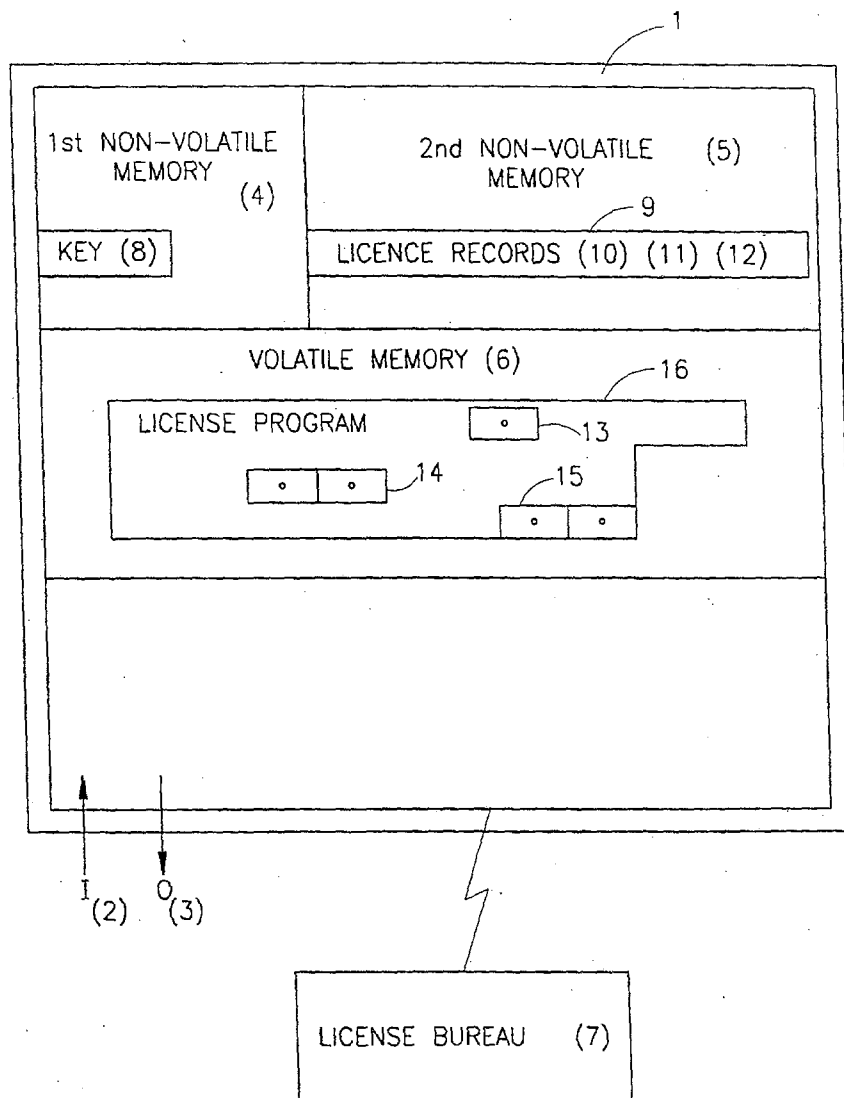


FIG. 1

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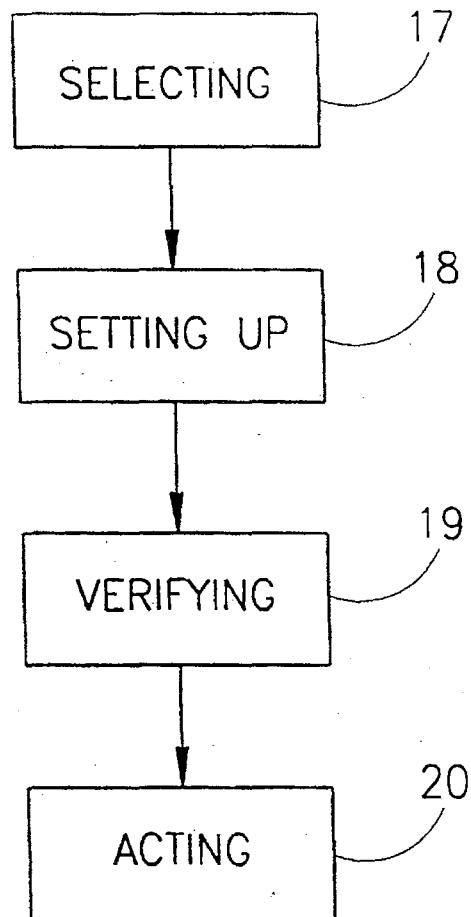


FIG. 2

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METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

FIELD OF THE INVENTION

This invention relates to a method and system of identifying and restricting an unauthorized software program's operation.

BACKGROUND OF THE INVENTION

Numerous methods have been devised for the identifying and restricting of an unauthorized software program's operation. These methods have been primarily motivated by the grand proliferation of illegally copied software, which is engulfing the marketplace. This illegal copying represents billions of dollars in lost profits to commercial software developers.

Software based products have been developed to validate authorized software usage by writing a license signature onto the computer's volatile memory (e.g. hard disk). These products may be appropriate for restricting honest software users, but they are very vulnerable to attack at the hands of skilled system's programmers (e.g. "hackers"). These license signatures are also subject to the physical instabilities of their volatile memory media.

Hardware based products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (e.g. over the internet).

There is accordingly a need in the art to provide for a system and method that substantially reduce or overcome the drawbacks of hitherto known solutions.

SUMMARY OF THE INVENTION

The present invention relates to a method of restricting software operation within a license limitation. This method strongly relies on the use of a key and of a record, which have been written into the non-volatile memory of a computer.

For a better understanding of the underlying concept of the invention, there follows a specific non-limiting example. Thus, consider a conventional computer having a conventional BIOS module in which a key was embedded at the ROM section thereof, during manufacture. The key constitutes, effectively, a unique identification code for the host computer. It is important to note that the key is stored in a non-volatile portion of the BIOS, i.e. it cannot be removed or modified.

Further, according to the invention, each application program that is to be licensed to run on the specified computer, is associated with a license record; that consists of author name, program name and number of licensed users (for network). The license record may be held in either encrypted or explicit form.

Now, there commences an initial license establishment procedure, where a verification structure is set in the BIOS so as to indicate that the specified program is licensed to run on the specified computer. This is implemented by encrypting the license record (or portion thereof) using said key (or portion thereof) exclusively or in conjunction with other identification information) as an encryption key. The resulting encrypted license record is stored in another (second) non-volatile section of the BIOS, e.g. E²PROM (or the

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ROM). It should be noted that unlike the first non-volatile section, the data in the second non-volatile memory may optionally be erased or modified (using E²PROM manipulation commands), so as to enable to add, modify or remove licenses. The actual format of the license may include a string of terms that correspond to a license registration entry (e.g. lookup table entry or entries) at a license registration bureau (which will be further described as part of the preferred embodiment of the present invention).

Having placed the encrypted license record in the second non-volatile memory (e.g. the E²PROM), the process of verifying a license may be commenced. Thus, when a program is loaded into the memory of the computer, a so called license verifier application, that is a priori running in the computer, accesses the program under question, retrieves therefrom the license record, encrypts the record utilizing the specified unique key (as retrieved from the ROM section of the BIOS) and compares the so encrypted record to the encrypted records that reside in the E²PROM. In the case of match, the program is verified to run on the computer. If on the other hand the sought encrypted data record is not found in the E²PROM database, this means that the program under question is not properly licensed and appropriate application define action is invoked (e.g. informing to the user on the unlicensed status, halting the operation of the program under question etc.)

Those versed in the art will readily appreciate that any attempt to run a program at an unlicensed site will be immediately detected. Consider, for example, that a given application, say Lotus 123, is verified to run on a given computer having a first identification code (k1) stored in the ROM portion of the BIOS thereof. This obviously requires that the license record (LR) of the application after having been encrypted using k1 giving rise to (LR)_{k1} is stored in the E²PROM of the first computer.

Suppose now that a hacker attempts to run the specified application in a second computer having a second identification code (k2) stored in the ROM portion of the BIOS thereof. All or a portion the database contents (including of course (LR)_{k1}) that reside in the E²PROM portion in the first computer may be copied in a known per se means to the second computer. It is important to note that the hacker is unable to modify the key in the ROM of the second computer to K1, since, as recalled, the contents of the ROM is established during manufacture and is practically invariable.

Now, when the application under question is executed in the second computer, the license verifier retrieves said LR from the application and, as explained above, encrypts it using the key as retrieved from the ROM of the second computer, i.e. k2 giving rise to encrypted license record (LR)_{k2}. Obviously, the value (LR)_{k2} does not reside in the E²PROM database section of the second computer (since it was not legitimately licensed) and therefore the specified application is invalidated. It goes without saying that the data copied from the first (legitimate) computer is rendered useless, since comparing (LR)_{k2} with the copied value (LR)_{k1} results, of course, in mismatch.

The example above is given for clarity of explanation only and is by no means binding.

In its broadest aspect, the invention provides for a method of restricting software operation within a license limitation including; for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the steps of: selecting a program residing in the volatile memory, setting up a verification structure in the

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non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

An important advantage in utilizing non-volatile memory such as that residing in the BIOS is that the required level of system programming expertise that is necessary to intercept or modify commands, interacting with the BIOS, is substantially higher than those needed for tampering with data residing in volatile memory such as hard disk. Furthermore, there is a much higher cost to the programmer, if his tampering is unsuccessful, i.e. if data residing in the BIOS (which is necessary for the computer's operability) is inadvertently changed by the hacker. This is too high of a risk for the ordinary software hacker to pay. Note that various recognized means for hindering the professional-like hacker may also be utilized (e.g. anti-debuggers, etc.) in conjunction with the present invention.

In the context of the present invention, a "computer" relates to a digital data processor. These processors are found in personal computers, or on one or more processing cards in multi-processor machines. Today, a processor normally includes a first non-volatile memory, a second non-volatile memory, and data linkage access to a volatile memory. There are also processors having only one non-volatile memory or having more than two non-volatile memories; all of which should be considered logically as relating to having a first and a second non-volatile memory areas. There are also computational environments where the volatile memory is distributed into numerous physical components, using a bus, LAN, etc.; all of which should logically be considered as being a volatile memory area.

According to the preferred embodiment of the present invention, there is further provided a license authentication bureau which can participate in either or both of:

- (i) establishing the license record in the second non-volatile memory; and
- (ii) verifying if the key and license record in the non-volatile memory(s) is compatible with the license record information as extracted from the application under question.

The bureau is a telecommunications accessible processor where functions such as formatting, encrypting, and verifying may be performed. Performing these or other functions at the bureau helps to limit the understanding of potential software hackers; since they can not observe how these functions are constructed. Additional security may also be achieved by forcing users of the bureau to register, collecting costs for connection to the bureau, logging transactions at the bureau, etc.

According to one example of using the bureau, setting up a verification structure further includes the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program; forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the encryption key; and transferring, from the bureau to the computer, the encrypted license-record.

According to another example of using the bureau, verifying the program further includes the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license-verification including an identification of the computer, the encrypted license-record

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for the selected program from the second non-volatile memory, and the licensed-software-program's license-record contents; enabling the comparing at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

The actual key that serves for identifying the computer may be composed of the pseudo-unique key exclusively, or, if desired, in combination with information, e.g. information related to the registration of the user such as e.g. place, telephone number, user name, license number, etc. In the context of the present invention, a "pseudo-unique" key may relate to a bit string which uniquely identifies each first non-volatile memory. Alternately the "pseudo-unique" key may relate to a random bit string (or to an assigned bit string) of sufficient length such that: there is an acceptably low probability of a successful unauthorized transfer of licensed software between two computers, where the first volatile memories of these two computers have the same key.

It should be noted that the license bureau might maintain a registry of keys and of licensed programs that have been registered at the bureau in association with these keys. This registry may be used to help facilitate the formalization of procedures for the transfer of ownership of licensed software from use on one computer to use on another computer.

Constructing the key in the manner specified may hinder the hacker in cracking the proposed encryption scheme of the invention, in particular when the establishment of the license record or the verification thereof is performed in the bureau. Those versed in the art will readily appreciate that the invention is by no means bound by the data, the algorithms, or the manner of operation of the bureau. It should be noted that the tasks of establishing and/or verifying a license record may be shared between the bureau and the computer, done exclusively at the computer, or done exclusively at the bureau. The pseudo-unique key length needs to be long enough to hinder encryption attack schemes. The establishing of the key may be done at any time from the non-volatile memory's manufacture until an attempted use of an established license-record in the non-volatile memory. The key is used for encryption or decryption operations associated with license-records. In principle, the manufacturer of the licensed-software-program may specify the license-record format and therefore different formats may, if desired, be used for respective applications.

According to the preferred embodiment of the present invention, the pseudo-unique key is a unique-identification bit string that is written onto the first non-volatile memory by the manufacturer of the memory media.

According to one, non-limiting, preferred embodiment of the present invention, the first non-volatile memory area is a ROM section of a BIOS; the second non-volatile memory area is a E²PROM section of a BIOS; and the volatile memory is a RAM e.g. hard disk and/or internal memory of the computer.

The present invention also relates to a non-volatile memory media used as a BIOS of a computer, for restricting software operation within a license limitation, wherein a pseudo-unique key is established.

According to the preferred embodiment of the non-volatile memory media of the present invention, the pseudo-unique key is established in a ROM section of the BIOS.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to understand the invention and to see how it may be carried out in practice, a preferred embodiment will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

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FIG. 1 is a schematic diagram of a computer and a license bureau; and

FIG. 2 is a generalized flow chart of the sequence of operations performed according to one embodiment of the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A schematic diagram of a computer and a license bureau is shown in FIG. 1. Thus, a computer processor (1) is associated with input operations (2) and with output operations (3). This computer (processor) internally contains a first non-volatile memory area (4) (e.g. the ROM section of the BIOS), a second non-volatile memory area (5) (e.g. the EPROM section of the BIOS), and a volatile memory area (6) (e.g. the internal RAM memory of the computer).

The computer processor is in temporary telecommunication linkage with a license bureau (7).

The first non-volatile memory includes a pseudo-random identification key (8), which exclusively or in combination with other information (e.g. user name), is sufficient to uniquely differentiate this first non-volatile memory from all other first non-volatile memories. As specified before, said key constitutes unique identification of the computer.

The second non-volatile memory includes a license-record-area (9) e.g. which contains at least one encrypted license-record (e.g. three records 10-12). The volatile memory accommodates a license program (16) having license record fields (13-15) appended thereto. By way of example said fields stand for Application names (e.g. Lotus 123), Vendor name (Lotus inc.), and number of licensed copies (1 for stand alone usage, >1 for number of licensed users for a network application).

Those versed in the art will readily appreciate that the license record is not necessarily bound to continuous fields. In fact, the various license content components of the data record may be embedded in various locations in the application. Any component may, if desired, be encrypted.

Each one of the encrypted license records (10-12) is obtained by encrypting the corresponding license record as extracted from program 16, utilizing for encryption the identification key (8).

In a typical, yet not exclusive, sequence of operation, a transaction/request is sent, by the computer to the bureau. This transaction includes the key (8), the encrypted license-records (10-12), contents from the license program used in forming a license record (e.g. fields 13-15), and other items of information as desired.

The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted license-record with the license-record (10-12). The bureau generates an overlay according to the result of the comparison indicating successful comparison, non-critical failure comparison and the critical failure comparison.

The bureau returns the overlay which will direct the computer in subsequent operation. Thus, a success overlay will allow the license program to operate. A non-critical failure overlay will ask for additional user interactions. A critical failure overlay will cause permanent disruption to the computer's BIOS operations. Thus, software operation of the program is methodologically according to a license limitation restriction.

Those versed in the art will readily appreciate that the implementation as described with reference to FIG. 1 is by

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no means binding. Thus, by way of non-limiting example, the bureau, instead of being external entity may form part of the computer.

Attention is now directed to FIG. 2, showing a generalized flow chart of the sequence of operations performed according to one embodiment of the invention.

Thus, selecting (17) a program includes the step of: establishing a licensed-software-program in the volatile memory of the computer wherein the licensed-software-program includes contents used to form a license-record. These contents, be they centralize or decentralized, may include terms, identifications, specifications, or limitations related to the manufacturer of a software product, the distributor of a software product, the purchaser of a software product, a licensor, a licensee, items of computer hardware or components thereof, or to other terms and conditions related to the aforesaid.

Setting up (18) the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area; and establishing at least one license-record location in the first or the second nonvolatile memory area.

Establishing a license-record includes the steps of: forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations (e.g. 10-12 in FIG. 1).

Verifying (19) the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the first or the second non-volatile memory area, using the key; and comparing the encrypted licensed-software-program's license-record contents with the encrypted license-record in the first or the second non-volatile memory area, or comparing the licensed-software-program's license-record contents with the decrypted license-record in the first or the second non-volatile memory area.

Acting (20) on the program includes the step of: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency. In this context "non-unity" relates to being unequal with respect to a specific equation (e.g. $A=B+1$); and "insufficiency" relates to being outside of a relational bound (e.g. $A>B+1$). "Restricting the program's operation with predetermined limitations" may include actions such as erasing the software in volatile memory, warning the license applicant/user, placing a fine on the applicant/user through the billing service charges collected at the license bureau (if applicable), or scrambling sections of the BIOS of the computer (or of functions interacting therewith).

The present invention has been described with a certain degree of particularity but it should be understood that various modifications and alterations may be made without departing from the scope or spirit of the invention as defined by the following claims.

What is claimed is:

1. A method of restricting software operation within a license for use with a computer including an erasable, non-volatile memory area of a BIOS of the computer, and a volatile memory area; the method comprising the steps of: selecting a program residing in the volatile memory, using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record,

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verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS, and

acting on the program according to the verification.

2. A method according to claim 1, further comprising the steps of:

establishing a license authentication bureau.

3. A method according to claim 2, wherein setting up a verification structure further comprising the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program; forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as an encryption key; transferring, from the bureau to the computer, the encrypted license-record; and storing the encrypted license record in the erasable non-volatile memory area of the BIOS.

4. A method according to claim 2, wherein verifying the program further comprises the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license verification including an identification of the computer, an encrypted license-record for the selected program from the erasable, non-volatile memory area of the BIOS, and the program's license-record; enabling the comparing at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

5. A method according to claim 3 wherein the identification of the computer includes the unique key.

6. A method according to claim 1 wherein selecting a program includes the steps of: establishing a licensed-software-program in the volatile memory of the computer wherein said licensed-software-program includes contents used to form the license-record.

7. A method according to claim 6 wherein using an agent to set up the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in a first non-volatile memory area of the computer; and establishing at least one license-record location in the first nonvolatile memory area or in the erasable, non-volatile memory area of the BIOS.

8. A method according to claim 6 wherein establishing a license-record includes the steps of: forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations.

9. A method according to claim 7 wherein verifying the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the erasable, non-volatile memory area of the BIOS, using the pseudo-unique key; and comparing the encrypted licenses-software-program's license-record contents with the encrypted license-record in the erasable, non-volatile memory area of the BIOS, or comparing the license-software-program's license-record contents with the decrypted license-record in erasable non-volatile memory area of the BIOS.

10. A method according to claim 9 wherein acting on the program includes the step: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

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11. A method according to claim 1 wherein the volatile memory is a RAM.

12. The method of claim 1, wherein a pseudo-unique key is stored in the non-volatile memory of the BIOS.

13. The method of claim 1, wherein a unique key is stored in a first non-volatile memory area of the computer.

14. The method according claim 13, wherein the step of using the agent to set up the verification record, including the license record, includes encrypting a license record data in the program using at least the unique key.

15. The method according to claim 14, wherein the verification comprises:

extracting the license record from the software program;

encrypting the license record using the unique key stored in the first non-volatile memory area of the computer to form second encrypted license information; and

comparing the encrypted license information stored in the erasable, non-volatile memory area of the BIOS of the computer with the second encrypted license information.

16. The method according to claim 13, wherein the step of verifying the program includes a decrypting the license record data accommodated in the erasable second non-volatile memory area of the BIOS using at least the unique key.

17. The method according to claim 13, wherein the step of verifying the program includes encrypting the license record that is accommodated in the program using at least the unique key.

18. A method for accessing an application software program using a pseudo-unique key stored in a first non-erasable non-volatile memory area of a computer, the first non-volatile memory area being unable to be programmatically changed, the method, comprising:

loading the application software program residing in a non-volatile memory area of the computer;

using an agent to perform the following steps:

extracting license information from software program; encrypting license information using the pseudo-unique key stored in the first non-volatile memory area;

storing the encrypting license information in a second erasable, writable, non-volatile memory area of the BIOS of the computer;

subsequently verifying the application software program based on the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS; and

acting on the application software program based on the verification.

19. The method of claim 18, wherein the verification comprises:

extracting the license information from the software program;

encrypting the license information using the pseudo-unique key stored in the first non-volatile memory area of the computer to form second encrypted license information; and

comparing the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS of the computer with the second encrypted license information.

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****CONTINUING DOMESTIC DATA*******
 VERIFIED
[Signature] *none*

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****FOREIGN APPLICATIONS*******
 VERIFIED ISRAEL 124571 05/21/98
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***** SMALL ENTITY *****

Foreign Priority claimed 35 USC 119 (a-d) conditions met ☒ Yes ☐ No	☒ Yes ☐ No ☐ Met after Allowance	STATE OR COUNTRY ILX	SHEETS DRAWING 2	TOTAL CLAIMS 15	INDEPENDENT CLAIMS 1
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Filed and Acknowledged *[Signature]* Examiner's Initials _____

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TITLE
 METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

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10/01/98

Assistant Commissioner for Patents
Washington, D.C. 20231

Re: New Patent Application
Inventor(s): Miki MULLOR and Julian VALIKO
Attorney Docket: REINC 4237.01

Sir:

Please find attached hereto an application for patent which includes:

Specification, Claims, Declaration, Power of Attorney.

A certified copy of Israel Application No. 124571 filed May 21, 1998, the priority of which is claimed herewith under 35 U.S.C. 119.

Verified Declaration Statement showing Small Entity Status:

Formal Drawings: Figures 1 and 2 (2 sheets)

Fee (see formula below) check enclosed.

Basic Fee \$395/790..... \$ 395.00

Additional Fees:

Total number of claims in excess of 20 * times \$11/22 \$ 0.00

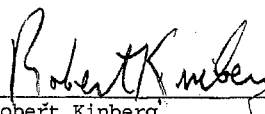
Number of independent claims 1
in excess of 3: * times \$41/82..... \$ 0.00

An assignment is likewise enclosed; Recording Fee \$40. \$ 40.00

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In the event there is attached hereto no check, or a check for an insufficient amount, please charge the fee to our Account No. 19-3700 and notify us accordingly.

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RK:boa

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Method of Restricting Software Operation within A License Limitation

FIELD OF THE INVENTION

This invention relates to a method and system of identifying and restricting an unauthorized software program's operation.

BACKGROUND OF THE INVENTION

5 ~~Ins. 1~~ Numerous methods have been devised for the identifying and restricting of unauthorized software program's operation. These methods have been primarily motivated by the grand proliferation of illegally copied software, which is engulfing the marketplace. This illegal copying represents billions of dollars in lost profits to commercial software developers.

10 Software based products have been developed to validate authorized software usage by writing a license signature onto the computer's volatile memory (e.g. hard disk). These products may be appropriate for restricting honest software users, but they are very vulnerable to attack at the hands of skilled system's programmers (e.g. "hackers"). These license signatures are
15 also subject to the physical instabilities of their volatile memory media.

~~Ins. 2~~ Hardware base products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (e.g. over
20 the internet).

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There is accordingly a need in the art to provide for a system and method that substantially reduce or overcome the drawbacks of hitherto known solutions.

5 SUMMARY OF THE INVENTION

The present invention relates to a method of restricting software operation within a license limitation. This method strongly relies on the use of a key and of a record, which have been written into the non-volatile memory of a computer.

10 For a better understanding of the underlying concept of the invention, there follows a specific non-limiting example. Thus, consider a conventional computer having a conventional BIOS module in which a key was embedded at the ROM section thereof, during manufacture. The key constitutes, effectively, a unique identification code for the host computer. It is important
15 to note that the key is stored in a non-volatile portion of the BIOS, i.e. it cannot be removed or modified.

Further, according to the invention, each application program that is to be licensed to run on the specified computer, is associated with a license record; that consists of author name, program name and number of licensed
20 users (for network). The license record may be held in either encrypted or explicit form.

Now, there commences an initial license establishment procedure, where a verification structure is set in the BIOS so as to indicate that the specified program is licensed to run on the specified computer. This is
25 implemented by encrypting the license record (or portion thereof) using said key (or portion thereof) exclusively or in conjunction with other identification information) as an encryption key. The resulting encrypted license record is stored in another (second) non-volatile section of the BIOS, e.g. E²PROM (or

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the ROM). It should be noted that unlike the first non-volatile section, the data in the second non-volatile memory may optionally be erased or modified (using E²PROM manipulation commands), so as to enable to add, modify or remove licenses. The actual format of the license may include a string of
5 terms that correspond to a license registration entry (e.g. lookup table entry or entries) at a license registration bureau (which will be further described as part of the preferred embodiment of the present invention).

Having placed the encrypted license record in the second non-volatile memory (e.g. the E²PROM), the process of verifying a license may be
10 commenced. Thus, when a program is loaded into the memory of the computer, a so called license verifier application, that is *a priori* running in the computer, accesses the program under question, retrieves therefrom the license record, encrypts the record utilizing the specified unique key (as retrieved from the ROM section of the BIOS) and compares the so encrypted
15 record to the encrypted records that reside in the E²PROM. In the case of match, the program is verified to run on the computer. If on the other hand the sought encrypted data record is not found in the E²PROM database, this means that the program under question is not properly licensed and appropriate application define action is invoked (e.g. informing to the user on
20 the unlicensed status, halting the operation of the program under question etc.)

Those versed in the art will readily appreciate that any attempt to run a program at an unlicensed site will be immediately detected. Consider, for example, that a given application, say Lotus 123, is verified to run on a given computer having a first identification code (k1) stored in the ROM portion of
25 the BIOS thereof. This obviously requires that the license record (LR) of the application after having been encrypted using k1 giving rise to (LR)_{k1} is stored in the E²PROM of the first computer.

Suppose now that a hacker attempts to run the specified application in a second computer having a second identification code (k2) stored in the

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ROM portion of the BIOS thereof. All or a portion the database contents (including of course $(LR)_{k1}$) that reside in the E²PROM portion in the first computer may be copied in a known *per se* means to the second computer. It is important to note that the hacker is unable to modify the key in the ROM of the second computer to K1, since, as recalled, the contents of the ROM is established during manufacture and is practically invariable.

Now, when the application under question is executed in the second computer, the license verifier retrieves said LR from the application and, as explained above, encrypts it using the key as retrieved from the ROM of the second computer, i.e. $k2$ giving rise to encrypted license record $(LR)_{k2}$. Obviously, the value $(LR)_{k2}$ does not reside in the E²PROM database section of the second computer (since it was not legitimately licensed) and therefore the specified application is invalidated. It goes without saying that the data copied from the first (legitimate) computer is rendered useless, since comparing $(LR)_{k2}$ with the copied value $(LR)_{k1}$ results, of course, in mismatch.

The example above is given for clarity of explanation only and is by no means binding.

In its broadest aspect, the invention provides for a method of restricting software operation within a license limitation including; for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the steps of: selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

An important advantage in utilizing non-volatile memory such as that residing in the BIOS is that the required level of system programming expertise that is necessary to intercept or modify commands, interacting with the BIOS, is substantially higher than those needed for tampering with data

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residing in volatile memory such as hard disk. Furthermore, there is a much higher cost to the programmer, if his tampering is unsuccessful, i.e. if data residing in the BIOS (which is necessary for the computer's operability) is inadvertently changed by the hacker. This is too high of a risk for the ordinary
5 software hacker to pay. Note that various recognized means for hindering the professional-like hacker may also be utilized (e.g. anti-debuggers, etc.) in conjunction with the present invention.

In the context of the present invention, a "computer" relates to a digital data processor. These processors are found in personal computers, or on one
10 or more processing cards in multi-processor machines. Today, a processor normally includes a first non-volatile memory, a second non-volatile memory, and data linkage access to a volatile memory. There are also processors having only one non-volatile memory or having more than two non-volatile memories; all of which should be considered logically as relating to having a
15 first and a second non-volatile memory areas. There are also computational environments where the volatile memory is distributed into numerous physical components, using a bus, LAN, etc.; all of which should logically be considered as being a volatile memory area.

According to the preferred embodiment of the present invention, there
20 is further provided a license authentication bureau which can participate in either or both of:

(i) establishing the license record in the second non-volatile memory;
and

(ii) verifying if the key and license record in the non-volatile
25 memory(s) is compatible with the license record information as extracted from the application under question.

The bureau is a telecommunications accessible processor where functions such as formatting, encrypting, and verifying may be performed. Performing these or other functions at the bureau helps to limit the

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understanding of potential software hackers; since they can not observe how these functions are constructed. Additional security may also be achieved by forcing users of the bureau to register, collecting costs for connection to the bureau, logging transactions at the bureau, etc.

5 According to one example of using the bureau, setting up a verification structure further includes the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program;
10 forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the encryption key; and transferring, from the bureau to the computer, the encrypted license-record.

 According to another example of using the bureau, verifying the program further includes the steps of: establishing, between the computer and
15 the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license-verification including an identification of the computer, the encrypted license-record for the selected program from the second non-volatile memory, and the licensed-software-program's license-record contents; enabling the comparing
20 at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

 The actual key that serves for identifying the computer may be composed of the pseudo-unique key exclusively, or, if desired, in combination with information, e.g. information related to the registration of the user such
25 as e.g. place, telephone number, user name, license number, etc. In the context of the present invention, a "pseudo-unique" key may relate to a bit string which uniquely identifies each first non-volatile memory. Alternately the "pseudo-unique" key may relate to a random bit string (or to an assigned bit string) of sufficient length such that: there is an acceptably low probability of

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a successful unauthorized transfer of licensed software between two computers, where the first volatile memories of these two computers have the same key.

It should be noted that the license bureau might maintain a registry of
5 keys and of licensed programs that have been registered at the bureau in association with these keys. This registry may be used to help facilitate the formalization of procedures for the transfer of ownership of licensed software from use on one computer to use on another computer.

Constructing the key in the manner specified may hinder the hacker in
10 cracking the proposed encryption scheme of the invention, in particular when the establishment of the license record or the verification thereof is performed in the bureau. Those versed in the art will readily appreciate that the invention is by no means bound by the data, the algorithms, or the manner of operation of the bureau. It should be noted that the tasks of establishing and/or verifying
15 a license record may be shared between the bureau and the computer, done exclusively at the computer, or done exclusively at the bureau. The pseudo-unique key length needs to be long enough to hinder encryption attack schemes. The establishing of the key may be done at any time from the non-volatile memory's manufacture until an attempted use of an established
20 license-record in the non-volatile memory. The key is used for encryption or decryption operations associated with license-records. In principle, the manufacturer of the licensed-software-program may specify the license-record format and therefore different formats may, if desired, be used for respective applications.

25 According to the preferred embodiment of the present invention, the pseudo-unique key is a unique-identification bit string that is written onto the first non-volatile memory by the manufacturer of the is memory media.

According to one, non-limiting, preferred embodiment of the present invention, the first non-volatile memory area is a ROM section of a BIOS; the

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second non-volatile memory area is a E²PROM section of a BIOS; and the volatile memory is a RAM e.g. hard disk and/or internal memory of the computer .

The present invention also relates to a non-volatile memory media
5 used as a BIOS of a computer, for restricting software operation within a license limitation, wherein a pseudo-unique key is established.

According to the preferred embodiment of the non-volatile memory media of the present invention, the pseudo-unique key is established in a ROM section of the BIOS.

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BRIEF DESCRIPTION OF THE DRAWINGS:

In order to understand the invention and to see how it may be carried out in practice, a preferred embodiment will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in
15 which:

Fig. 1 is a schematic diagram of a computer and a license bureau; and

Fig. 2 is a generalized flow chart of the sequence of operations performed according to one embodiment of the invention.

20 DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A schematic diagram of a computer and a license bureau is shown in Figure 1. Thus, a computer processor (1) is associated with input operations (2) and with output operations (3). This computer (processor) internally contains a first non-volatile memory area (4) (e.g. the ROM section of the BIOS), a second non-volatile memory area (5) (e.g. the E²PROM section of the BIOS), and a volatile memory area (6) (e.g. the internal RAM memory of the computer).

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The computer processor is in temporary telecommunications linkage with a license bureau (7).

The first non-volatile memory includes a pseudo-random identification key (8), which exclusively or in combination with other information (e.g. user name), is sufficient to uniquely differentiate this first non-volatile memory from all other first non-volatile memories. As specified before, said key constitutes unique identification of the computer.

10 In 93 The second non-volatile memory includes a license-record-area (9) e.g. for the containing of at least one encrypted license-record (e.g. three records 10-12). The volatile memory accommodates a license program (16) having license record fields (13-15) appended thereto. By way of example said fields stand for Application name (e.g. Lotus 123), Vendor name (Lotus inc.), and no of licensed copies (1 for stand alone usage, >1 for number of licensed users for a network application).

15 In 114 Those versed in the art will readily appreciate that the license record is not necessarily bound to continuous fields. In fact, the various license content components of the data record may be embedded in various locations in the application. Any component may, if desired, be encrypted.

Each one of the encrypted license records (10-12) is obtained by 20 encrypting the corresponding license record as extracted from program 16, utilizing for encryption the identification key (8).

In a typical, yet not exclusive, sequence of operation, a transaction/request is sent, by the computer to the bureau. This transaction includes the key (8), the encrypted license-records (10-12), contents from the 25 license program used in forming a license record (e.g. fields 13-15), and other items of information as desired.

In 115 The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted

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license-record with the license-records (10-12). The bureau generates an overlay according to the result of the comparison indication successful comparison, non-critical failure comparison and critical failure comparison.

The bureau returns the overlay which will direct the computer in subsequent operation. Thus, a success overlay will allow the license program to operate. A non-critical failure overlay will ask for additional user interactions. A critical failure overlay will cause permanent disruption to the computer's BIOS operations. Thus, software operation of the program is methodologically according to a license limitation restriction.

Those versed in the art will readily appreciate that the implementation as described with reference to Fig. 1 is by no means binding. Thus, by way of non-limiting example, the bureau, instead of being external entity may form part of the computer.

Attention is now directed to Fig. 2, showing a generalized flow chart of the sequence of operations performed according to one embodiment of the invention.

Thus, selecting (17) a program includes the step of: establishing a licensed-software-program in the volatile memory of the computer wherein the licensed-software-program includes contents used to form a license-record. These contents, be they centralize or decentralized, may include terms, identifications, specifications, or limitations related to the manufacturer of a software product, the distributor of a software product, the purchaser of a software product, a licensor, a licensee, items of computer hardware or components thereof, or to other terms and conditions related to the aforesaid.

Setting up (18) the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area; and establishing at least one license-record location in the first or the second nonvolatile memory area.

Establishing a license-record includes the steps of: forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations (e.g. 10-12 in Figure 1).

Verifying (19) the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the first or the second non-volatile memory area, using the key; and comparing the encrypted licensed-software-program's license-record contents with the encrypted license-record in the first or the second non-volatile memory area, or comparing the licensed-software-program's license-record contents with the decrypted license-record in the first or the second non-volatile memory area.

Acting (20) on the program includes the step of: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency. In this context "non-unity" relates to being unequal with respect to a specific equation (e.g. $A=B+1$); and "insufficiency" relates to being outside of a relational bound (e.g. $A>B+1$). "Restricting the program's operation with predetermined limitations" may include actions such as erasing the software in volatile memory, warning the license applicant/user, placing a fine on the applicant/user through the billing service charges collected at the license bureau (if applicable), or scrambling sections of the BIOS of the computer (or of functions interacting therewith).

The present invention has been described with a certain degree of particularity but it should be understood that various modifications and alterations may be made without departing from the scope or spirit of the invention as defined by the following claims.

CLAIMS:

Sub A6 1. A method of restricting software operation within a license limitation comprising; for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the steps of:
5 selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

2. A method according to claim 1, further comprising the step of: establishing a license authentication bureau.

10 Sub B2 3. A method according to claim 2, wherein setting up a verification structure further comprising the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program;
15 forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the encryption key; and transferring, from the bureau to the computer, the encrypted license-record.

4. A method according to claim 2, wherein verifying the program further comprising the steps of: establishing, between the computer and the
20 bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license-verification including an identification of the computer, the encrypted license-record for the selected program from the second non-volatile memory, and the licensed-software-program's license-record contents; enabling the comparing
25 at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

5. A method according to claim 3 wherein the identification of the computer includes the pseudo-unique key.

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6. A method according to claim 1 wherein selecting a program includes the step of: establishing a licensed-software-program in the volatile memory of the computer wherein said licensed-software-program includes contents used to form a license-record.

5 7. A method according to claim 1 wherein setting up the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area; and establishing at least one license-record location in the first or the second nonvolatile memory area.

10 8. A method according to claim 6 wherein establishing a license-record includes the steps of: forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations.

15 SUB B3 9. A method according to claim 1 wherein verifying the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the first or the second non-volatile memory area, using the key; and comparing the encrypted licensed-software-program's license-record
20 contents with the encrypted license-record in the first or the second non-volatile memory area, or comparing the licensed-software-program's license-record contents with the decrypted license-record in the first or the second non-volatile memory area.

10. A method according to claim 1 wherein acting on the program
25 includes the step of: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

11. A method according to claim 1 wherein the first non-volatile memory area is a ROM section of a BIOS.

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12. A method according to claim 1 wherein the second non-volatile memory area is a E²PROM section of a BIOS.

13. A method according to claim 1 wherein the volatile memory is a RAM.

5 14. A non-volatile memory media used as a BIOS of a computer, for restricting software operation within a license limitation, wherein a pseudo-unique key is established.

15. A non-volatile memory media according to claim 14 wherein the pseudo-unique key is established in a ROM section of the BIOS.

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ADD A7
ADD B5

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ABSTRACT

A method of restricting software operation within a license limitation that is applicable for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area. The method includes the steps of selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

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DECLARATION FOR UNITED STATES PATENT APPLICATION; Attorney Docket
POWER OF ATTORNEY, DESIGNATION OF CORRESPONDENCE ADDRESS

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Method of Restricting Software Operation within a Licensed Limitation

the specification of which

☒ is attached hereto.

☐ was filed on _____ as Application No. --Unknown--
and was amended on _____ [if applicable].

☐ was filed under the Patent Cooperation Treaty on _____
Serial No. _____, the United States of America being designated.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent, utility model, design or inventor's certificate listed below and have also identified below any foreign application(s) for patent, utility model, design or inventor's certificate having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Date Filed	Yes	No
124571	Israel	May 21, 1998	X	

I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: George H. Spencer (Reg. No. 18,038), Norman N. Kunitz (Reg. No. 20,586), Robert J. Frank (Reg. No. 19,112), Gabor J. Kelemen (Reg. No. 21,016), Robert Kinberg (Reg. No. 26,924), John W. Schneller (Reg. No. 26,031), Ashley J. Wells (Reg. No. 29,847), Christopher H. Lynt (Reg. No. 33,619) Suite 300 East, 1100 New York Avenue, N.W., Washington, D.C. 20005-3955, Telephone: (202) 414-4000, Telefax: (202) 414-4040. Address all correspondence to SPENCER & FRANK, Suite 300 East, 1100 New York Ave., N.W., Washington, D.C. 20005-3955.

The undersigned hereby authorizes the U.S. attorneys named herein to accept and follow instructions from the undersigned's assignee, if any, and/or, if the undersigned is not a resident of the United States, the undersigned's domestic attorney, patent attorney or patent agent, as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorneys named herein will be so notified by the undersigned.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature: X [Signature] Date: X 8/28/98, 1998.

Sole/First Inventor: Miki Mullor

Citizenship: Israeli

Residence and Post Office Address: 3, Zelon Street, Ramat Hasharon 47234, Israel

Signature: X [Signature] Date: X 6/28/98, 1998.

Second Inventor: Julian Valiko

Citizenship: Israeli

Residence and Post Office Address: 3, Zelon Street, Ramat Hasharon 47234, Israel

ANC 36

Attorney's
Docket No.

Applicant or Patentee: _____
Serial or Patent No.: _____
Filed or Issued: _____

For: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSED LIMITATION

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

- ☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN M.Y.P.D. TECHNOLOGIES LTD.
ADDRESS OF CONCERN c/o Keren-Shechter Law Firm, 21 Har Sinai Street,
Tel-Aviv 65816, Israel

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSED LIMITATION inventor(s)

Miki MULLOR and Julian VALIKO
described in

- ☒ the application filed herewith
☐ application serial no. _____, filed _____
☐ patent no. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME _____
ADDRESS _____
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

NAME _____
ADDRESS _____
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change of status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING ☒ Miki MULLOR JULIAN VALIKO
TITLE OF PERSON SIGNING ☒ Manager Manager
ADDRESS OF PERSON SIGNING ☒ 3 Zeehon Rannet-hushro
SIGNATURE ☒ [Signature] [Signature] DATE 11/20/98

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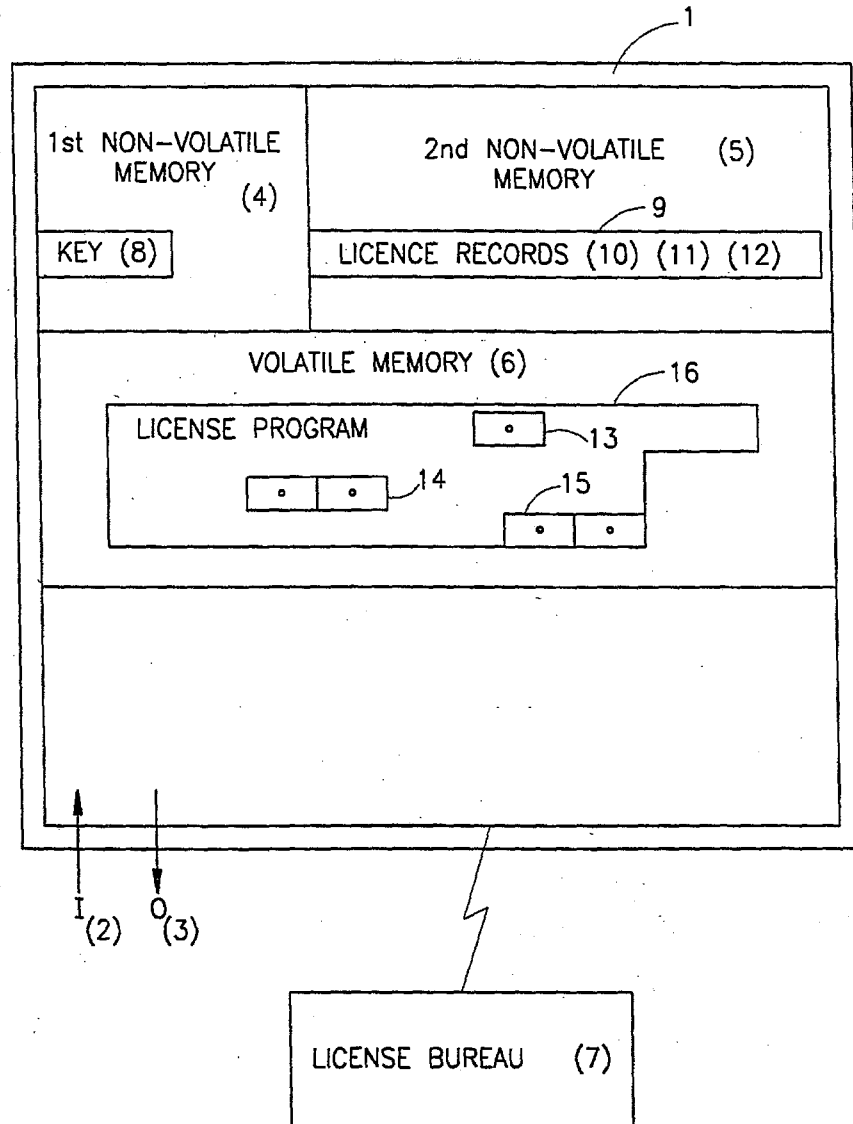


FIG.1

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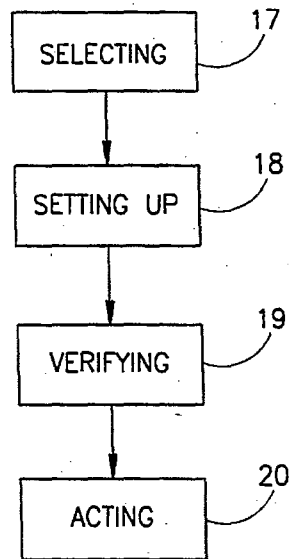


FIG. 2

10/01/98
J-595 U.S. PTO

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October 1, 1998

#2
Jc135 U.S. PTO
09/16/98
10/01/98

Assistant Commissioner for Patents
Washington, D.C. 20231

Re: New Patent Application
Inventor(s): Miki MULLOR and Julian VALIKO
Attorney Docket: REINC 4237.01

Sir:

Please find attached hereto an application for patent which includes:

Specification, Claims, Declaration, Power of Attorney.

A certified copy of Israel Application No. 124571 filed May 21, 1998, the priority of which is claimed herewith under 35 U.S.C. 119.

Verified Declaration Statement showing Small Entity Status:

Formal Drawings: Figures 1 and 2 (2 sheets)

Fee (see formula below) check enclosed.

Basic Fee \$395/790..... \$ 395.00

Additional Fees:

Total number of claims in excess of 20 * times \$11/22 \$ 0.00

Number of independent claims 1

in excess of 3: * times \$41/82..... \$ 0.00

An assignment is likewise enclosed; Recording Fee \$40. \$ 40.00

TOTAL FEES FOR THE ABOVE APPLICATION... \$ 435.00

In the event there is attached hereto no check, or a check for an insufficient amount, please charge the fee to our Account No. 19-3700 and notify us accordingly.

Respectfully submitted

Robert Kinberg
Robert Kinberg,
Registration No. 26,924

RK:boa

ANC 40



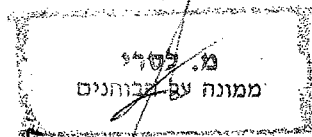
STATE OF ISRAEL

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09/164777
10/01/98

This is to certify that
annexed hereto is a true
copy of the documents as
originally deposited with
the patent application
in which are
specified on the first page
of the application.

זאת לתעודה כי
רצופים בזה העתקים
נכונים של המסמכים
שהופקדו לכתחילה
עם הבקשה לפטנט
לפי הפרטים הרשומים
בעמוד הראשון של
הנספח.

This 25-08-1998 היום



רשם הפטנטים
Registrar of Patents

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Certified

ANC 41

לשימוש הלשכה
For Office Use

124571	מספר: Number
21-05-1998	תאריך: Date
	הוקדם/נדחה: Ante/Post-dated

חוק הפטנטים, תשכ"ז - 1967
PATENTS LAW, 5727-1967

בקשה לפטנט
Application For Patent

אני, (שם המבקש, מענו ולגבי גוף מאוגדת מקום התאגדותו)
1, (Name and address of applicant, and in case of body corporate-place of incorporation)

מיקי מולאור אזרח ישראלי, מרח' צאלון 3, רמת השרון 47234, ישראל
Miki Mullor, Israeli citizen, of 3 Zelon St., Ramat Hasharon 47234, Israel
יוליאן וליקו, אזרח ישראלי, מרח' צאלון 3, רמת השרון 47234, ישראל
Julian Valiko, Israeli citizen, of 3, Zelon St., Ramat Hasharon 47234, Israel

בעל אמצאה מבח היותנו ממציאים ששמה הוא Being inventors
of an invention the title of which is Owner, by virtue of

שיטה להגבלת פעולת תוכנה תוך הגבלת רשיון

(בעברית)
(Hebrew)

Method of restricting software operation within a licensed limitation

(באנגלית)
(English)

Hereby apply for a patent to be granted to me in respect thereof.

מבקש בזאת כי ינתן לי עליה פטנט

* בקשת חלוקה *		* בקשת פטנט מוסף *		* דרישת דין קדימה *		
Application of Division		Appl. for Patent of Addition		Priority Claim		
מבקשת פטנט from application		לבקשה/לפטנט to Patent/Appl.		מספר/סימן Number/Mark	תאריך Date	מדינת האגודה Convention Country
No.	מס'	No.	מס'			
Dated	מיום	dated	מיום			
P.O.A. : To be filed				* יפוי כח : עוד יוגש		
המען למסירת מסמכים בישראל Address for Service in Israel						
REINHOLD COHN AND PARTNERS Patent Attorneys P.O.B. 4060, Tel-Aviv				C. 110713.5		
חתימת המבקש Signature of Applicant						
For the Applicants, REINHOLD COHN AND PARTNERS By : —				היום 20 בחודש May שנת 1998 This of the year		
				לשימוש הלשכה For Office Use		

טופס זה כשהוא מוטבע בחותם לשכת הפטנטים ומושלם במספר ובתאריך ההגשה, חנו אישור להגשת הבקשה שפרטיה רשומים לעיל.
This form, impressed with the Seal of the Patent Office and indicating the number and date of filing, certifies the filing of the application the particulars of which are set out above.

* מחק את המיותר
Delete whatever is inapplicable

ANC 42

שיטה להגבלת פעולת תוכנה תוך הגבלת רשיון

Method of restricting software operation within a licensed limitation

Miki Mullor

Julian Valiko

מיקי מולאור

יוליאן וליקו

C.110713.5

ANC 43

Method of Restricting Software Operation within A License Limitation

FIELD OF THE INVENTION

This invention relates to a method and system of identifying and restricting an unauthorized software program's operation.

5 BACKGROUND OF THE INVENTION

Numerous methods have been devised for the identifying and restricting of unauthorized software program's operation. These methods have been primarily motivated by the grand proliferation of illegally copied software, which is engulfing the marketplace. This illegal copying represents
10 billions of dollars in lost profits to commercial software developers.

Software based products have been developed to validate authorized software usage by writing a license signature onto the computer's volatile memory (e.g. hard disk). These products may be appropriate for restricting honest software users, but they are very vulnerable to attack at the hands of
15 skilled system's programmers (e.g. "hackers"). These license signatures are also subject to the physical instabilities of their volatile memory media.

Hardware base products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not

particularly suitable for software that may be sold by downloading (e.g. over the internet).

There is accordingly a need in the art to provide for a system and method that substantially reduce or overcome the drawbacks of hitherto
5 known solutions.

SUMMARY OF THE INVENTION

The present invention relates to a method of restricting software operation within a license limitation. This method strongly relies on the use of
10 a key and of a record, which have been written into the non-volatile memory of a computer.

For a better understanding of the underlying concept of the invention, there follows a specific non-limiting example. Thus, consider a conventional computer having a conventional BIOS module in which a key was embedded
15 at the ROM section thereof, during manufacture. The key constitutes, effectively, a unique identification code for the host computer. It is important to note that the key is stored in a non-volatile portion of the BIOS, i.e. it cannot be removed or modified.

Further, according to the invention, each application program that is to
20 be licensed to run on the specified computer, is associated with a license record; that consists of author name, program name and number of licensed users (for network). The license record may be held in either encrypted or explicit form.

Now, there commences an initial license establishment procedure,
25 where a verification structure is set in the BIOS so as to indicate that the specified program is licensed to run on the specified computer. This is implemented by encrypting the license record (or portion thereof) using said key (or portion thereof) exclusively or in conjunction with other identification

information) as an encryption key. The resulting encrypted license record is stored in another (second) non-volatile section of the BIOS, e.g. E²PROM (or the ROM). It should be noted that unlike the first non-volatile section, the data in the second non-volatile memory may optionally be erased or modified
5 (using E²PROM manipulation commands), so as to enable to add, modify or remove licenses. The actual format of the license may include a string of terms that correspond to a license registration entry (e.g. lookup table entry or entries) at a license registration bureau (which will be further described as part of the preferred embodiment of the present invention).

10 Having placed the encrypted license record in the second non-volatile memory (e.g. the E²PROM), the process of verifying a license may be commenced. Thus, when a program is loaded into the memory of the computer, a so called license verifier application, that is *a priori* running in the computer, accesses the program under question, retrieves therefrom the
15 license record, encrypts the record utilizing the specified unique key (as retrieved from the ROM section of the BIOS) and compares the so encrypted record to the encrypted records that reside in the E²PROM. In the case of match, the program is verified to run on the computer. If on the other hand the sought encrypted data record is not found in the E²PROM database, this
20 means that the program under question is not properly licensed and appropriate application define action is invoked (e.g. informing to the user on the unlicensed status, halting the operation of the program under question etc.)

Those versed in the art will readily appreciate that any attempt to run a
25 program at an unlicensed site will be immediately detected. Consider, for example, that a given application, say Lotus 123, is verified to run on a given computer having a first identification code (k1) stored in the ROM portion of the BIOS thereof. This obviously requires that the license record (LR) of the

application after having been encrypted using k_1 giving rise to $(LR)_{k_1}$ is stored in the E^2 PROM of the first computer.

Suppose now that a hacker attempts to run the specified application in a second computer having a second identification code (k_2) stored in the
5 ROM portion of the BIOS thereof. All or a portion the database contents (including of course $(LR)_{k_1}$) that reside in the E^2 PROM portion in the first computer may be copied in a known *per se* means to the second computer. It is important to note that the hacker is unable to modify the key in the ROM of the second computer to K_1 , since, as recalled, the contents of the ROM is
10 established during manufacture and is practically invariable.

Now, when the application under question is executed in the second computer, the license verifier retrieves said LR from the application and, as explained above, encrypts it using the key as retrieved from the ROM of the second computer, i.e. k_2 giving rise to encrypted license record $(LR)_{k_2}$.
15 Obviously, the value $(LR)_{k_2}$ does not reside in the E^2 PROM database section of the second computer (since it was not legitimately licensed) and therefore the specified application is invalidated. It goes without saying that the data copied from the first (legitimate) computer is rendered useless, since comparing $(LR)_{k_2}$ with the copied value $(LR)_{k_1}$ results, of course, in
20 mismatch.

The example above is given for clarity of explanation only and is by no means binding.

In its broadest aspect, the invention provides for a method of restricting software operation within a license limitation including; for a
25 computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the steps of: selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

An important advantage in utilizing non-volatile memory such as that residing in the BIOS is that the required level of system programming expertise that is necessary to intercept or modify commands, interacting with the BIOS, is substantially higher than those needed for tampering with data
5 residing in volatile memory such as hard disk. Furthermore, there is a much higher cost to the programmer, if his tampering is unsuccessful, i.e. if data residing in the BIOS (which is necessary for the computer's operability) is inadvertently changed by the hacker. This is too high of a risk for the ordinary software hacker to pay. Note that various recognized means for hindering the
10 professional-like hacker may also be utilized (e.g. anti-debuggers, etc.) in conjunction with the present invention.

In the context of the present invention, a "computer" relates to a digital data processor. These processors are found in personal computers, or on one or more processing cards in multi-processor machines. Today, a processor
15 normally include a first non-volatile memory, a second non-volatile memory, and data linkage access to a volatile memory. There are also processors having only one non-volatile memory or having more than two non-volatile memories; all of which should be considered logically as relating to having a first and a second non-volatile memory areas. There are also computational
20 environments where the volatile memory is distributed into numerous physical components, using a bus, LAN, etc.; all of which should logically be considered as being a volatile memory area.

According to the preferred embodiment of the present invention, there is further provided a license authentication bureau which can participate in
25 either or both of:

- (i) establishing the license record in the second non-volatile memory;
- and

(ii) verifying if the key and license record in the non-volatile memory(s) is compatible with the license record information as extracted from the application under question.

The bureau is a telecommunications accessible processor where
5 functions such as formatting, encrypting, and verifying may be performed. Performing these or other functions at the bureau helps to limit the understanding of potential software hackers; since they can not observe how these functions are constructed. Additional security may also be achieved by forcing users of the bureau to register, collecting costs for connection to the
10 bureau, logging transactions at the bureau, etc.

According to one example of using the bureau, setting up a verification structure further includes the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the
15 computer and the license-record's contents from the selected program; forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the encryption key; and transferring, from the bureau to the computer, the encrypted license-record.

According to another example of using the bureau, verifying the
20 program further includes the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license-verification including an identification of the computer, the encrypted license-record for the selected program from the second non-volatile memory, and the
25 licensed-software-program's license-record contents; enabling the comparing at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

The actual key that serves for identifying the computer may be composed of the pseudo-unique key exclusively, or, if desired, in combination

with information, e.g. information related to the registration of the user such as e.g. place, telephone number, user name, license number, etc. In the context of the present invention, a "pseudo-unique" key may relate to a bit string which uniquely identifies each first non-volatile memory. Alternately the

5 "pseudo-unique" key may relate to a random bit string (or to an assigned bit string) of sufficient length such that: there is an acceptably low probability of a successful unauthorized transfer of licensed software between two computers, where the first volatile memories of these two computers have the same key.

10 It should be noted that the license bureau might maintain a registry of keys and of licensed programs that have been registered at the bureau in association with these keys. This registry may be used to help facilitate the formalization of procedures for the transfer of ownership of licensed software from use on one computer to use on another computer.

15 Constructing the key in the manner specified may hinder the hacker in cracking the proposed encryption scheme of the invention, in particular when the establishment of the license record or the verification thereof is performed in the bureau. Those versed in the art will readily appreciate that the invention is by no means bound by the data, the algorithms, or the manner of operation

20 of the bureau. It should be noted that the tasks of establishing and/or verifying a license record may be shared between the bureau and the computer, done exclusively at the computer, or done exclusively at the bureau. The pseudo-unique key length needs to be long enough to hinder encryption attack schemes. The establishing of the key may be done at any time from the

25 non-volatile memory's manufacture until an attempted use of an established license-record in the non-volatile memory. The key is used for encryption or decryption operations associated with license-records. In principle, the manufacturer of the licensed-software-program may specify the

license-record format and therefore different formats may, if desired, be used for respective applications.

According to the preferred embodiment of the present invention, the pseudo-unique key is a unique-identification bit string that is written onto the
5 first non-volatile memory by the manufacturer of the is memory media.

According to one, non-limiting, preferred embodiment of the present invention, the first non-volatile memory area is a ROM section of a BIOS; the second non-volatile memory area is a E²PROM section of a BIOS; and the volatile memory is a RAM e.g. hard disk and/or internal memory of the
10 computer .

The present invention also relates to a non-volatile memory media used as a BIOS of a computer, for restricting software operation within a license limitation, wherein a pseudo-unique key is established.

According to the preferred embodiment of the non-volatile memory
15 media of the present invention, the pseudo-unique key is established in a ROM section of the BIOS.

BRIEF DESCRIPTION OF THE DRAWINGS:

In order to understand the invention and to see how it may be carried
20 out in practice, a preferred embodiment will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic diagram of a computer and a license bureau; and

Fig. 2 is a generalized flow chart of the sequence of operations
25 performed according to one embodiment of the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A schematic diagram of a computer and a license bureau is shown in Figure 1. Thus, a computer processor (1) is associated with input operations (2) and with output operations (3). This computer (processor) internally
5 contains a first non-volatile memory area (4) (e.g. the ROM section of the BIOS), a second non-volatile memory area (5) (e.g. the E²PROM section of the BIOS), and a volatile memory area (6) (e.g. the internal RAM memory of the computer).

The computer processor is in temporary telecommunications linkage
10 with a license bureau (7).

The first non-volatile memory includes a pseudo-random identification key (8), which exclusively or in combination with other information (e.g. user name), is sufficient to uniquely differentiate this first non-volatile memory from all other first non-volatile memories. As specified before, said key
15 constitutes unique identification of the computer.

The second non-volatile memory includes a license-record-area (9) e.g. for the containing of at least one encrypted license-record (e.g. three records 10-12). The volatile memory accommodates a license program (16) having license record fields (13-15) appended thereto. By way of example
20 said fields stand for Application name (e.g. Lotus 123), Vendor name (Lotus inc.), and no of licensed copies (1 for stand alone usage, >1 for number of licensed users for a network application).

Those versed in the art will readily appreciate that the license record is not necessarily bound to continuous fields. In fact, the various license content
25 components of the data record may be embedded in various locations in the application. Any component may, if desired, be encrypted.

Each one of the encrypted license records (10-12) is obtained by encrypting the corresponding license record as extracted from program 16, utilizing for encryption the identification key (8).

In a typical, yet not exclusive, sequence of operation, a transaction/request is sent, by the computer to the bureau. This transaction includes the key (8), the encrypted license-records (10-12), contents from the license program used in forming a license record (e.g. fields 13-15), and other
5 items of information as desired.

The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted license-record with the license-records (10-12). The bureau generates an
10 overlay according to the result of the comparison indication successful comparison, non-critical failure comparison and critical failure comparison.

The bureau returns the overlay which will direct the computer in subsequent operation. Thus, a success overlay will allow the license program to operate. A non-critical failure overlay will ask for additional user
15 interactions. A critical failure overlay will cause permanent disruption to the computer's BIOS operations. Thus, software operation of the program is methodologically according to a license limitation restriction.

Those versed in the art will readily appreciate that the implementation as described with reference to Fig. 1 is by no means binding. Thus, by way of
20 non-limiting example, the bureau, instead of being external entity may form part of the computer.

Attention is now directed to Fig. 2, showing a generalized flow chart of the sequence of operations performed according to one embodiment of the invention.

25 Thus, selecting (17) a program includes the step of: establishing a licensed-software-program in the volatile memory of the computer wherein the licensed-software-program includes contents used to form a license-record. These contents, be they centralize or decentralized, may include terms, identifications, specifications, or limitations related to the

manufacturer of a software product, the distributor of a software product, the purchaser of a software product, a licensor, a licensee, items of computer hardware or components thereof, or to other terms and conditions related to the aforesaid.

- 5 Setting up (18) the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area; and establishing at least one license-record location in the first or the second nonvolatile memory area.

- Establishing a license-record includes the steps of: forming a
10 license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations (e.g. 10-12 in Figure 1).

- Verifying (19) the program includes the steps of: encrypting the
15 licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the first or the second non-volatile memory area, using the key; and comparing the encrypted licensed-software-program's license-record contents with the encrypted license-record in the first or the second non-volatile memory area, or
20 comparing the licensed-software-program's license-record contents with the decrypted license-record in the first or the second non-volatile memory area.

- Acting (20) on the program includes the step of: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency. In this context "non-unity" relates to being unequal
25 with respect to a specific equation (e.g. $A=B+1$); and "insufficiency" relates to being outside of a relational bound (e.g. $A>B+1$). "Restricting the program's operation with predetermined limitations" may include actions such as erasing the software in volatile memory, warning the license applicant/user, placing a fine on the applicant/user through the billing service

charges collected at the license bureau (if applicable), or scrambling sections of the BIOS of the computer (or of functions interacting therewith).

The present invention has been described with a certain degree of particularity but it should be understood that various modifications and
5 alterations may be made without departing from the scope or spirit of the invention as defined by the following claims:

CLAIMS:

1. A method of restricting software operation within a license limitation comprising; for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area; the
5 steps of: selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.
2. A method according to claim 1, further comprising the step of: establishing a license authentication bureau.
- 10 3. A method according to claim 2, wherein setting up a verification structure further comprising the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program;
15 forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the encryption key; and transferring, from the bureau to the computer, the encrypted license-record.
4. A method according to claim 2, wherein verifying the program further comprising the steps of: establishing, between the computer and the
20 bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license-verification including an identification of the computer, the encrypted license-record for the selected program from the second non-volatile memory, and the licensed-software-program's license-record contents; enabling the comparing
25 at the bureau; and transferring, from the bureau to the computer, the result of the comparing.
5. A method according to any of claims 3 or 4 wherein the identification of the computer includes the pseudo-unique key.

6. A method according to claims 1 or 2 wherein selecting a program includes the step of: establishing a licensed-software-program in the volatile memory of the computer wherein said licensed-software-program includes contents used to form a license-record.

5 7. A method according to claims 1 or 2 wherein setting up the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in the first non-volatile memory area; and establishing at least one license-record location in the first or the second nonvolatile memory area.

10 8. A method according to claims 6 and 7 wherein establishing a license-record includes the steps of: forming a license-record by encrypting of the contents used to form a license-record with other predetermined data contents, using the key; and establishing the encrypted license-record in one of the at least one established license-record locations.

15 9. A method according to claims 1 or 2 wherein verifying the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the first or the second non-volatile memory area, using the key; and comparing the encrypted licensed-software-program's license-record
20 contents with the encrypted license-record in the first or the second non-volatile memory area, or comparing the licensed-software-program's license-record contents with the decrypted license-record in the first or the second non-volatile memory area.

10. A method according to any of claims 1 or 9 wherein acting on the
25 program includes the step of: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

11. A method according to claim 1 wherein the first non-volatile memory area is a ROM section of a BIOS.

12. A method according to claim 1 wherein the second non-volatile memory area is a E²PROM section of a BIOS.

13. A method according to claim 1 wherein the volatile memory is a RAM.

5 14. A non-volatile memory media used as a BIOS of a computer, for restricting software operation within a license limitation, wherein a pseudo-unique key is established.

15. A non-volatile memory media according to claim 14 wherein the pseudo-unique key is established in a ROM section of the BIOS.

10

For the Applicants,
REINHOLD COHN AND PARTNERS
By:



1/2

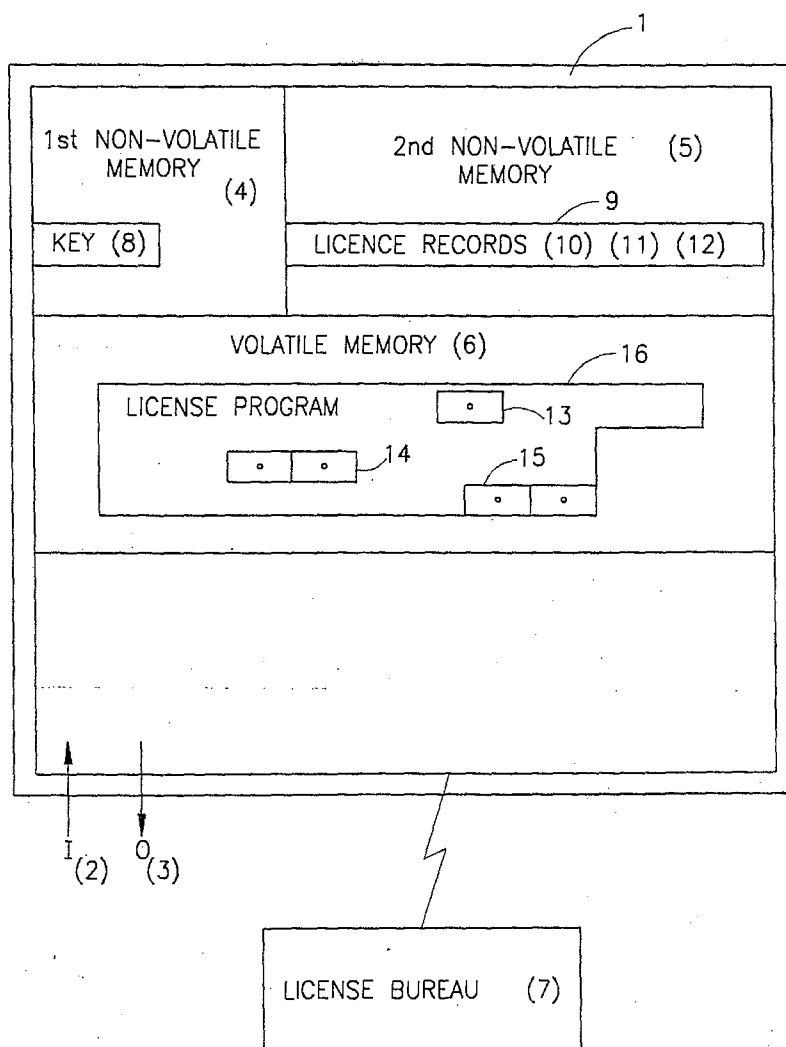


FIG.1

Miki Mullor
Julian Valiko

2 Sheets
Sheet No. 2

2/2

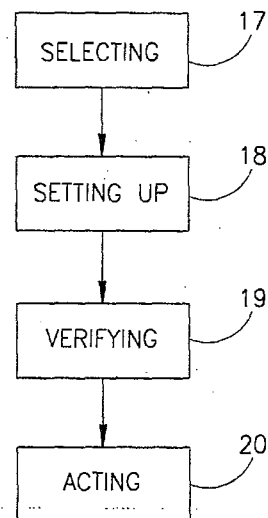


FIG.2

ANC 60



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/164,777 10/01/98 MULLOR

M REINC4237.01

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON DC 20005-3955

TM11/1018

EXAMINER

TRAMMELL, J

ART UNIT

PAPER NUMBER

2161

DATE MAILED: 10/18/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/164,777	MULLOR ET AL.	
	Examiner	Art Unit	
	Calvin L Hewitt II	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1) ☒ Responsive to communication(s) filed on 01 October 1998.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-15 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:

1. ☐ received.

2. ☐ received in Application No. (Series Code / Serial Number) _____

3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

Status of Claims

1. Claims 1-15 have been examined.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-4 and 11-13 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ginter et al U.S. Patent No. 5,892,900.

As per claim 1, Ginter et al teach of a system and method for secure transactions management and electronic rights protection that:

- restricts software operation within a license limitation (column 5, lines 29-41 and column 6, lines 29-65)
- utilizes a computer that has a first non-volatile memory area (column 70, lines 40-65)

, a second non-volatile memory area (column 70, lines 40-65) and a volatile memory area (column 71, lines 12-25)

- provides a means of selecting a program residing in the volatile memory (column 71, lines 25-27 and column 82, lines 12-52)
- sets up a verification structure in the non-volatile memories (column 70, lines 23-53 and column/line 63/67-64/15)
- verifies the program using the structure (column 70, lines 23-53 and column/line 63/67-64/15)
- and acts on the program according to the verification (column 70, lines 23-53 and column/line 63/67-64/15).

As per claim 2, the method and system of Ginter et al provide for a license authorization bureau in the form of a VDE (virtual distribution environment) distributor and/or administrator (column/line 278/40 to 281/44).

As per claim 3, the method and system of Ginter et al discloses a verification method with a license authorization bureau that comprises of:

- a two-way data communication link between said bureau and end-user computer (figure 77)

- a method for establishing end-user rights (column/line 278/40 to 281/44)
- data encryption using keys (column 281, lines 10-22)
- creating a license record from the selected program at the bureau (column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44 and column 15, lines 10-34).

As per claim 4, the method and system of Ginter et al also provides a means of encrypting the license record for the selected program from the second volatile memory (column/line 65/55 to 66/47).

As per claim 6, the method and system of Ginter et al provides a means for establishing a licensed software program. Where said program contains license record data and is found in the volatile memory (column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44, column 15, lines 10-34, figure 8 and column 96, lines 37-41).

As per claim 10, the method and system of Ginter et al provide a means for restricting a program's operation with predetermined limitations if the authorization is invalid (column 279, lines 21-32).

As per claim 11, the method and system of Ginter et al provide for a ROM BIOS (figure 69G and column 70, lines 39-53).

As per claim 12, the method and system of Ginter et al provide for an EEPROM BIOS (figure 69G and column, lines 54-65).

As per claim 13, the method and system of Ginter et al provide for RAM (column 71, lines 16-25).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al U.S. Patent No. 5,892,900 as applied to claim 3 above, and further in view of Goldman et al 5,684,951. As per claim 3, Ginter et al disclose a verification structure. In addition, Ginter et al disclose a system and method for secure transaction management and electronic rights protection utilizing encryption keys (column 206, lines 57-65).

However, Ginter et al do not disclose pseudo unique keys. Goldman et al teach of a method and system for user authorization over a multi-user computer system. In said system, a user has valid id but lacks an authorized means of access. Using pseudo unique keys (abstract, lines 19-21), said user can validate said means of access. Therefore, it would have been obvious to a person of ordinary skill in the art of encryption, to incorporate pseudo unique keys into the system of Ginter et al.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al U.S. Patent. 5,892,900 in view of Goldman et al U.S Patent 5,684,951. Ginter et al teach of a method and system for electronic rights protection comprising of volatile memory, non-volatile memory, license records location and licensed software programs (see section 2 rejections pertaining to claims 1, 3, 4 and 6). Ginter et al also use encryption keys (column 206, lines 57-65).

However, Ginter et al do not make use of pseudo unique keys in their system. Goldman et al teach of a method and system for user authorization over a multi-user computer system through the use of pseudo unique keys (abstract, lines 19-21). Therefore, it would have been obvious to a person of ordinary skill in the art of the time the invention was made to utilize pseudo unique keys in the system of Ginter et al.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al U.S. Patent No. 5,892,900 as applied to claim 6 above, and further in view of Goldman et al U.S. Patent 5,684,951. Ginter et al disclose a method for authoring content that includes encryption keys (column/line 282/ 33 to 283/34). As per claim 6, Ginter et al disclose a method for selecting a licensed software program from the volatile memory to form a license record. However, Ginter et al do not use pseudo unique keys for purposes of encryption. Goldman et al teach of a method and system for user authorization over a

multi-user computer system through the use of pseudo unique keys (abstract, lines 19-21). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use pseudo unique keys.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al U.S. Patent No. 5,892,900 in view of Goldman et al U.S Patent 5,684,951 and Richardson, III U.S. Patent No. 5,490,216. Ginter et al teach of a system and method for encrypting and decrypting of licensing related communications between end-user(s) and a license authorization bureau (column/line 282/33 to 283/34 and 168/25 to 169/40). Ginter et al also teach of volatile and non-volatile memory areas used in conjunction with licensed software programs (columns 70-72, column 82, lines 12-52, column/line 278/40 to 281/44, column 15, lines 10-34, figure 8 and column 96, lines 37-41). However, Ginter et al do not disclose pseudo unique keys. Goldman et al provide for the use of pseudo

unique keys (abstract, 21-23). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, to incorporate pseudo unique keys into the system of Ginter et al.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Richardson, III teaches a system for software protection

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Calvin Loyd Hewitt II whose telephone number is (703) 305-0625. The examiner can normally be reached on Monday-Friday from 8:30 AM – 5:00 PM.

Application/Control Number: 09/164,777
Art Unit: 2161

Page 10

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell, can be reached at (703) 305-9768.

Any response to this action should be mailed to"

Commissioner of Patents and Trademarks

C/o Technology Center 2700

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or:

(703) 308-5397 (for informal or draft communications, please label

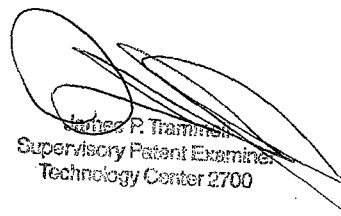
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Calvin Loyd Hewitt II

October 3, 2000


James P. Trammell
Supervisory Patent Examiner
Technology Center 2700

ANC 71

Notice of References Cited				Application/Control		Applicant(s)/Patent Under Reexamination	
				09/164,777		MULLOR ET AL.	
				Examiner		Art Unit	
				Calvin L Hewitt II		2161	
Page 1 of 1							

U.S. PATENT DOCUMENTS								
*		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	DOCUMENT SOURCE **	
							APS	OTHER
☐	A	5,892,900	Apr. 1999	Ginter et al	395	186	☐	☐
☐	B	5,684,951	Nov. 1997	Goldman et al	395	188.01	☐	☐
☐	C						☐	☐
☐	D						☐	☐
☐	E						☐	☐
☐	F						☐	☐
☐	G						☐	☐
☐	H						☐	☐
☐	I						☐	☐
☐	J						☐	☐
☐	K						☐	☐
☐	L						☐	☐
☐	M						☐	☐

FOREIGN PATENT DOCUMENTS									
*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS	DOCUMENT SOURCE **	
								APS	OTHER
☐	N							☐	☐
☐	O							☐	☐
☐	P							☐	☐
☐	Q							☐	☐
☐	R							☐	☐
☐	S							☐	☐
☐	T							☐	☐

NON-PATENT DOCUMENTS				
*		DOCUMENT (Including Author, Title Date, Source, and Pertinent Pages)	DOCUMENT SOURCE **	
			APS	OTHER
☐	U		☐	☐
☐	V		☐	☐
☐	W		☐	☐
☐	X		☐	☐

*A copy of this reference is not being furnished with this Office action. (See Manual of Patent Examining Procedure, Section 707.05(a).)

**APS encompasses any electronic search, i.e. text, image, and Commercial Databases.

U.S. Patent and Trademark Office
PTO-892 (Rev. 03-98)

Notice of References Cited

Part of Paper No. 3

ANC 72



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: J. Trammell
Group Unit: 2161

In Re PATENT APPLICATION of

Applicant : Miki MULLOR et al.)
Application No. : 09/164,777)
Filed : October 1, 1998)
For : METHOD OF RESTRICTING)
SOFTWARE OPERATION WITHIN)
A LICENSED LIMITATION)
Attorney Docket : 32130-142820)

RECEIVED

NOV 20 2000

Technology Center 2100

LETTER REQUESTING
NEW ACTION

November 17, 2000

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The Examiner's Action of October 18, 2000 has been received. Because the Action is ambiguous as to the nature of the rejection, omits listing cited references on the form PTO-892 and fails to include copies of the references applied against at least claim 9 with the Action, it is requested that a new Action be issued with a new response date extending three-months from date of the new Action.

Specifically, the summary of the Action indicates claims 1-15 are rejected. However, in the body of the Action, only claims 1-13 are rejected. Claims 13 and 14 do not have any substantive rejections applied against them. It is also noted that in the first rejection on page 2, claims 1-4 and 11-13 are mentioned in the first part of the rejection, however, claims 6 and 10 also appear to be rejected in the narrative of this rejection.

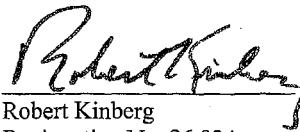
ANC 73

The Richardson U.S. Patent No. 5,490,216 applied against claim 9 is not included on the form PTO-892 and no copy of this reference was supplied with the Action.

Finally, the Action fails to indicate receipt of the certified copy of the Priority Document which was filed with the Application on October 1, 1998. It is requested that in the new Action the Examiner acknowledge receipt of the Priority Document.

This letter is NOT a response to the pending Action but rather a request for issuance of a substitute Action with a new response date.

Respectfully submitted,



Robert Kinberg
Registration No. 26,924
VENABLE
Post Office Box 34385
Washington, DC 20005-3917
Telephone: (202) 962-4800
Direct dial: (202) 962-4014
Telefax: (202) 962-8300

RK/tah/trt

DC2DOCS1\251666



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/164,777 10/01/98 MULLOR

REINC4237.01

EXAMINER

TM02/1220

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON DC 20005-3955

HEWITT C
ART UNIT PAPER NUMBER

2161

DATE MAILED:

12/20/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/164,777	MULLOR ET AL.	
	Examiner	Art Unit	
	Calvin L Hewitt II	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 01 December 2000.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-15 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☒ Certified copies of the priority documents have been received in Application No. 2.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)	18) ☐ Interview Summary (PTO-413) Paper No(s). _____
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	19) ☐ Notice of Informal Patent Application (PTO-152)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	20) ☐ Other: _____

Status of Claims

1. Claims 1-15 have been examined.

Response to Applicants' Request

2. Applicant's desire for clarity regarding the Examiner's Office Action dated October 18, 2000 has been noted. In response, the Examiner has written another Office Action that the Examiner believes speaks directly to the issues raised by the Applicants.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-4, 6 and 10-13 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ginter et al U.S. Patent No. 5,892,900.

As per claim 1, Ginter et al teach of a system and method for secure transactions management and electronic rights protection that:

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- restricts software operation within a license limitation (column 5, lines 29-41; column 6, lines 29-65; column 7, lines 45-57)
- utilizes a computer that has a first non-volatile memory area (column 70, lines 40-65), a second non-volatile memory area (column 70, lines 40-65) and a volatile memory area (column 71, lines 12-25)
- provides a means of selecting a program residing in the volatile memory (column 71, lines 25-27 and column 82, lines 12-52)
- sets up a verification structure in the non-volatile memories (column 70, lines 23-53 and column/line 63/67-64/15)
- verifies the program using the structure (column 70, lines 23-53 and column/line 63/67-64/15)
- and acts on the program according to the verification (column 70, lines 23-53 and column/line 63/67-64/15).

As per claim 2, the method and system of Ginter et al provide for a license authorization bureau in the form of a VDE (virtual distribution environment) distributor and/or administrator (column/line 278/40 to 281/44).

As per claim 3, the method and system of Ginter et al discloses a verification method with a license authorization bureau that comprises of:

- a two-way data communication link between said bureau and end-user computer (figure 77)
- a method for establishing end-user rights (column/line 278/40 to 281/44)
- data encryption using keys (column 281, lines 10-22)
- creating a license record from the selected program at the bureau (column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44 and column 15, lines 10-34).

As per claim 4, the method and system of Ginter et al also provides a means of encrypting the license record for the selected program from the second volatile memory (column/line 65/55 to 66/47).

As per claim 6, the method and system of Ginter et al provides a means for establishing a licensed software program. Where said program contains license record data and is found in the volatile memory (column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44, column 15, lines 10-34, figure 8 and column 96, lines 37-41).

As per claim 10, the method and system of Ginter et al provide a means for restricting a program's operation with predetermined limitations if the authorization is invalid (column 279, lines 21-32).

As per claim 11, the method and system of Ginter et al provide for a ROM BIOS (figure 69G and column 70, lines 39-53).

As per claim 12, the method and system of Ginter et al provide for an EEPROM BIOS (figure 69G and column 70, lines 54-65).

As per claim 13, the method and system of Ginter et al provide for volatile RAM (column 71, lines 22-25).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al U.S. Patent No. 5,892,900 as applied to claims 1, 3, 4 and 6 above, and further in view of Goldman et al 5,684,951.

As per claim 5, Ginter et al disclose a verification structure. In addition, Ginter et al disclose a system and method for secure transaction management and electronic rights protection utilizing encryption keys (column 206, lines 57-65).

However, Ginter et al do not disclose pseudo unique keys. Goldman et al teach of a method and system for user authorization over a multi-user computer system. In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key (abstract, lines 19-21) that is derived from

a user id and the current IP address. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. Therefore, it would have been obvious to a person of ordinary skill in the art of encryption, to incorporate pseudo unique keys into the system of Ginter et al.

As per claim 7, Ginter et al teach of a method and system for electronic rights protection comprising of volatile memory, non-volatile memory, license records location and licensed software programs (column 5, lines 29-41; column 6, lines 29-65; column 15, lines 10-34; column/line 63/67-64/15; column/line 65/55-66-47; column 70, lines 23-65; column 71, lines 12-27; column 96, lines 37-41; column/line 278/40-281/44). Ginter et al also use encryption keys (column 206, lines 57-65). However, Ginter et al do not make use of pseudo unique keys in their system. Goldman et al teach of a method and system for user authorization over a multi-user computer system through the use of pseudo unique keys (abstract, lines 19-23). In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key that is derived from a user id and the current IP address. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. Therefore, it would have been obvious to a person of ordinary skill in the art of the time the invention was made to utilize pseudo unique keys in the system of Ginter et al.

As per claim 8, Ginter et al disclose a method for authoring content that includes encryption keys (column/line 282/ 33 to 283/34). Ginter et al disclose a method for selecting a licensed software program from the volatile memory to form a license record. However, Ginter et al do not use pseudo unique keys for purposes of encryption. Goldman et al teach of a method and system for user authorization over a multi-user computer system through the use of pseudo unique keys (abstract, lines 19-23). In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key that is derived from a user id and the current IP address. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use pseudo unique keys.

As per claim 9, Ginter et al teach of a system and method for encrypting and decrypting of licensing related communications between end-user(s) and a license authorization bureau (column/line 282/33 to 283/34 and 168/25 to 169/40). Ginter et al also teach of volatile and non-volatile memory areas used in conjunction with licensed software programs (columns 70-72, column 82, lines 12-52, column/line 278/40 to 281/44, column 15, lines 10-34, figure 8 and column 96, lines 37-41). However, Ginter et al do not disclose pseudo unique keys. Goldman et al provide for the use of pseudo unique keys (abstract, 19-23). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, to incorporate pseudo unique keys into the system of Ginter et al.

6. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al, U.S. Patent No. 5,892,900 in view of Goldman et al U.S. Patent No. 5,684,951.

As per claims 14 and 15, Ginter et al. disclose a rights management system for restricting software operation (column 5, lines 29-41; column 6, lines 29-65; column 7, lines 45-57). Further, in order to execute said rights management system, Ginter et al. disclose read only memory (ROM) that may be used store encryption key information. Ginter et al. also disclose ROM components, such as masked ROM and EEPROM, that store permanent portions of code that interface with the encryption and decryption engine (column/line 70/54-71/11). Recall, Ginter et al utilize encryption keys as a method of encryption (column/line 67/48-68/16). However, Ginter et al. do not disclose pseudo unique keys. Goodman et al disclose pseudo unique keys (abstract, lines 19-23) and provides for the storage in a memory unit (column 8, lines 11-12). In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key that is derived from a user id and the current IP address. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. Therefore, it would have been obvious

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Richardson, III teaches a system for software protection

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Calvin Loyd Hewitt II whose telephone number is (703) 305-0625. The examiner can normally be reached on Monday-Friday from 8:30 AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell, can be reached at (703) 305-9768.

Any response to this action should be mailed to"

Commissioner of Patents and Trademarks

C/o Technology Center 2700

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or:

(703) 308-5397 (for informal or draft communications, please label

Application/Control Number: 09/164,777
Art Unit: 2161

Page 10

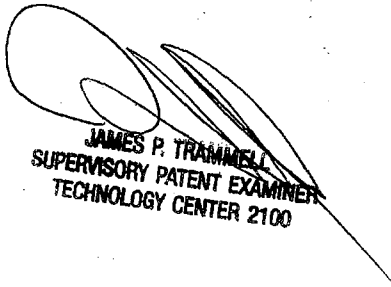
“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be
directed to the Group receptionist whose telephone number is (703) 305-3900.

Calvin Loyd Hewitt II

December 4, 2000


JAMES P. TRAMMELL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

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Notice of References Cited				Application/Control No.		Applicant(s)/Patent Under Reexamination			
				09/164,777		MULLOR ET AL.			
				Examiner		Art Unit			
				Calvin L Hewitt II		2161			
Page 1 of 1									
U.S. PATENT DOCUMENTS									
*		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	DOCUMENT SOURCE **		
							APS	OTHER	
☐	A	5,892,900	Apr. 1999	Ginter et al.	395	186	☐	☐	
☐	B	5,684,951	Nov. 1997	Goodman et al.	395	188.01	☐	☐	
☐	C	5,490,216	Feb. 1996	Richardson III	380	4	☐	☐	
☐	D						☐	☐	
☐	E						☐	☐	
☐	F						☐	☐	
☐	G						☐	☐	
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NON-PATENT DOCUMENTS									
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☐	W						☐	☐	
☐	X						☐	☐	

*A copy of this reference is not being furnished with this Office action. (See Manual of Patent Examining Procedure, Section 707.05(a).)

**APS encompasses any electronic search i.e. text, image, and Commercial Databases.

U.S. Patent and Trademark Office

PTO-892 (Rev. 03-98)

Notice of References Cited

Part of Paper No. 5

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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

Applicants : Miki MULLOR et al.

Appln. No. : 09/164,777

Filed : October 1, 1998

For : METHOD OF RESTRICTING
SOFTWARE OPERATION WITHIN
A LICENSED LIMITATION

Group Art Unit : 2161

Examiner : J. Trammell

Atty. Dkt. : 32130-142820

Assistant Commissioner for Patents
Washington, D.C. 22031

Customer No.



26694

PATENT TRADEMARK OFFICE

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MAY 23 2001

Technology Center 2100

AMENDMENT

Sir:

REQUEST FOR EXTENSION OF TIME

Please extend the period for responding to the Office Action dated December 20, 2000 by two months so that the due date expires May 21, 2001. The requisite extension fee of \$195.00 under 37 C.F.R. 1.17 (a) (1) is attached. Should no check be attached, please charge our Deposit Account 22-0261. Please also deduct any additional fees due or credit any overage to the same account.

Responsive to the Office Action dated December 20, 2000, please amend the application as follows:

IN THE SPECIFICATION

Page 1, please rewrite paragraph 2 as follows:

[Handwritten signature]

05/22/2001 09:16:47 00000001 09164777 195.00 DP
01-EC-217

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A1 Numerous methods have been devised for the identifying and restricting of an unauthorized software program's operation. These methods have been primarily motivated by the grand proliferation of illegally copied software, which is engulfing the marketplace. This illegal copying represents billions of dollars in lost profits to commercial software developers.

Page 1, please rewrite paragraph 1 as follows:

A2 Hardware based products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (e.g. over the internet).

Page 9, please rewrite paragraph 3 as follows:

A3 The second non-volatile memory includes a license-record-area (9) e.g. which contains at least one encrypted license-record (e.g. three records 10-12). The volatile memory accommodates a license program (16) having license record fields (13-15) appended thereto. By way of example said fields stand for Application names (e.g. Lotus 123), Vendor name (Lotus inc.), and number of licensed copies (1 for stand alone usage, >1 for number of licensed users for a network application).

Page 9, please rewrite paragraph 4 as follows:

A4 Those versed in the art will readily appreciate that the license record is not necessarily bound to continuous fields. In fact, the various license content components of the data record may be embedded in various locations in the application. Any component may, if desired, be encrypted.

96 A
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Page 9 and continuing on page 10, please rewrite paragraph 7 as follows:

The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted license-record with the license-record (10-12). The bureau generates an overlay according to the result of the comparison indicating successful comparison, non-critical failure comparison and the critical failure comparison.

IN THE CLAIMS:

Please amended the claims as follows:

1. (Amended) A method of restricting software operation within a license for use with a computer including a first, non erasable, non-volatile memory area, a second, non-erasable non-volatile memory area, and a volatile memory area; the first non volatile memory accomodates data that includes unique key; the method comprising the steps of:
 - selecting a program residing in the volatile memory,
 - setting up a verification structure in the second non-volatile memory , the verification structure accomodates data that includes at least one license record,
 - verifying the program using at least said verification structure, and
 - acting on the program according to the verification.

Please add the following new claims:

16. (New) The method according to Claim 1, wherein the unique key includes a pseudo-unique key.

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Page 9 and continuing on page 10, please rewrite paragraph 7 as follows:

AS
The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted license-record with the license-record (10-12). The bureau generates an overlay according to the result of the comparison indicating successful comparison, non-critical failure comparison and the critical failure comparison.

IN THE CLAIMS:

Please amended the claims as follows:

- SUB B1
1. (Amended) A method of restricting software operation within a license for use with a computer including a first, non erasable, non-volatile memory area, a second, non-erasable non-volatile memory area, and a volatile memory area; the first non-volatile memory accommodates data that includes unique key; the method comprising the steps of:
- selecting a program residing in the volatile memory,
- setting up a verification structure in the second non-volatile memory, the verification structure accommodates data that includes at least one license record,
- verifying the program using at least said verification structure, and
- acting on the program according to the verification.

Please add the following new claims:

- SUB B1
16. (New) The method according to Claim 1, wherein the unique key includes a pseudo-unique key.
- 17
- a

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17. (New) The method according to Claim 1, wherein said step of setting up a verification record, including the license record, includes encrypting a license record data in said program using at least said key.

18. (New) The method according to Claim 1, wherein said step of verifying the program includes decrypting the license record data accommodated in said second non volatile memory using at least said unique key.

19. (New) The method according to Claim 1, wherein said step of verifying the program includes encrypting the license record that is accommodated in said program using at least said unique key.

20. (New) A method for restricting access to a software program, comprising:
storing a pseudo-unique key in a first non-volatile memory area of a computer;
selecting a software program residing in a volatile memory area of the computer;
extracting license information from the software program;
encrypting the license information using the pseudo-unique key;
storing the encrypted pseudo-unique key in a second non-volatile memory area of the computer;
verifying the software program using based on the encrypted pseudo-unique key; and
acting on the software program based on the verification.

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REMARKS

Claims 1-15 stand rejected. By this Amendment, claim 1 has been amended, claims 14 and 15 have been canceled and new claims 16-20 have been added to the application. Claims 1-13 and 16-20 are therefore pending. It is believed that each of the pending claims define an invention which is novel and unobvious over the cited art. Favorable reconsideration of this case is respectfully requested.

The specification has been reviewed and edited to eliminate minor inaccuracies and typographical errors.

The present invention provides a method and system for identifying and restricting operation of an unauthorized software program. In a preferred embodiment, a key resides in a first non-volatile part of a computer's memory. The non-volatile memory being typically, but not necessarily, a stand alone module which is not erasable and therefore cannot be modified (see the present specification, page 9, lines 3 to 7). A verification structure is formed to include one or more license records, described below, and resides in a second non-volatile part of the memory, (see the present specification, page 9, lines 8 to 10). The second non-volatile part is erasable and therefore license data in the verification structure can be modified. For example, license data may be added or modified as required, for example, when new licenses are added or expire. The license records are obtained by encrypting license records extracted from the software program with the key stored in the first non-volatile part of the computer's memory, page 9 lines 19 to 21. The key may be of many possible variants (see, for example, the options elaborated in the bridging paragraph between pages 6 and 7 of the specification). The key may also be used for encryption of license record or decryption of encrypted license record all as required and appropriate (see, e.g. page 7 lines 20, 21). Moreover, the contents of the license record is very flexible (see e.g. page 10 lines 17 to 25). The specification explains other advantages of the

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invention in more detail.

Claims 1-4, 6 and 10-13 have been rejected under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent No. 5,892,900 to Ginter et al.

Ginter et al. do not anticipate the present invention as they do not disclose, among other things, setting up a verification structure and verifying the program using the verification structure as recited in the rejected claims.

Ginter et al. provide a system and method for secure electronic transaction management and electronic rights protection. Ginter's method provides "machine bound" delivery of content or software through what they call "Stationary Object" (col. 136, lines 64-66 and Fig 18). A stationary object is an object bound to a specific machine. The main security measure used to protect the content of a "Stationary Object" from illegal use is to encrypt it according to the target's unique key (col. 137, lines 45-50).

"For example, a container that is bound by its control to a specific VDE node is called a "stationary Object (see Fig 18)" (col. 136, lines 64-66). "Fig 18 shows an example of a "stationary object" structure 850 provided by the preferred embodiment. "Stationary Object" structure is intended to be used only at specific VDE electronic appliance/installations that have received explicit permissions to use one or more portions of the stationary object..." (col. 137, lines 23-28)

"This private body (method) section 806 is preferably encrypted using one or more private body keys contained in the separate permissions record 808. The data blocks 812 contain content (information or administrative) that may be encrypted using one or more content keys also provided in permissions record 808."

Accordingly, in Ginter et al., software distributed through a stationary object is encrypted for the specific machine therefor "bound" to it. "Objects may be classified in one sense based on

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whether the protection information is bound together with the protected information" (Ginter, col. 136, line 62).

Consequently, this method suffers from the deficiency that it is incompatible with free "out of channel" or "retail channel" distribution. In the latter mode of operation, it is often desired to broadcast a single version of the software to all the subscribers, rather than a machine bound (and obviously different) version for each subscriber that is required by Ginter et al. In other words, the "Stationary Object" aspect of Ginter has the shortcoming, among others, that it cannot support a business model where the distributor doesn't know the final target machine. Therefore, the system and method will not be able to freely distribute the software, such as happens in retail and software companies that ships millions of copies.

Ginter itself acknowledges that the problem with "Stationary Objects" therefore suggests a second method named "Traveling Objects" (col. 136, line 66 - col.137, line 3, and fig. 19). A "Traveling Object" is an object that contains the information needed to use its content: "a container that is not bound by its control information to a specific VDE node but rather carries sufficient control and permissions to permit its use, in a whole or in part, at any of several sites called a "Traveling Object" (Ginter, col. 136, line 66 - col. 137, line 3). A traveling object allows shipping the content to unknown destinations by encrypting the content with the same key again and again. However, Ginter uses an encryption technique in the "Traveling Object" feature in which the key is incorporated in the distributed objects. Ginter acknowledge the shortcomings of this solution to wit:

"In the case of a "traveling object", content owners may distribute information with some or all of the key blocks 810 included in the object 300 in which the content is encapsulated. Putting keys in distributed objects 300 increases the exposure to attempts to defeat security mechanisms by breaking or cryptanalyzing the encryption algorithm with which the private header is protected (e.g., by determining the key for the header's encryption). This breaking of security would normally require considerable skill and time, but if broken, the

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algorithm and key could be published so as to allow large numbers of individuals who possess objects that are protected with the same key(s) and algorithm(s) to illegally use protected information. (Col. 139, lines 38 to 50)."

Ginter admits that this solution can thus be used only with limited type of software which is not commercially valuable, to wit:

"As a result, placing keys in distributed objects **300** may be limited to content that is either "time sensitive" (has reduced value after the passage of a certain period of time), or which is somewhat limited in value, or where the commercial value of placing keys in objects (for example convenience to end-users, lower cost of eliminating the communication or other means for delivering keys and/or permissions information and/or the ability to supporting objects going "out-of channel") exceeds the cost of vulnerability to sophisticated hackers. (Col. 139, lines 50 to 59)."

The present invention differs from and overcomes the deficiencies associated with the stationary object and traveling object methods described in Ginter et al. In the present invention, a unique key is stored in the first non-volatile memory of the computer. A software program in the volatile memory of the computer is selected. A license record is extracted from the software program and encrypted using the unique key stored in the computer (see new independent claim 20). Thus, the software program is not machine bound as is required by the stationery object method, nor is the same key used over and over to encrypt the software as is the case with the traveling object. In the present method, the verification structure is formed by using a unique key for each computer and license record information in the software.

Moreover, in col. 70, line 23 – col. 71, line 25 Ginter et al. describe the architecture as add-on hardware which is named "SPU"(col. 63, line 66 – col. 64, line 15). Col. 64, lines 16-21 explicitly detail the fact that the SPU is a hardware add-on, not part of the PC. In col. 70 Ginter et al. describes the memory architecture for the SPU and uses terms taken from the PC engineering world. However, this is not referring to those actual PC components which name is used in their design.



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In view of the above, it is clear that Ginter et al do not describe the step of setting up a verification structure. The portions of Ginter et al. referred to by the Examiner all describe the elements of the proprietary hardware of Ginter et al. These portions of Ginter et al. do not describe setting the verification structure in memory, they describe basic functionality of a common CPU that loads code to memory and executes it.

Furthermore, it is clear that Ginter et al. do not describe the step of verifying the program using the verification structure. There is no mention whatsoever in Ginter et al. in col. 70, lines 23-53 and col. 63, line 67 - col. 64, line 15 referred to by the Examiner of a process where a software program verifies its authenticity using a license (verification structure) stored in the second volatile non-volatile memory. The functionality described in these portions of Ginter et al. is the different functionality that add-on hardware, referred to as SPU, can perform. There no specific discussion as to how the functionality is performed and whether it is actually has something to do with protecting software.

In contrast to Ginter et al., the present invention provides a system and method which not only enables free distribution of the software (such as happens in retail stores, and software companies that ship millions of copies), that overcomes the problems with the stationary object in Ginter et al., but also does not suffer from the limitations of incorporating the key in the distributed data as is the case with the traveling object of Ginter et al. Moreover, the steps of setting up a verification structure and using that structure for verification are clearly recited in the rejected claims

For example, independent claim 1 recites a method of restricting software operation within a license limitation. The method is useful for a computer including a first, non-erasable, non-volatile memory area, a second, erasable, non-volatile memory area, and a volatile memory area. The first non-volatile memory accommodates data that includes unique key. According to

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the method of the invention, a program residing in the volatile memory is selected. A verification structure is set up in the second non-volatile memory. The verification structure accommodates data that include at least one license record. The program is verified using at least the verification structure. Based on the verification, the program is acted on accordingly.

Additionally, new independent claim 20 recites additional features not disclosed in Ginter et al. In claim 20, a method for restricting access to a software program is defined. The method includes storing a pseudo-unique key in a first non-volatile memory area of a computer. A software program residing in a volatile memory area of the computer is selected. License information is extracted from the software program. The license information is encrypted using the pseudo-unique key. The encrypted pseudo-unique key is stored in a second non-volatile memory area of the computer. The software program is verified using based on the encrypted pseudo-unique key and the software program is acted on based on the verification.

Thus, in the method recited in claim 20, license information is extracted from the software program and encrypted using a key stored on the computer. Applicants review of the cited references did not reveal any description of extracting information from a program, encrypting the information using a key stored on the computer, and storing the encrypted information on the computer. There is no description in the cited references of the steps of "extracting license information from the software program" and "encrypting the license information using the pseudo-unique key" as is recited in new claim 22.

No claim recitation can be ignored in determining anticipation. See Pac-Tex, Inc. v. Amerace Corp., 14 U.S.P.Q.2d 187, (Fed. Cir. 1990). Anticipation requires the disclosure, in a prior art reference, of each and every recitation as set forth in the claims. See Titanium Metals Corp. v. Banner, 227 U.S.P.Q. 773 (Fed. Cir. 1985), Orthokinetics, Inc. v. Safety Travel Chairs,

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U.S. Application No.: 09/164,777

Inc. 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986), and Akzo N.V. v. U.S. International Trade Commissioner, 1 U.S.P.Q.2d 1241 (Fed. Cir. 1986).

There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. 102. See Scripps Clinic and Research Foundation v. Genentech, Inc., 18 U.S.P.Q.2d 1001 (CAFC, 1991) and Studiengesellschaft Kohle GmbH v. Dart Industries, 220 U.S.P.Q. 841 (CAFC, 1984).

In view of the above discussion, it is clear that the cited reference does not teach each and every element recited in the claims as required by 35 U.S.C. 102(e). Therefore, the withdrawal of the rejection of claims 1-4, 6 and 10-14 under 35 U.S.C. 102(e) is respectfully requested.

Claims 5 and 7-9 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al. in view of Goldman et al.

Claims 5 and 7-9 depend from independent claim 1 and would be patentable for at least the reasons discussed above regarding independent claim 1.

Goldman et al. do not supplement Ginter et al. to teach or suggest the features as recited in the rejected claims.

Claims 14 and 15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al. in view of Goldman et al.

Claims 14 and 15 have been canceled, rendering this rejection moot.

In view of the above discussion, it is clear that the cited references, taken alone or in combination, do not render the present invention obvious. Therefore the withdrawal of this rejection is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

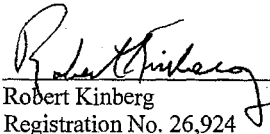
Amendment
U.S. Application No.: 09/164,777

In view of the foregoing, reconsideration and allowance of this application are believed in order, and such action is earnestly solicited.

The Commissioner is authorized to charge any fee necessitated by this Amendment to our Deposit Account No. 22-0261.

Respectfully submitted,

VENABLE, Attorneys at Law



Robert Kinberg
Registration No. 26,924
P.O. Box 34385
Washington, D.C. 20043-9998
Telephone 202-962-4800
Telefax 202-962-8300

RK/JAK/lrh
#289169



VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE SPECIFICATION

Page 1, please rewrite paragraph 2 as follows:

Numerous methods have been devised for the identifying and restricting of an unauthorized software program's operation. These methods have been primarily motivated by the grand proliferation of illegally copied software, which is engulfing the marketplace. This illegal copying represents billions of dollars in lost profits to commercial software developers.

Page1, please rewrite paragraph 3 as follows:

Hardware based products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (e.g. over the internet).

Page 9, please rewrite paragraph 3 as follows:

The second non-volatile memory includes a license-record-area (9) e.g. ~~for the containing~~ of which contains at least one encrypted license-record (e.g. three records 10-12). The volatile memory accommodates a license program (16) having license record fields (13-15) appended thereto. By way of example said fields stand for Application names (e.g. Lotus 123), Vendor name (Lotus inc.), and ~~no number~~ of licensed copies (1 for stand alone usage, >1 for number of licensed users for a network application).

Page 9, please rewrite paragraph 4 as follows:

Those versed in the art will readily appreciate that the license record is not necessarily bound to ~~continues continuous~~ fields. In fact, the various license content components of the data

Application No.: 09/164,777

record may be embedded in various locations in the application. Any component may, if desired, be encrypted.

Page 9 and continuing on page 10, please rewrite paragraph 7 as follows:

The bureau forms the proposed license-record from the contents, encrypts (utilizing predetermined encryption algorithm) the so formed license-record using the key (8), and compares the so formed encrypted license-record with the license-record (10-12). The bureau generates an overlay according to the result of the comparison ~~indication~~ indicating successful comparison, non-critical failure comparison and the critical failure comparison.

IN THE CLAIMS:

Please amended the claims as follows:

1. (Amended) A method of restricting software operation within a license ~~limitation comprising: for use with a computer including having a first, non erasable, non-volatile memory area, a second, non-erasable non-volatile memory area, and a volatile memory area; the first non volatile memory accomodates data that includes unique key; the method comprising the steps of:~~

selecting a program residing in the volatile memory.

setting up a verification structure in the second non-volatile memory memories, the verification structure accommodates data that includes at least one license record.

verifying the program using at least said verification structure the structure, and

acting on the program according to the verification.

Please add the following new claims:

Q

Application No.: 09/164,777

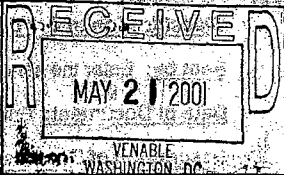
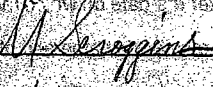
16. (New) The method according to Claim 1, wherein the unique key includes a pseudo-unique key.

17. (New) The method according to Claim 1, wherein said step of setting up a verification record, including the license record, includes encrypting a license record data in said program using at least said key.

18. (New) The method according to Claim 1, wherein said step of verifying the program includes decrypting the license record data accommodated in said second non volatile memory using at least said unique key.

19. (New) The method according to Claim 1, wherein said step of verifying the program includes encrypting the license record that is accommodated in said program using at least said unique key.

20. (New) A method for restricting access to a software program, comprising:
storing a pseudo-unique key in a first non-volatile memory area of a computer;
selecting a software program residing in a volatile memory area of the computer;
extracting license information from the software program;
encrypting the license information using the pseudo-unique key;
storing the encrypted pseudo-unique key in a second non-volatile memory area of the computer;
verifying the software program using based on the encrypted pseudo-unique key; and
acting on the software program based on the verification.

FORM CD-76 (REV. 4-89) (PRECEDE BY) DAO 207-2		Receipt Number RR131 533 435 US	
CLASSIFIED MATERIAL RECEIPT		Classification of Document SECRET	
Sent By: (Name, Unit, Address) COMMISSIONER OF PATENTS US PTO WASHINGTON, D.C. 20231		Date of Document: 05-18-01	
Description of Document: QUAYLE (S.N. 09/552,520-1 of 2 copies 2 pages)			
 			
Date Transmitted: 05-18-01	To: (Name and address) VENABLE BAETJER HOWARD & CIVILETTI LLP 1201 NEW YORK AVENUE NW SUITE 1000 WASHINGTON DC 20005-3917	Received by: (Signature) 	Date Received: 5.21.01
USCOMM-DC 89-1987			

ANC 103



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Washington, D.C. 20231

[Handwritten signature]

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/164,777 10/01/98 MULLOR

M REINC4237.01

EXAMINER

TM01/0622

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON DC 20005-3955

HEWITT ILLC

ART UNIT PAPER NUMBER

2161

DATE MAILED: 06/22/01

[Handwritten mark]

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

[Handwritten signature]

Office Action Summary	Application No. 09/164,777		Applicant(s) MULLOR ET AL.	
	Examiner Calvin L Hewitt II		Art Unit 2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 21 May 2001.

2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-13 and 16-20 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892) 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946) 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	18) ☐ Interview Summary (PTO-413) Paper No(s). _____ 19) ☐ Notice of Informal Patent Application (PTO-152) 20) ☐ Other: _____
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Status of Claims

1. Claims 1-13 and 16-20 have been examined.

Response to Arguments and Amendment

2. The Applicants are of the opinion that the Ginter et al. reference is insufficient as it is believed that it does not teach, "... setting up a verification structure and verifying the program using the verification structure". The Examiner will focus his comments to this matter as other comments regarding the intended use of the claimed invention (e.g. "stationary object" vs. "travelling object") do not result in a structural difference between the claimed invention and the prior art. And, if the prior art structure is capable of performing the intended use, then it meets the claim- See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). To this end, the Examiner would like to reiterate that Ginter et al. the system of Ginter et al. supports, "launchable content" (column/line 24/54-25/27) and maintains, and allows for evolving, content and content control as it passes through a "chain of handling" (column/line 28/42-32/60).

Regarding verification structure, Ginter et al. create for each VDE object a permission record (PERC) (column/line 93/5-94/4; column/line 155/38-159/12) that "...

controls how access and/or manipulation permissions are distributed and/or how content and/or other information may otherwise be used (column 155, lines 46-51). Ginter et al teach that electronic appliances may include one or more SPUs (column 64, lines 1-4) and may be a standardized feature on microprocessors (column 65, lines 17-55). As previously stated, the SPU contains, volatile and non-volatile memories (column/line 70/11-71/15; column/line 71/51-72/67). The SPU Internal ROM contains, "...kernel programs, load modules and encryption key information [that] enable the control of certain basic functions of the SPU" and "... components that are at least in part dependent on [device configuration] may be loaded in [ROM] along with additional load modules that have been determined to be required for specific installations or applications (column 70, lines 48-53). Further, Ginter et al. teach that SPU hardware, provides at least enough processing capabilities to support the secure parts of processing such as events that generate a usage permission (figure 3; column 58, lines 22-49; column 60, lines 45-55). Therefore, the Examiner regards the generation of usage permissions as basic to a SPU, hence, the appropriate load modules would be present in the ROM or EEPROM (column 70, lines 54-65) to allow for such minimum processing. Also, Ginter et al. teach that content control information follows the content (e.g. PERC) therefore, it is inherent that PERC-relevant data would be stored in non-volatile memory (relying on the standard definition of "non-volatile" memory as memory that is maintained even when the power is removed from the storage system). Finally, the Examiner takes issue with the Applicant using EEPROM to store a license record including author name, program name

and number of licensed users. The Applicant has not disclosed the necessary hardware to allow a user to add, remove and modify a license record stored in an EEPROM. EEPROM is read-only memory. Therefore the ability to update existing and add new records to data stored in the EEPROM is contradictory.

Claim Rejections - 35 USC § 112

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not support the Applicants' claim of using non-erasable, non-volatile memory being used to store license records.

Claims 2-19 are also rejected as they depend from claim 1.

4. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The applicant refers to secondary non-volatile storage as EEPROM (Specification, page 8, lines 1 and 25-27). However, EEPROMs require a special or programmer voltage to program it, store 0's and 1's, are programmed at the factory and

when erased all data is removed. The Applicants do not teach the device necessary to edit an EEPROM nor have they made it clear to the Examiner how their system would be implemented in light of the non-trivial processing required to write and erase its data.

Claims 2-19 are also rejected as they depend from claim 1.

5. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A device to write to an EEPROM and a method taking into account said device are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The Applicants do not teach the device necessary to edit an EEPROM nor have they made it clear to the Examiner how their system would be implemented in light of the non-trivial processing required to write and erase its data.

Claims 2-19 are also rejected as they depend from claim 1.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "non-volatile" in claim 1 is used by

the claim to exclude "hard disk," while it is accepted that a "hard disk" is "non-volatile" as it does not lose data when the power is removed from it.

Claims 2-19 are also rejected as they depend from claim 1.

8. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the encrypting of the pseudo unique key.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-4, 6 and 10-13 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ginter et al. U.S. Patent No. 5,892,900.

As per claim 1, Ginter et al. teach of a system and method for secure transactions management and electronic rights protection that:

- restricts software operation within a license limitation (column 5, lines 29-41; column 6, lines 29-65; column 7, lines 45-57)

- utilizes a computer that has a first non-volatile memory column/line 70/45-71-16; column/line 71/52-72/67; column 231, lines 13-32; column 236, lines 43-53; column 240, lines 7-42; column 241, lines 19-30; column/line 245/55-246/24), a second non-volatile memory area (column/line 70/45-71-16; column/line 71/52-72/67; column 231, lines 13-32; column 236, lines 43-53; column 240, lines 7-42; column 241, lines 19-30; column/line 245/55-246/24) and a volatile memory area (column 71, lines 12-25)
- provides a means of selecting a program residing in the volatile memory (column 71, lines 25-27 and column 82, lines 12-52)
- sets up a verification structure in the non-volatile memories (column 70, lines 23-53 and column/line 63/67-64/15)
- verifies the program using the structure (column 70, lines 23-53 and column/line 63/67-64/15)
- acts on the program according to the verification (column 70, lines 23-53 and column/line 63/67-64/15).

As per claim 2, the method and system of Ginter et al. provide for a license authorization bureau in the form of a VDE (virtual distribution environment) distributor and/or administrator (column/line 278/40 to 281/44).

As per claim 3, the method and system of Ginter et al. discloses a verification method with a license authorization bureau that comprises of:

- a two-way data communication link between said bureau and end-user computer (figure 77)
- a method for establishing end-user rights (column/line 278/40 to 281/44)
- data encryption using keys (column 281, lines 10-22)
- creating a license record from the selected program at the bureau (column 15, lines 10-34; column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44).

As per claim 4, the method and system of Ginter et al. also provides a means of encrypting the license record for the selected program from the second volatile memory (column/line 65/55 to 66/47).

As per claim 6, the method and system of Ginter et al. provides a means for establishing a licensed software program. Where said program contains license record data and is found in the volatile memory (column 71, lines 25-27, column 82, lines 12-52, column/line 278/40 to 281/44, column 15, lines 10-34, figure 8 and column 96, lines 37-41).

As per claim 10, the method and system of Ginter et al. provide a means for restricting a program's operation with predetermined limitations if the authorization is invalid (column 279, lines 21-32).

As per claim 11, the method and system of Ginter et al. provide for a ROM BIOS (figure 69G and column 70, lines 39-53).

As per claim 12, the method and system of Ginter et al. provide for an EEPROM BIOS (figure 69G and column 70, lines 54-65).

As per claim 13, the method and system of Ginter et al. provide for volatile RAM (column 71, lines 22-25).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 7-9 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al. U.S. Patent No. 5,892,900 as applied to claims 1, 3, 4 and 6 above, and further in view of Goldman et al. 5,684,951.

As per claim 5 and 16-20, Ginter et al. disclose a verification structure. In addition, Ginter et al. disclose a system and method for secure transaction management and electronic rights protection utilizing encryption keys (column 15, lines 35-60; column/line 45/3-46/26; column 49, lines 47-52; column 206, lines 57-65). Ginter et al. also teach unique keys and storing keys in non-volatile memory (column/line 21/60-22/25; column/line 70/45-71-16; column/line 71/52-72/67). However, Ginter et al. do not disclose pseudo unique keys. Goldman et al. teach of a method and system for user

authorization over a multi-user computer system. In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key (abstract, lines 19-21) that is derived from a user id and the current IP address. Therefore, it would have been obvious to a person of ordinary skill in the art of encryption, to incorporate pseudo unique keys into the system of Ginter et al. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. It would have also been obvious to encrypt communications using pseudo unique keys if less secure means of data exchange was deemed appropriate.

As per claim 7, Ginter et al. teach of a method and system for electronic rights protection comprising of volatile memory, non-volatile memory, license records location and licensed software programs (column 5, lines 29-41; column 6, lines 29-65; column 15, lines 10-34; column/line 63/67-64/15; column/line 65/55-66-47; column 70, lines 23-65; column 71, lines 12-27; column 96, lines 37-41; column/line 278/40-281/44). Ginter et al. also use encryption keys (column 206, lines 57-65). However, Ginter et al. do not make use of pseudo unique keys in their system. Goldman et al. teach of a method and system for user authorization over a multi-user computer system through the use of pseudo unique keys (abstract, lines 19-23). In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key that is derived from a user id and the current IP address. Therefore, it would have been obvious to a person of ordinary skill in the art of the time the invention was made to utilize pseudo unique keys in the system of Ginter et al.. By utilizing such a

method a valid user can be provided access to secured data without comprising the security of the larger system.

As per claim 8, Ginter et al. disclose a method for authoring content that includes encryption keys (column/line 282/ 33 to 283/34). Ginter et al. disclose a method for selecting a licensed software program from the volatile memory to form a license record. However, Ginter et al. do not use pseudo unique keys for purposes of encryption. Goldman et al. teach of a method and system for user authorization over a multi-user computer system through the use of pseudo unique keys (abstract, lines 19-23). In said system, a user has valid id but lacks an authorized means of access. In order to access the desired data, a user is sent a pseudo unique key that is derived from a user id and the current IP address. Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use pseudo unique keys. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system. In addition, it would have also been obvious to encrypt communications using pseudo unique keys if less secure means of data exchange was deemed appropriate.

As per claim 9, Ginter et al. teach of a system and method for encrypting and decrypting of licensing related communications between end-user(s) and a license authorization bureau (column/line 282/33 to 283/34 and 168/25 to 169/40). Ginter et al. also teach of volatile and non-volatile memory areas used in conjunction with licensed software programs (figure 8; column 15, lines 10-34; columns 70-72, column 82, lines

12-52, , column/line 70/45-71-16; column/line 71/52-72/67; column 96, lines 37-41; column 231, lines 13-32; column 236, lines 43-53; column 240, lines 7-42; column 241, lines 19-30; column/line 245/55-246/24; column/line 278/40-281/44). However, Ginter et al. do not disclose pseudo unique keys. Goldman et al. provide for the use of pseudo unique keys (abstract, 19-23). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made, to incorporate pseudo unique keys into the system of Ginter et al.. By utilizing such a method a valid user can be provided access to secured data without comprising the security of the larger system.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Richardson, III teaches a system for software protection

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Calvin Loyd Hewitt II whose telephone number is (703) 305-0625. The examiner can normally be reached on Monday-Friday from 8:30 AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell, can be reached at (703) 305-9768.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

C/o Technology Center 2700

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or:

Application/Control Number: 09/164,777

Page 14

Art Unit: 2161

(703) 308-5397 (for informal or draft communications, please label

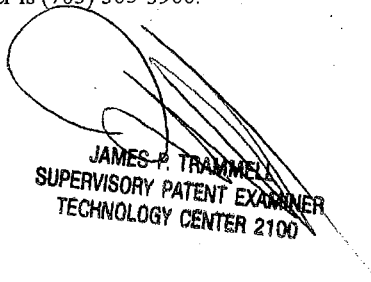
“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should
be directed to the Group receptionist whose telephone number is (703) 305-3900.

Calvin Loyd Hewitt II

June 21, 2001


JAMES P. TRAMMELL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

ANC 118



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARK
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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11/09/01

EXAMINER

Calvin Hewitt

ART UNIT	PAPER NUMBER
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2161

8

DATE MAILED:

INTERVIEW SUMMARY

All participants (applicant, applicant's representative, PTO personnel):

(1) Calvin Hewitt (3) Robert Kinberg
(2) Jeff. Kominski (4) Mickey Mullor

Date of Interview 11-9-01

Type: ☐ Telephonic ☐ Televideo Conference ☐ Personal (copy is given to ☐ applicant ☐ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No If yes, brief description: _____

Agreement ☒ was reached. ☐ was not reached.

Claim(s) discussed: Claim 1, independent claims

Identification of prior art discussed: Ginter 3,892,903

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Storage of licensed data using BIOS 112 correction
Editing independent claim language

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

☐ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

Examiner Note: You must sign this form unless it is an attachment to another form.

Calvin Hewitt

FORM PTOL-413 (REV. 2-98)

ANC 119

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REQUEST FOR CONTINUED EXAMINATION (RCE) TRANSMITTAL

Subsection (b) of 35 U.S.C. § 132, effective on May 29, 2000,
provides for continued examination of an utility or plant
application filed on or after June 8, 1995.
See The American Inventors Protection Act of 1999 (AIPA).

Application Number	09/164,777
Filing Date	October 1, 1998
Examiner Name	C. Hewitt, II
First Named Inventor	M. Mullor
Group Art Unit	2161
Attorney Docket Number	39636-176166

This is a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application.
NOTE: 37 C.F.R. § 1.114 is effective on May 29, 2000. If the above-identified application was filed prior to May 29, 2000, applicant may wish to consider filing a continued prosecution application (CPA) under 37 C.F.R. § 1.53 (d) (PTO/SB/29) instead of a RCE to be eligible for the patent term adjustment provisions of the AIPA. See Changes to Application Examination and Provisional Application Practice, Interim Rule, 65 Fed. Reg. 14865 (Mar. 20, 2000), 1233 Off. Gaz. Pat. Office 47 (Apr. 11, 2000), which established RCE practice.

1. **Submission required under 37 C.F.R. § 1.114**

- a. ☐ Previously submitted
- i. ☐ Consider the amendment(s)/reply under 37 C.F.R. § 1.116 previously filed on (Any unentered amendment(s) referred to above will be entered).
- ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on
- iii. ☐ Other
- b. **Enclosed**
- i. ☒ Amendment/Reply
- ii. ☐ Affidavit(s)/Declaration(s)
- iii. ☒ Information Disclosure Statement (IDS)
- iv. ☐ Other

2. **Miscellaneous**

- a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. § 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. § 1.17(i) required)
- b. ☐ Other

3. **Fees** The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.

- a. ☒ The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 22-0261
- i. ☒ RCE fee required under 37 C.F.R. § 1.17(e)
- ii. ☒ Extension of time fee (37 C.F.R. §§ 1.136 and 1.17)
- iii. ☐ Other
- b. ☒ Check in the amount of \$ 570.00 enclosed
- c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print /Type)	Jeffri A. Kaminski	Registration No. (Attorney/Agent)	42,709
Signature		Date	November 14, 2001

VENABLE
P.O. Box 34385
Washington, DC 20043-9998

SEND Fees and Completed Forms to the following address: Commissioner for Patents, Box RCE, Washington, DC 20231.
PC Docs No. 331636

11/15/2001 EABUBAK1 00000001 09164777

01 FC:279

370.00 OP

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ANC 120



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Initial PATENT APPLICATION of

Applicants : Miki MULLOR et al.
Appln. No. : 09/164,777
Filed : October 1, 1998
For : METHOD OF RESTRICTING
SOFTWARE OPERATION WITHIN
A LICENSED LIMITATION
Group Art Unit : 2161
Examiner : J. Trammell
Atty. Dkt. : 39636-176166

Customer No.



26694

PATENT TRADEMARK OFFICE

Assistant Commissioner for Patents
Washington, D.C. 22031

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AMENDMENT

Sir:

REQUEST FOR EXTENSION OF TIME

Please extend the period for responding to the Office Action dated June 22, 2001 by two months so that the due date expires November 22, 2001. The requisite extension fee of \$200.00 under 37 C.F.R. 1.17 (a) (1) is attached. Should no check be attached, please charge our Deposit Account 22-0261. Please also deduct any additional fees due or credit any overage to the same account.

Responsive to the Office Action dated June 22, 2001, please amend the application as

12/14/2001 NEWSONVS00000006 220261 09164777

01 FC:203 27.00 CH

11/15/2001 EABUBAK1 00000001 09164777

02 FC:216 200.00 CP

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ANC 121

Amendment
U.S. Application No.: 09/164,777

IN THE CLAIMS:

Please amended the claims as follows:

D
B C D
1. (Twice Amended) A method of restricting software operation within a license for use with a computer including an erasable, non-volatile memory area of a ~~BIOS~~ of the computer, and a volatile memory area; the method comprising the steps of:
selecting a program residing in the volatile memory,
using an agent to set up ^{or} verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record,
verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS, and
acting on the program according to the verification.

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3. (Amended) A method according to claim 2, wherein setting up a verification structure further comprising the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program; forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as an encryption key; transferring, from the bureau to the computer, the encrypted license-record; and storing the encrypted license record in the erasable non-volatile memory area of the BIOS.

4. (Amended) A method according to claim 2, wherein verifying the program further comprises the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-

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ANC 122

Amendment

U.S. Application No.: 09/164,777

license verification including an identification of the computer, an encrypted license-record for the selected program from the erasable, non-volatile memory area of the BIOS, and the program's license-record; enabling the comparing at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

B2

5. (Amended) A method according to claim 3 wherein the identification of the computer includes the unique key.

6. (Amended) A method according to claim 1 wherein selecting a program includes the steps of: establishing a licensed-software-program in the volatile memory of the computer wherein said licensed-software-program includes contents used to form the license-record.

7. (Amended) A method according to claim 6 wherein using an agent to set up the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in a first non-volatile memory area of the computer; and establishing at least one license-record location in the first nonvolatile memory area or in the erasable, non-volatile memory area of the BIOS.

9. (Amended) A method according to claim 7 wherein verifying the program includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the erasable, non-volatile memory area of the BIOS, using the pseudo-unique key; and comparing the encrypted licenses-software-program's license-record contents with the encrypted license-record in the erasable, non-volatile

B3

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Amendment

U.S. Application No.: 09/164,777

memory area of the BIOS, or comparing the license-software-program's license-record contents with the decrypted license-record in erasable non-volatile memory area of the BIOS.

B3

10. (Amended) A method according to claim 9 wherein acting on the program includes the step: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

11. (Amended) A method according to claim 22 wherein the first non-volatile memory area is a ROM section of a BIOS.

12. (Amended) A method according to claim 1 wherein the erasable, non-volatile memory area is a E²PROM section of the BIOS.

sub
cl 16. (Amended) The method of Claim 22, wherein the unique key includes a pseudo-unique key.

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14 13
17. (Amended) The method according Claim 12, wherein the step of using the agent to set up the verification record, including the license record, includes encrypting a license record data in the program using at least the unique key.

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18. (Amended) The method according to Claim 12, wherein the step of verifying the program includes a decrypting the license record data accommodated in the erasable second non-volatile memory area of the BIOS using at least the unique key.

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Amendment
U.S. Application No.: 09/164,777

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19. (Amended) The method according to Claim 22, wherein the step of verifying
the program includes encrypting the license record that is accommodated in the program using at
least the unique key.

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20. (Amended) A method for accessing a software program using a pseudo-unique
key stored in a first non-erasable non-volatile memory area of a computer, the first non-volatile
memory area being unable to be programmatically changed, the method, comprising:
loading a software program residing in a volatile memory area of the computer;
extracting license information from the software program;
encrypting license information using the pseudo-unique key stored in the first non-
volatile memory area;
storing the encrypting license information in a second erasable, writable, non volatile
memory area of the BIOS of the computer;
subsequently verifying the software program based on the encrypted license information
stored in the second erasable, writable, non-volatile memory area of the BIOS; and
acting on the software program based on the verification.

Please add the following new claims:

192
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192. (New) The method of claim 20, wherein the verification comprises:
extracting the license information from the software program;
encrypting the license information using the pseudo-unique key stored in the first non-
volatile memory area of the computer to form second encrypted license information; and

5 21 B
ANC 125

Amendment
U.S. Application No.: 09/164,777

comparing the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS of the computer with the second encrypted license information.

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¹³
~~26~~. (New) The method of claim 1, wherein a unique key is stored in a first non-volatile memory area of the computer.

¹⁵
~~26~~. (New) The method according to claim ¹⁴~~7~~, wherein the verification comprises:
extracting the license record from the software program;
encrypting the license record using the unique key stored in the first non-volatile memory area of the computer to form second encrypted license information; and
comparing the encrypted license information stored in the erasable, non-volatile memory area of the BIOS of the computer with the second encrypted license information.

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ANC 126

Amendment
U.S. Application No.: 09/164,777

REMARKS

Claims 1-13 and 16-23 are now pending in this application. New claims 21-23 have been added by this amendment. Each of the pending claims is believed to define an invention which is novel and unobvious over the cited references. Favorable reconsideration of this case is respectfully requested.

Applicant's representative appreciates the Examiner's courtesy in conducting a personnel interview in this case. The claims have been amended as agreed upon during the interview and it is respectfully submitted that this application is now in condition for allowance.

Specifically, claim 1 has been amended to recite that the verification structure is stored in an erasable, non-volatile memory area of the BIOS. This claim amendment overcomes the rejections under 35 U.S.C. 112, first paragraph in sections 3, 4 and 5 of the Final Office Action, as well as the rejection under 35 U.S.C. 112, second paragraph in section 7 of the Final Office Action.

Claim 20 has been amended to correct the informality noted by the Examiner. In view of these amendments, it is respectfully submitted that all pending claims are now in all aspects in compliance with 35 U.S.C. 112, first paragraph and 35 U.S.C. 112, second paragraph. Therefore, the withdrawal of these rejections is respectfully requested.

Claims 1-4, 6 and 10-13 have been rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,892,900 to Ginter et al.

Claims 5 and 7-9, and 16-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ginter et al. in view of U.S. Patent No. 5,684,951 to Goldman et al.

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**NOTICE OF MISSING PAPER
IN PTO FILE WRAPPER**

PAPER # 10

page 8

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Amendment
U.S. Application No.: 09/164,777

Consequently, it is clear that the cited references do not anticipate or render the present claims obvious. Therefore, the withdrawal of this rejection is respectfully requested.

As requested by the Examiner during the interview, a description of a specific embodiment of the invention is attached hereto.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In view of the foregoing, reconsideration and allowance of this application are believed in order, and such action is earnestly solicited.

The Commissioner is authorized to charge any fee necessitated by this Amendment to our Deposit Account No. 22-0261.

Respectfully submitted,

VENABLE, Attorneys at Law



Jeff A. Kaminski
Registration No. 42,709
P.O. Box 34385
Washington, D.C. 20043-9998
Telephone 202-962-4800
Telefax 202-962-8300

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#331676

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Appln. No.: 09/164,777

VERSION WITH MARKINGS TO SHOW CHANGES MADE



IN THE CLAIMS:

Please amended the claims as follows:

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1. (Twice Amended) A method of restricting software operation within a license for use with a computer including an first, non-erasable, non-volatile memory area, a second, non-erasable, non-volatile memory area of a (BIOS) of the computer, and a volatile memory area; the first non-volatile memory accomodates data that includes unique key; the method comprising the steps of:

selecting a program residing in the volatile memory,

using an agent to setting up verification structure in the second-erasable, non-volatile memory of the BIOS, the verification-verification structure accomodatinges data that includes at least one license record,

verifying the program using at least said the verification structure from the erasable non-volatile memory of the BIOS, and

acting on the program according to the verification.

3. (Amended) A method according to claim 2, wherein setting up a verification structure further comprising the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license including an identification of the computer and the license-record's contents from the selected program; forming an encrypted license-record at the bureau by encrypting parts of the request-for-license using part of the identification as the an encryption key; and transferring, from the bureau to the computer, the encrypted license-record; and storing the encrypted license record in the erasable non-volatile memory area of the BIOS.

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Appln. No.: 09/164,777

4. (Amended) A method according to claim 2, wherein verifying the program further comprises the steps of: establishing, between the computer and the bureau, a two-way data-communications linkage; transferring, from the computer to the bureau, a request-for-license verification including an identification of the computer, ~~the~~ an encrypted license-record for the selected program from the ~~second-erasable, non-volatile memory area of the BIOS~~, and the ~~license-software-program's license-record contents~~; enabling the comparing at the bureau; and transferring, from the bureau to the computer, the result of the comparing.

5. (Amended) A method according to claim 3 wherein the identification of the computer includes the ~~pseudo~~-unique key.

6. (Amended) A method according to claim 1 wherein selecting a program includes the steps of: establishing a licensed-software-program in the volatile memory of the computer wherein said licensed-software-program includes contents used to form ~~a~~ the license-record.

7. (Amended) A method according to claim ~~4-6~~ wherein using an agent to setting up the verification structure includes the steps of: establishing or certifying the existence of a pseudo-unique key in ~~the~~ a first non-volatile memory area of the computer; and establishing at least one license-record location in the first ~~or the second~~ nonvolatile memory area or in the erasable, non-volatile memory area of the BIOS.

9. (Amended) A method according to claim ~~7~~ wherein verifying the program

Appln. No.: 09/164,777

includes the steps of: encrypting the licensed-software-program's license-record contents from the volatile memory area or decrypting the license-record in the ~~first or the second erasable, non-volatile memory area~~ of the BIOS, using the pseudo-unique key; and comparing the encrypted licenses-software-program's license-record contents with the encrypted license-record in the ~~first or the second erasable, non-volatile memory area~~ of the BIOS, or comparing the license-software-program's license-record contents with the decrypted license-record in the ~~first or the second erasable non-volatile memory area~~ of the BIOS.

10. (Amended) A method according to claim ~~9~~ wherein acting on the program includes the step: restricting the program's operation with predetermined limitations if the comparing yields non-unity or insufficiency.

11. (Amended) A method according to claim ~~22~~ wherein the first non-volatile memory area is a ROM section of a BIOS.

12. (Amended) A method according to claim 1 wherein the ~~second erasable, non-volatile memory area~~ is a E²PROM section of a ~~the~~ BIOS.

16. (Amended) The method of Claim ~~22~~, wherein the unique key includes a pseudo-unique key:

17. (Amended) The method according Claim ~~22~~, wherein ~~said the~~ step of using the agent to setting up a the verification record, including the license record, includes encrypting a license record data in ~~said the~~ program using at least ~~said the~~ unique key.

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Appln. No.: 09/164,777

18. (Amended) The method according to Claim 221, wherein ~~said the~~ step of verifying the program includes a decrypting the license record data accommodated in ~~said the~~ erasable second non-volatile memory area of the BIOS using at least ~~said the~~ unique key.

19. (Amended) The method according to Claim 221, wherein ~~said the~~ step of verifying the program includes encrypting the license record that is accommodated in ~~said the~~ program using at least ~~said the~~ unique key.

20. (Amended) A method for ~~restricting accessing to~~ a software program using a pseudo-unique key stored in a first non-erasable non-volatile memory area of a computer, the first non-volatile memory area being unable to be programmatically changed, the method, comprising:

~~storing a pseudo-unique key in a first non-volatile memory area of a computer;~~

~~selecting-loading~~ a software program residing in a volatile memory area of the computer;

extracting license information from the software program;

encrypting license information using the pseudo-unique key stored in the first non-volatile memory area;

storing the encrypting ~~pseudo-unique key~~ license information in a second erasable, writable, non volatile memory area of the BIOS of the computer;

subsequently verifying the software program ~~using~~-based on the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS pseudo-unique key; and

acting on the software program based on the verification.

Appln. No.: 09/164,777

Please add the following new claims:

21. (New) The method of claim 20, wherein the verification comprises:
extracting the license information from the software program;
encrypting the license information using the pseudo-unique key stored in the first non-
volatile memory area of the computer to form second encrypted license information; and
comparing the encrypted license information stored in the second erasable, writable, non-
volatile memory area of the BIOS of the computer with the second encrypted license
information.

22. (New) The method of claim 1, wherein a unique key is stored in a first non-
volatile memory area of the computer.

23. (New) The method according to claim 17, wherein the verification comprises:
extracting the license record from the software program;
encrypting the license record using the unique key stored in the first non-volatile memory
area of the computer to form second encrypted license information; and
comparing the encrypted license information stored in the erasable, non-volatile memory
area of the BIOS of the computer with the second encrypted license information.

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#11
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re application of:
Miki MULLOR et al.

Appl. No: 09/164,777

Filed: October 1, 1998

For: METHOD OF RESTRICTING
SOFTWARE OPERATION WITHIN
A LICENSED LIMITATION

Art Unit: 2161

Examiner: J. Trammell

Atty. Docket No: 39636-176166

Customer No:



Information Disclosure Statement Under 37 C.F.R. § 1.97(c)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This is an Information Disclosure Statement submitted under 37 C.F.R. § 1.97 within the time specified under 37 C.F.R. § 1.97(c)(2).

In order to comply with applicant's duty of disclosure under 37 C.F.R. § 1.56, the U.S. Patent and Trademark Office is notified of the documents which are listed on the attached Form PTO-1449 and which the Examiner may deem relevant to patentability of the claims of the above-identified application. One copy of each of the listed documents is submitted herewith.

The instant Information Disclosure Statement is being a first Office action on the merits, after filing a request for continued examination. Accordingly, pursuant to 37 C.F.R. § 1.97(b)(2), no fee is due.

In view of the above, no further translation or statement of relevance is required, and as all requirements of 37 C.F.R. § 1.97 and all official guide lines pertaining to Information

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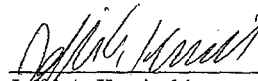
Information Disclosure Statement
U.S. Appl. No.: 09/164,777

Disclosure Statements have been complied with, and it is therefore respectfully requested that the Examiner consider the documents and make them of record.

If no check is attached, please charge any necessary fee or credit any overpayment in connection with this Information Disclosure Statement to Deposit Account No. 22-0261.

Respectfully submitted,

Date: 11/19/01


Jeff A. Kaminski
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Washington, D.C. 20043-9998

Telephone: (202) 962-4800
Telefax: (202) 962-8300

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PTO/SB/08A (08-00)

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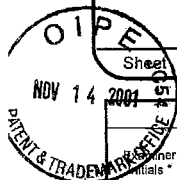
INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 2

Complete if Known

Application Number	09/164,777
Filing Date	October 1, 1998
First Named Inventor	Miki MULLOR et al.
Group Art Unit	2161
Examiner Name	J. Trammell
Attorney Docket Number	39636-176166



U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
J		5,754,763		Berciter	5/19/1998	
		5,758,068		Brandt et al.	5/26/1998	
		5,790,664		Coley et al.	8/4/1998	
		5,758,069		Olsen	5/26/1998	
		5,905,860		Olsen et al.	5/18/1999	
		5,390,297		Barber et al.	2/14/1995	
		6,173,446		Khan et al.	1/9/2001	
		4,903,296		Chandra et al.	2/20/1990	
		6,298,138		Gotoh et al.	10/2/2001	
		6,192,475		Wallance	2/20/2001	
		6,272,636		Neville et al.	8/7/2001	
		6,055,503		Horstmann	4/25/2000	
		6,073,256		Sesma	6/6/2000	
		6,006,190		Baena-Arnaiz et al.	12/21/1999	
		6,078,909		Knutson	6/20/2000	
		6,243,468		Pearce et al.	6/5/2001	
		6,189,146		Misra et al.	2/13/2001	
		5,671,412		Christiano	9/23/1997	
		5,826,011		Chou et al.	10/20/1998	
		6,023,763		Grumpstrup et al.	2/8/2000	

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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ₆
		Office ³	Number ⁴	Kind Code ⁵ (if known)				

Examiner
Signature

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Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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Complete if Known

Application Number	09/164,777
Filing Date	October 1, 1998
First Named Inventor	Miki MULLOR et al.
Group Art Unit	2161
Examiner Name	J. Trammell
Attorney Docket Number	39636-176166

(use as many sheets as necessary)

Sheet	2	of	2
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Technology Center 2100

[illegible]

**Examiner
Signature**

~~Date~~
Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REINC4237.01	7068

7590 01/15/2002

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON, DC 200053955

EXAMINER

HEWITT II, CALVIN L

ART UNIT

PAPER NUMBER

2161

DATE MAILED: 01/15/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

H-G

Office Action Summary	Application No.	Applicant(s)	
	09/164,777	MULLOR ET AL.	
	Examiner	Art Unit	
	Calvin L Hewitt II	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11</u> . | 6) ☐ Other: |

Status of Claims

1. Claims 1-23 have been examined.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 11, 12, 15 and 16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 11, 12 and 15 are rejected as flash memory is a type of EEPROM. Flash memory can be used as a computer BIOS. Therefore, a computer BIOS would not contain an EEPROM and/or ROM section.

Claim 16 is rejected because a key cannot be simultaneously "unique" and "pseudo-unique".

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 20 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites, "loading a software program residing in volatile memory area of the computer". This limitation would not be clear to one of ordinary skill as the software would have to be loaded a priori in order to reside in volatile memory.

Claim 21 is rejected because it depends from claim 20.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al., U.S. Patent No. 6,189,146, Goldman et al., U.S. Patent No. 5,684,951, and Ewertz et al., U.S. Patent No. 5,479,639.

Misra et al. teach a system and method for software licensing that comprises:

- selecting a program from volatile memory (figure 2)
- using data stored in various memory locations to implement the system (figure 2; column 5, lines 2-67)
- using an agent to set up a verification structure in computer memory where structure data includes a license record (column 4, lines 14-20 and 49-67; column 11, lines 45-59; column 12, lines 8-31)
- verifying and acting on the program according to the verification structure (e.g. software license) (column/line 13/65-14/53; column/line 14/54-17/40)
- a licensing authentication bureau in a two-way connection with a computer that handles requests for licenses (where license data includes computer identification and license record contents), encrypts a request for license (e.g. license) using computer identification, performs license validation and transfers a license to a computer (figures 1 and 3-8; column 6, lines 50-64; column 9,

- lines 40-50; column/line 11/60-12/27; column/line 13/65-14/52; column 15, lines 37-49)
- a license that contains predetermined information (column 10, lines 60-67; column 11, lines 1-24)
- storing a license record in non-volatile memory (column 12, lines 8-27)
- comparing licenses to determine validity and restricting the program's operations if a license is determined to be invalid (column 14, lines 30-51)
- encryption using an identification of a computer that is a unique key (column 15, lines 37-49)

Regarding the storage of encrypted licenses, Misra et al. teach licenses that are encrypted using a unique key as they are placed in storage (column 8, lines 35-52). Therefore, it would have been obvious to one of ordinary skill of the art to allow user nodes to store licenses in encrypted form for additional security. In addition, as Misra et al. implement their system using various computer system memory such as RAM (e.g. volatile), ROM (which houses a BIOS), portable and hard disk memory (column 5, lines 37-67) it would have been obvious to perform encryption processes using the appropriate memory given the characteristics of the target system (figures 1 and 2). Misra et al. also teach

encryption keys and programs ("agent") used in the license collation process that belong to various parties (column 8, lines 35-52; column 15, lines 37-54).

Therefore, it would have been obvious to one of ordinary skill of the art to store these keys in non-volatile memory as these keys are used to securely communicate between and identify parties, as well as access encrypted data.

Misra et al., however, do not teach pseudo-unique keys nor constructing license records within a computer BIOS. Goldman et al. teach pseudo-unique keys (abstract) while, Ewertz et al. teach of expanding BIOS memory to store identification and/or configuration data such as software licenses (column 3, lines 15-40; column/line 11/3-12/14). Therefore, it would have been obvious for one of ordinary skill of the art to combine the teachings of Misra et al., Goldman et al. and Ewertz et al.. Recall, Ewertz et al. teach of expanding non-volatile memory (e.g. BIOS) ('639, column 3, lines 15-40) for maintaining data such as software licenses. Hence, it would have been obvious to one of ordinary skill to use the BIOS to store licenses in the Misra et al. system as they teach of users storing license data in persistent- non-volatile storage ('146, column 12, lines 8-27). Also pseudo unique keys can be issued, on a temporary basis (say), ('951, abstract), to encrypt licenses ('146, column 13, lines 42-48). This allows a client to access secured data without comprising the security of the larger system.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
- Edenson et al. teach a system for protecting copyrighted program material using a BIOS
 - Fette et al. teach a programmable radio and operating software in accordance with a license
 - Steinberg et al. teach software branding
 - Smith et al. teach a system for distributing, registering and purchasing software over a network using an agent program embedded in each software application
9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Calvin Loyd Hewitt II whose telephone number is (703) 308-8057. The Examiner can normally be reached on Monday-Friday from 8:30 AM-5:00 PM.
- If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, James P. Trammell, can be reached at (703) 305-9768.

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Art Unit: 2161

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
c/o Technology Center 2100
Washington, D.C. 20231

or faxed to :

(703) 746-7239 (for formal communications intended for entry),
(703) 746-7238 (for after-final communications),

or:

(703) 746-7240 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application
should be directed to the Group receptionist whose telephone number is (703)
305-3900.

Calvin Loyd Hewitt II
January 7, 2002



Hyung Sub Sough
Primary Examiner

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Notice of References Cited	Application/Control No. 09/164,777	Applicant(s)/Patent Under Reexamination MULLOR ET AL.	
	Examiner Calvin L Hewitt II	Art Unit 2161	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification	
	A	US-5,479,639-A	12-1995	Ewertz et al.	395	430
	B	US-6,189,146-A	02-2001	Misra et al.	717	11
	C	US-6,067,582-A	05-2000	Smith et al.	710	5
	D	US-6,000,030	12-1999	Steinberg et al.	713	200
	E	US-6,052,600-A	04-2000	Fette et al.	455	509
	F	US-6,198,875-A	03-2001	Edenson et al.	386	94
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification	
	N						
	O						
	P						
	Q						
	R						
	S						
	T						

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 12

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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

Applicants	:	Miki MULLOR et al.	)	Customer No.
			)	*26694*
Appln. No.	:	09/164,777	)	26694
			)	PATENT TRADEMARK
Filed	:	October 1, 1998	)	OFFICE
			)	
For	:	METHOD OF RESTRICTING	)	
		SOFTWARE OPERATION WITHIN	)	
		A LICENSED LIMITATION	)	
			)	
Group Art Unit	:	2161		
Examiner	:	C. Hewitt		
Atty. Dkt.	:	39636-176166		

Assistant Commissioner for Patents
Washington, D.C. 22031

AMENDMENT

Sir:

Responsive to the Office Action dated January 15, 2002, please amend the application as follows:

IN THE CLAIMS:

Please cancel claims 11, 12, 14 and 15 without prejudice to their re-entry at a later date.

Please amended the claims as follows:

C1 12 16. (Amended) The method of Claim 1, wherein a pseudo-unique key is stored in the non-volatile memory of the BIOS.

C2 16 20. (Amended) A method for accessing an application software program using a

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pseudo-unique key stored in a first non-erasable non-volatile memory area of a computer, the first non-volatile memory area being unable to be programmatically changed, the method, comprising:

loading the application software program residing in a non-volatile memory area of the computer;

extracting license information from the software program;

encrypting license information using the pseudo-unique key stored in the first non-volatile memory area;

storing the encrypting license information in a second erasable, writable, non-volatile memory area of the BIOS of the computer;

subsequently verifying the application software program based on the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS; and

acting on the application software program based on the verification.

REMARKS

Claims 1-10, 13 and 16-23 are now pending in this application. Each of the pending claims is believed to define an invention which is novel and unobvious over the cited references. Favorable reconsideration of this case is respectfully requested.

Claims 16 and 20 have been amended to correct the informalities noted by the Examiner. Claims 11, 12, 14 and 15 have been canceled. In view of these amendments, it is respectfully submitted that all pending claims are now in all aspects in compliance with 35 U.S.C. 112, second paragraph. Therefore, the withdrawal of this rejection is respectfully requested.

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Claims 1-23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al. in view of U.S. Patent No. 5,684,951 to Goldman et al. and U.S. Patent No. 5,479,639 Ewertz et al.

The cited references do not render the present invention obvious as they do not teach or suggest, among other things, storing a verification structure, such as a software license information, in the BIOS of a computer as is recited in the present claims.

Misra et al. is cited as the primary reference against the present claims. Misra relates to a system and method for enforcing software licenses. The system of Misra generates unique identifiers for servers and clients, col 12, lines 41-42. The client system ID 142 is a unique identifier for the client computer, col 12, lines 50-51. The client system IDs can be based on information collected from a computer's hardware and installed software. For example, hard disk volume numbers, registered software, video cards, and some microprocessors contain unique identifiers. This information can be combined to uniquely identify a particular PC. Thus, the client system ID of Misra, is similar to the pseudo-unique key recited in claims 1 and 20.

Misra also describes a license ID, which is a unique identifier assigned to a software license when the software license is issued to a client device, col. 11, lines 9-12. The license ID may be a digital certificate indicating the right to use the particular software at issue, col. 10, lines 60-67. The license ID of Misra is similar to the verification structure and license information recited in claims 1 and 20, respectively.

Misra fails to teach using the BIOS of a computer to store the license ID, as noted in Section 7, Page 6 of the Office Action. Ewertz is cited as supplementing Misra to teach this feature. However, the license information described in Ewertz has a different meaning and a different function from the license information described in Misra. Therefore, a combination of these references would not result in the claimed invention, as is discussed in detail below.

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In Ewertz, a "software license number" is described as one type of identification information, col. 3, lines 20-22. This identification information may also include an Ethernet address or system serial numbers, col 3, lines 20-22. The identification information is a unique identification value stored in a non-writable, non-erasable area of the BIOS during manufacture. The identification information uniquely identifies a particular computer. Therefore, according to Ewertz a "software license number" is one of a type of static data structures identifying a specific computer and the static data structure is stored such that it cannot be modified. Accordingly, the software license number of Ewertz is simply identification for the operating system of a particular computer.

For example, col. 2, lines 47-49 of Ewertz disclose that the memory storing the identification information may be electronically locked to prevent erasure or modification of its contents once installed. Moreover, in teaching a preferred embodiment, col. 11, line 23 - col. 12, line 14 of Ewertz describe that several types of identification information must be retained for individual computer systems. One type of identification number, as mentioned above, is an Ethernet address. The Ethernet address is stored in a protected area 306 in static page 2 of the flash memory of Ewertz and cannot be erased or altered once the device is installed. Thus the identification number cannot be destroyed. Ewertz also teaches other computer system identification numbers, such as unique serial number, printed board assembly (PBA) numbers or operating system license numbers may be stored in the locked memory.

Consequently, Ewertz teaches storing identification information for the computer in a non-writable, non-erasable non-volatile memory. This identification information of Ewertz corresponds to the pseudo-unique key stored in the first non-erasable, non-volatile memory as recited in claims 1 and 20 and does not correspond to the license information recited in these claims. The identification information of Ewertz is a static data structure, like the system ID of

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Misra, that uniquely identifies a computer and simply does not correspond the license ID of Misra or the license information of the present invention as defined by claims 1 and 20.

From the above discussion, it is clear that the "software license number" according to Ewertz is equivalent in definition and function to Misra's system ID. Therefore, even if Misra is combined with Ewertz, this combination does not result in the present invention. The proposed combination results in the system ID of Misra being stored in the BIOS, not the verification structure or license information being stored in the BIOS as is required by the present claims.

Furthermore, there is no suggestion or motivation to combine Misra and Ewertz in the manner suggested in the Office Action. BIOS is a configuration utility. Software license management applications, such as the one of the present invention, are operating system (OS) level programs. Therefore, BIOS programs and software licensing management applications do not ordinarily interact or communicate because when BIOS is running, the computer is in a configuration mode, hence OS is not running. Thus, BIOS and OS level programs are normally mutually exclusive.

Ewertz teaches that writing to the BIOS area is performed by the BIOS routines:

"Referring to Fig. 8, processing logic for updating the flash memory device with configuration data, such as EISA information, is illustrated... The processing logic shown in Fig. 8 resides in the system BIOS of the preferred embodiment" Col 10, lines 20-28

Misra teaches a licensing system that is OS level based:

"The license generator 26, license server 28 and intermediate server 32 are preferably implemented as computer servers, such as Windows NT servers that run Windows NT server operating systems from Microsoft corporation or UNIX-based servers" Col 5, lines 3-7

Thus, the systems described in Misra and Ewertz are an OS program and a BIOS program, respectively, that cannot run at the same time. Therefore, there is no teaching or suggestion to combine these programs. In fact such a combination would change the operation

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of the programs, which is an indicia of non-obviousness, see MPEP Sec. 2141.03 and related case law.

Moreover, the present invention proceeds against conventional wisdom in the art. Using BIOS to store application data such as that stored in Misra's local cache for licenses is not obvious. The BIOS area is not considered a storage area for computer applications. An ordinary skilled artisan would not consider the BIOS as a storage medium to preserve application data for at least two reasons.

First, OS does not support this functionality and is not recognized as a hardware device like other peripherals. Every OS provides a set of application program interfaces (APIs) for applications to access storage devices such as hard drives, removable devices, etc. An ordinary person skilled in the art makes use of OS features to write data to storage mediums. There is no OS support whatsoever to write data to the system BIOS. Therefore, an ordinary person skilled in the art would not consider the BIOS as a possible storage medium. Furthermore, it is common that all peripheral devices in the PC are listed and recognized by the OS except for the BIOS. This supports the fact that the BIOS is not considered a peripheral device. Accordingly, an ordinary person skilled in the art would not consider the BIOS for any operation, including writing to the BIOS.

Second, no file system is associated with the BIOS. Every writable device connected to the PC is associated with an OS file system to arrange and manage data structures. An example for such a file system would be FAT, FAT32, NTFS, HPFS, etc. that suggests writing data to the writable device. No such file system is associated with the BIOS. This is further evidence that OS level application programmers would not consider the BIOS as a storage medium for license data.

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Additionally, Misra teaches away from using the BIOS as a storage area by making a statement about client computers that do not have a persistent non-volatile area.

"The license cache 136 is kept in persisted (non-volatile) storage. Clients that do not have persistent storage can be issued licenses as long as they can generate a unique client ID and can respond to the client platform challenge protocol" (Misra, Col. 12, lines 15-18)

Since all computers must have a BIOS, it is clear Misra teaches away from using the BIOS as a local storage area for licenses.

Goldman et al. do not supplement Misra and Ewertz to teach or suggest the present invention.

Thus, in view of the above discussion, it is clear that the cited references, taken alone or in any combination, do not fairly teach or suggest the present invention. Therefore the withdrawal of this rejection is respectfully requested. Favorable reconsideration of this case and early issuance of a Notice of Allowance is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In view of the foregoing, reconsideration and allowance of this application are believed in order, and such action is earnestly solicited.

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Amendment
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The Commissioner is authorized to charge any fee necessitated by this Amendment to our
Deposit Account No. 22-0261.

Respectfully submitted,



Robert Kinberg
Registration No. 26,924
Jeffri A. Kaminski
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P.O. Box 34385
Washington, D.C. 20043-9998
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RK/JAK/lrh
#347353

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U.S. Appln. No.: 09/164,777

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 11, 12, 14 and 15 without prejudice to their re-entry at a later date.

Please amended the claims as follows:

16. (Amended) The method of Claim ~~22~~1, wherein ~~the a pseudo-unique key~~ includes a pseudo-unique key is stored in the non-volatile memory of the BIOS.

20. (Amended) A method for accessing an application software program using a pseudo-unique key stored in a first non-erasable non-volatile memory area of a computer, the first non-volatile memory area being unable to be programmatically changed, the method, comprising:

loading ~~the a~~ application software program residing in a non-volatile memory area of the computer;

extracting license information from the software program;

encrypting license information using the pseudo-unique key stored in the first non-volatile memory area;

storing the encrypting ~~—~~license information in a second erasable, writable, ~~non~~ non-volatile memory area of the BIOS of the computer;

subsequently verifying the application software program based on the encrypted license information stored in the second erasable, writable, non-volatile memory area of the BIOS; and

acting on the application software program based on the verification.

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Revised PTO/S&P 7 (08-00)
Attorney Docket No.

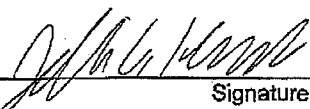
Approved for use through 10/31/2002. OMB 0551-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Certificate of Transmission under 37 CFR 1.8

The undersigned certifies that the attached Amendment is being facsimile filed to the Examiner C. Hewitt (703) 746-7239 on February 5, 2002.



Signature
Jeffri Kaminski

Typed or printed name of person signing Certificate

Note: Each paper must have its own certificate of transmission, or this certificate must identify each submitted paper.

Burden Hour Statement: This form is estimated to take 0.53 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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Notice of Allowability	Application No.	Applicant(s)	
	09/164,777	MULLOR ET AL.	
	Examiner	Art Unit	
	Calvin L Hewitt II	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2-5-02.
2. ☒ The allowed claim(s) is/are 1-10, 13 and 16-23.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1 ☒ Notice of References Cited (PTO-892)

3 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

5 ☒ Information Disclosure Statements (PTO-1449), Paper No. 11.

7 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

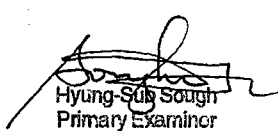
2 ☐ Notice of Informal Patent Application (PTO-152)

4 ☒ Interview Summary (PTO-413), Paper No. 14.

6 ☒ Examiner's Amendment/Comment

8 ☒ Examiner's Statement of Reasons for Allowance

9 ☐ Other


 Hyung-Suk Soogh
 Primary Examiner

Application/Control Number: 09/164,777
Art Unit: 2161

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#14/P
m2
2-22-07

Status of Claims

1. Claims 1-10, 13, and 16-23 have been examined.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jeffri Kaminski on 19 February 2002.

3. The application has been amended as follows:

In claim 1, line 2, replace "(BIOS)" with BIOS.

In claim 1, line 3, replace "... computer, _ and" with "... computer, and"

In claim 20, "using an agent to perform the following steps" has been

inserted in line 6, as the second limitation after "loading the application..."

and before "extracting license information...", detailing that the steps of

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"encrypting...", "storing...", and "subsequently verifying..." are performed by the agent. This **does not** apply, however, to the "acting..." limitation.

Reasons for Allowance

4. Claims 1-10, 13, and 16-19 have been allowed. The instant application teaches a method for restricting software use by storing a verification structure in a computer BIOS.

It is well known to those of ordinary skill in the art of software licensing to monitor the use of software using special code that enforces the preferences of the software provider (e.g. creator, distributor, or service provider), or provider and end-user, by restricting the manner in which an end-user can manipulate (e.g. print, save, redistribute, customize) the software. For example, Ginter et al. (US 5,892,900) implement their software distribution system by dynamically linking a verification structure, such as a PERC or permission record, to software content that dynamically control how the software, and its associated administrative data, may be distributed and used (column 155, lines 46-51). Misra et al. (US 6,189,146) disclose a method for licensing software that uses agents to manage software licenses, and stores the licenses in persistent non-volatile storage (column 12, lines 8-31). Neither reference teaches utilizing BIOS


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as the non-volatile means for storing a licensed software verification structure. Ewertz et al. (US 5,479,639) teach the use of BIOS memory for storing licensing numbers. Hence, it appears initially, that to one of ordinary skill of the art, the combination of Ewertz et al. with either Ginter et al. and/or Misra et al., would render the present invention obvious. However, the key distinction between the present invention and the closest prior art, is that the Misra et al., and Ginter et al. systems and the Ewertz et al. system run at the operating system level and BIOS level, respectively. More specifically, the closest prior art systems, singly or collectively, do not teach licensed programs running at the OS level interacting with a program verification structure stored in the BIOS to verify the program using the verification structure and having a user act on the program according to the verification. Further, it is well known to those of ordinary skill of the art that a computer BIOS is not setup to manage a software license verification structure. The present invention overcomes this difficulty by using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS.

5. Claims 20-23 have been allowed. The instant application teaches a method for restricting software use by storing license information in a computer BIOS.


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Ginter et al. (US 5,892,900) implement their software distribution system by encrypting (column/line 65/55-66/47) software control information (e.g. PERC) and linking control information, to software content that dynamically manages how the software, and its associated administrative data, may be distributed and used (column 155, lines 46-51). Misra et al. (US 6,189,146) disclose a method for licensing software that stores licenses in persistent non-volatile storage (column 12, lines 8-31). Neither reference teaches utilizing BIOS as the non-volatile means for storing licensing data. Ewertz et al. (US 5,479,639) teach the use of BIOS memory for storing licensing numbers. Hence, it appears initially, that to one of ordinary skill of the art, the combination of Ewertz et al. with either Ginter et al. and/or Misra et al., would render the present invention obvious. However, a key distinction between the present invention and the closest prior art, is that the Misra et al., and Ginter et al. systems and the Ewertz et al. system run at the operating system level and BIOS level, respectively. More specifically, the closest prior art systems, singly or collectively, do not teach extracting licensing information from a software program, encrypting the information and storing it in the BIOS. Further, it is well known to those of ordinary skill of the art that a computer BIOS is not setup to store license information. The present invention overcomes this difficulty by utilizing an agent to verify the application software program using the license information stored in the erasable, writable, non-volatile memory of the BIOS.

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6. Any comments considered necessary by Applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
- Infoworld magazine evaluates desktop management software
 - Saito et al. disclose a method for automatic license monitoring
8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Calvin Loyd Hewitt II whose telephone number is (703) 308-8057. The Examiner can normally be reached on Monday-Friday from 8:30 AM-5:00 PM.
- If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, James P. Trammell, can be reached at (703) 305-9768.
- Any response to this action should be mailed to:

Application/Control Number: 09/164,777
Art Unit: 2161

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Commissioner of Patents and Trademarks
c/o Technology Center 2100
Washington, D.C. 20231

or faxed to:

(703) 746-7239 (for formal communications intended for entry),

(703) 746-7238 (for after-final communications),

or:

(703) 746-7240 (for informal or draft communications, please label

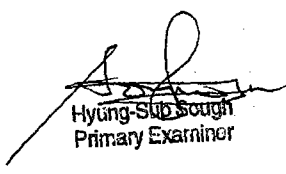
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application
should be directed to the Group receptionist whose telephone number is (703)
305-3900.

Calvin Loyd Hewitt II

February 20, 2002


Hyung-Sup Souh
Primary Examiner


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Interview Summary	Application No.		Applicant(s)	
	09/164,777		MULLOR ET AL.	
	Examiner		Art Unit	
	Calvin L Hewitt II		2161	

All participants (applicant, applicant's representative, PTO personnel):

(1) Calvin L Hewitt II. (3) _____

(2) Jeffri A. Kaminski. (4) _____

Date of Interview: 19 February 2002.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
If Yes, brief description: _____

Claim(s) discussed: 1 and 20.

Identification of prior art discussed: _____

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Claim 20 was amended to add the limitation of "an agent to perform the following steps"

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i) ☒ It is not necessary for applicant to provide a separate record of the substance of the interview(if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case unless both applicant and examiner agree that the examiner will record same. Where the examiner agrees to record the substance of the interview, or when it is adequately recorded on the Form or in an attachment to the Form, the examiner should check the appropriate box at the bottom of the Form which informs the applicant that the submission of a separate record of the substance of the interview as a supplement to the Form is not required.

It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

06/01/01

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Notice of References Cited	Application/Control No. 09/164,777	Applicant(s)/Patent Under Reexamination MULLOR ET AL.	
	Examiner Calvin L Hewitt II	Art Unit 2161	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	JP-408286906-A	11-1996	Japan	Saito et al.	G06F 9/06
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Dornbusch et al., Destop management software: no need to adjust your set., Infoworld, v17, n37, p60
	V	
	W	
	X	

A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

S. Patent and Trademark Office
 TO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 14

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 03/28/2002
SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON, DC 200053955

EXAMINER	
HEWITT II, CALVIN L	
ART UNIT	CLASS-SUBCLASS
2161	705-059000

DATE MAILED: 03/28/2002

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REINC4237.01	7068

TITLE OF INVENTION: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
19	nonprovisional	YES	\$640	\$0	\$640	06/28/2002

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.**

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above. If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

- ☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and mail this form, together with applicable fee(s), to:

Box ISSUE FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

7590 03/28/2002
SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON, DC 200053955

Note: The certificate of mailing below can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REINC4237.01	7068

TITLE OF INVENTION: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
19	nonprovisional	YES	\$640	\$0	\$640	06/28/2002

EXAMINER	ART UNIT	CLASS-SUBCLASS
HEWITT II, CALVIN L	2161	705-059000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1	_____
2	_____
3	_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
☐ Publication Fee
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, United States Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington, D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)

PTOL-85 (REV. 07-01) Approved for use through 01/31/2004. OMB 0651-0033

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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IPR2021-01338 / ANCORA EX2011

ANCC000171



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REINC4237.01	7068
7590 03/28/2002			EXAMINER	
SPENCER AND FRANK SUITE 300 EAST 1100 NEW YORK AVENUE NW WASHINGTON, DC 200053955			HEWITT II, CALVIN L	
			ART UNIT	PAPER NUMBER
			2161	

DATE MAILED: 03/28/2002

Determination of Patent Term Extension under 35 U.S.C. 154 (b)
(application filed after June 7, 1995 but prior to May 29, 2000)

The patent term extension is 0 days. Any patent to issue from the above identified application will include an indication of the 0 day extension on the front page.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term extension is the filing date of the most recent CPA.

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Attorney Docket No. 32014-141866

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Address to:
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Application Number	09/164,777
Filing Date	October 1, 1998
First Named Inventor	Miki MULLOR
Group Art Unit	2161
Examiner Name	Calvin L. Hewitt II
Attorney Docket Number	39636-176166 (REINC4237.01)

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Typed or
Printed Name Robert Kinberg

Signature

Date

April 22, 2002

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

ANC 173



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Miki Mullor

Appl. No. 09/164,777

Confirmation No. 7068

Filed: October 1, 1998

For: METHOD OF RESTRICTING
SOFTWARE OPERATION
WITHIN A LICENSE
LIMITATION

Allowed: March 28, 2002

Art Unit: 2161

Examiner: C. Hewitt II

Atty. Docket No. 39636-176166 (formerly
REINC4237.01)

Customer No.



26694

PATENT TRADEMARK OFFICE

Submission Of Formal Drawings

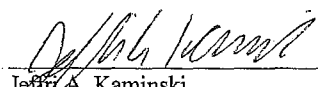
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Submitted herewith are two (2) sheets of formal drawing containing Figures 1-2.

Respectfully submitted,

Date: 4/22/02


Jenn A. Kaminski

Registration No. 42,709

VENABLE

P.O. Box 34385

Washington, D.C. 20043-9998

Telephone: (202) 962-4800

Telefax: (202) 962-8300

#357455v3

ANC 174

1/2

6411941

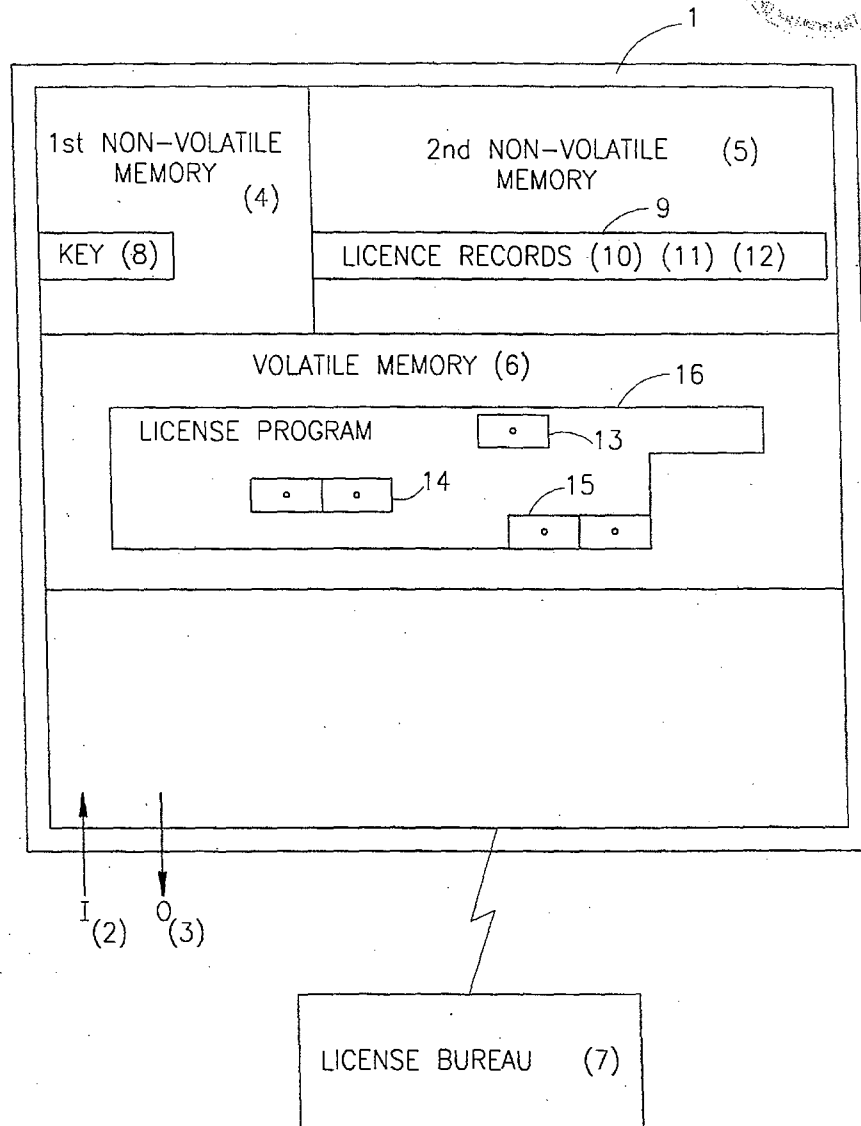


FIG.1

ANC 175

2/2

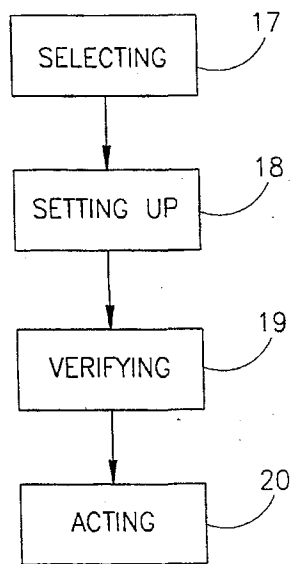


FIG.2



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(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	PD09C1237.01	7068

TITLE OF INVENTION: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
19	nonprovisional	YES	\$640	\$0	\$640	06/28/2002

EXAMINER	ART UNIT	CLASS-SUBCLASS
HEWITT II, CALVIN L	2161	705-059000

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1 VENABLE
2 Robert Kinberg
3 Jeffri A. Kaminski

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Newport Beach, CA

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ANC 177

beeble

beeble

Hardware Stamping™ Technology Overview White Paper

Version 1.0

Author: Miki Mullor, CTO

Published: September, 2001

Exhibit A

ANC 178



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09/2001



Hardware Stamping™

Hardware Stamping is a method of binding a software product with a specific computer. The act of stamping is achieved by writing BXL licenses to non-volatile memory chips (EEPROM) present in PCs. More specifically, Beeble writes BXL licenses to the PC's BIOS EEPROM. EEPROMs are electronic chips that can hold data with no dependency on electric current. EEPROMs do not have mechanical parts in them and are considered an extremely reliable method of storage. Writing to EEPROMs can be accomplished through software; therefore Beeble does not require any additional hardware to be added to the PC.

BIOS EEPROM provide a stable, predicted environment for holding BXL licenses. Unlike disk drives, access to the BIOS is limited and not supported in operating systems. In order for a user to access the BIOS EEPROM proprietary software would need to be developed, since this type of software is not commercially available.

Beeble accesses its BXL licenses from the BIOS EEPROM through direct memory read and write operations, therefore it is untraceable. Other software licensing systems, which rely on standard OS IO support to access licensing information, can be easily traced by means the OS provides.

Access to the BIOS EEPROM (where BXL licenses are stored) is not trivial, requires thought and effort: therefore it is possible to assume that any modifications made to BXL licenses that are not performed by Beeble are of malicious in nature. Detecting differences between Beeble's records of installed licenses and actual licenses present on the PC can identify illegal tampering with Beeble's licenses installed and prove fraud. Beeble's ability to detect fraud is a key component in deterring potential hackers from tampering with the Beeble system.

Hardware stamping is patent pending in the US.

Beeble Client Architecture

Beeble Client Side component include a Kernel mode windows driver, and a control panel applet.

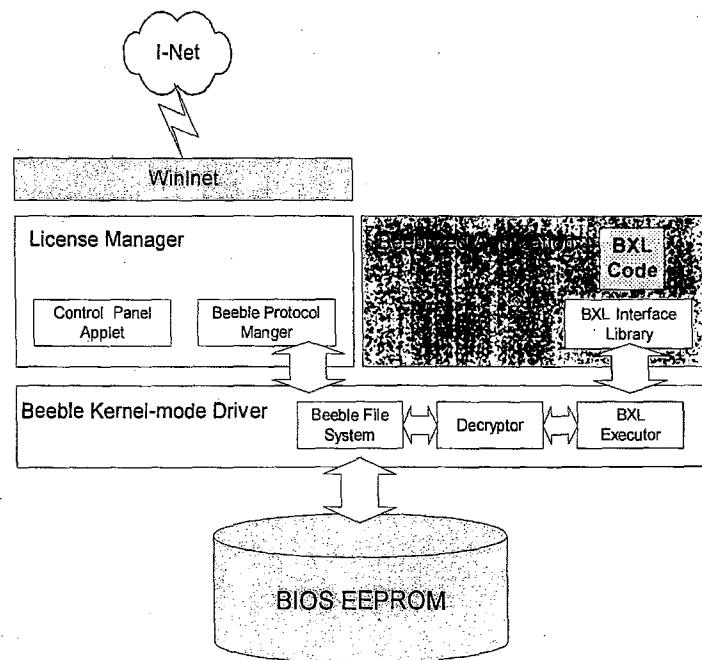


Figure 2: Beeble Client Architecture



Beeble License Manager

Beeble License Manager is a windows control panel applet that allows users to self manage Beeble licenses installed on their machine. The license manager is one focal point from which from users can purchase software, rent applications, manage licenses (transfer, return), deploy corporate licenses, etc.

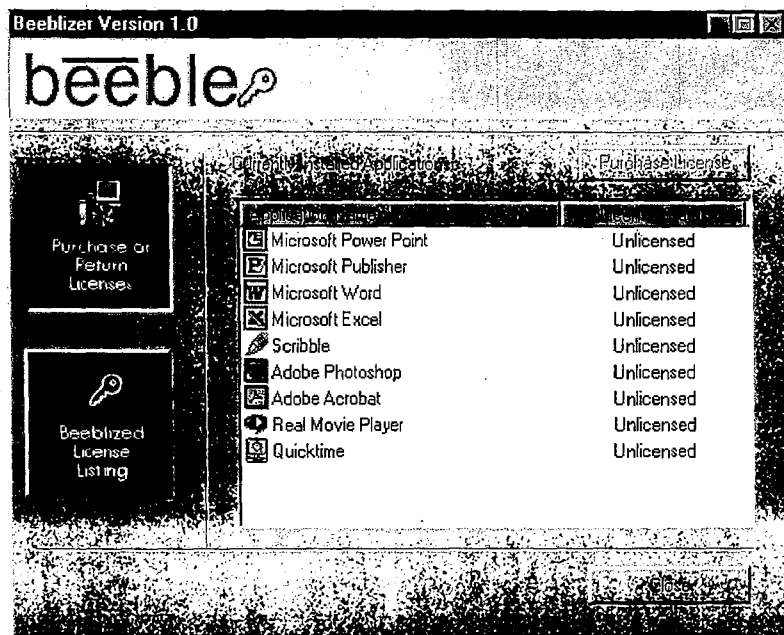


Figure 3: Beeble License Manager

The Beeble License Manager manages all Beeblized applications installed on the PC, of all vendors using Beeble, simplifying the end-user's experience. The Beeble Licensing Manager will be installed during the installation of any Beeblized application on the targeted PC.

The control panel applet (pictured above) is responsible for installation and removal of Beeble licenses. This installation and removal requires



communications to Beeble's license server. Beeble client communicates to the license server using HTTP protocol over the Internet, secured with SSL. This standard communication method allows Beeble interoperability with different kinds of Firewalls. Beeble uses Window's standard components (Winlnet) to handle HTTP communications to the license server; hence no changes to the OS configuration are required. The Beeble Protocol (BP) defines the language used to communicate messages between the user and Client-License server.

Kernel mode Driver

Beeble's core technology is implemented in a Kernel mode driver. A driver-level implementation allows Beeble direct access to BIOS EEPROM needed to store licenses and maximum control on Beeblized applications.

The driver is responsible for maintaining Beeble licenses in the EEPROM. This is achieved by a "Beeble File System" component. This component is responsible for locating space to store Beeble licenses in the BIOS EEPROM and executing the proper instruction set for writing data to the Flash chip.

Accomplishing this challenging task is two-fold:

1. Data Location

The BIOS is a central part of the PC. In order to ensure integrity of the Beeble licenses, Beeble File System component must ensure no other process overwrites Beeble's data. Also, each BIOS' memory map is different in its structure hence it is impossible to assume that specific available memory locations in one PC's BIOS will be available in another's.

The solution to this problem is to utilize a BIOS feature called DMI¹ (stands for Desktop Management Interface), also known as SMBIOS. DMI is an industry standard for management of PC hardware configuration and has been adopted and deployed in PCs for over 10 years. The DMI stores system configuration data in the BIOS EEPROM in a form of linked data structures. DMI specifications allow the addition of custom structures. Beeble stores data in the BIOS by creating a new custom DMI structure and writing it to the end

¹ SMBIOS Reference Specification, Version 2.2, 16 March 1998, page 25 (<http://www.dmtf.org>)



of the existing DMI structure table. Beeble ensures compatibility with BIOS memory map and achieves integrity for its data for the data is written in an area pre-allocated by the BIOS manufacturer for DMI data and by disguising Beeble data as legitimate DMI data.

2. EEPROM Writing

Beeble will attempt to write license data by utilizing the DMI Function 52h², which is designed to write DMI structures to EEPROM. If BIOS manufacturers do not support DMI function 52h, then Beeble will write to a EEPROM generically. Beeble's File System incorporates a driver that contains a library of different EEPROM chips and proper instructions set to write to different chip manufacturers. If the Beeble driver does not recognize the EEPROM, the Beeble driver will attempt to download a new driver from the Beeble License server.

The driver also encapsulated BXL elements implementation: during run-time, the driver will execute BXL tokens according to their definition in the BXL license for that specific application.

The driver is also responsible to compute BXL code segment entry point from the license and place the proper APC call to the entry point.

The driver's memory footprint is estimated at about 50KB. The drive's impact on the CPU cycles is minimal and negligible.

² SMBIOS Reference Specifications, Version 2.2, 16 March 1998, page 11
(<http://www.dmtf.org>)



Summary

Beeble is a next generation software licensing technology that delivers a technological breakthrough over other software licensing technologies. Beeble focuses on addressing the needs and requirements of large software companies with a large customer base and a variety of distribution channels.

Beeble's highlight features include:

- **Simplicity, End-user friendly -**
Designed with large software companies' needs in mind, Beeble supports all real life scenarios that end-users encounter (license transferring, PC upgrades, software returns, etc.) while maximizing protection of intellectual property. Beeble is an easy to use system designed to reduce support calls and maximize market potential for software companies.
- **Security, Fraud detection capabilities -**
Beeble's security features are comprised of several lines of defense to protect intellectual property and deter hackers from attacking the system. Beeble is the first software licensing system which provides detection capabilities of system integrity infringement.
- **Flexibility -**
Compatible with any sales model (Rent, Volume Licensing, OEM bundling, Retail, etc.) and any distribution media (CDROM, Floppy, DVD, ESD, etc.)
- **Stability, Reliable -**
The system is designed for a high tolerance level of PC environment changes including hard drive failure, hardware configuration changes, virus attacks etc.
- **Low-cost -**
Beeble is a software product with no production costs associated with it.
- **Compatibility -**
Beeble is compatible with all Intel x86 based PCs manufactured since the early 90's.

MPI Family Report (Family Bibliographic and Legal Status)

In the MPI Family report, all publication stages are collapsed into a single record, based on identical application data. The bibliographic information displayed in the collapsed record is taken from the latest publication.

Report Created Date: 2006-10-16

Name of Report:

Number of Families: 1

Comments:

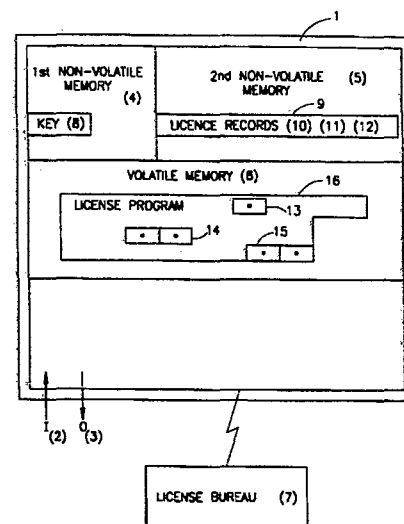
Table of Contents

1.	US6411941B1 20020625 BEEBLE INC US	
	Method of restricting software operation within a license limitation	I



Family1**2 records in the family.****IL124571D0 19981206**

[no drawing available]

(ENG) Method of restricting software operation within a licensed limitation**Assignee:** MIKI MULLOR**Application No:** IL 12457198 A**Filing Date:** 19980521**Issue/Publication Date:** 19981206**Abstract:** NotAvailable**Priority Data:** IL 12457198 19980521 A P;**IPC (International Class):** G06FA**Legal Status:** There is no Legal Status information available for this patent**US6411941B1 20020625****(ENG) Method of restricting software operation within a license limitation****Assignee:** BEEBLE INC US**Inventor(s):** MULLOR MIKI IL ; VALIKO JULIAN IL**Application No:** US 16477798 A**Filing Date:** 19981001**Issue/Publication Date:** 20020625

Abstract: (ENG) A method of restricting software operation within a license limitation that is applicable for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area. The method includes the steps of selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification.

Priority Data: IL 12457198 19980521 A;**IPC (International Class):** G06F01760**ECLA (European Class):** G06F02100N7P5**US Class:** 705059; 705050; 705051; 705053; 705057**Agent(s):** Venable; Kinberg Robert; Kaminski Jeffri A.

0



Examiner Primary: Sough, Hyung-Sub

Examiner Assistant: Hewitt, Calvin L

Assignments Reported to USPTO:

Reel/Frame: 09510/0320 **Date Signed:** 19980828 **Date Recorded:** 19981001

Assignee: M.Y.P.D. TECHNOLOGIES LTD., C/O KEREN- SCHECHTER LAW FIRM 21 HAR SINAI STREET TEL-AVIV 65816 ISRAEL

Assignor: MULLOR, MIKI

Corres. Addr: VENABLE ROBERT KINBERG SUITE 300 EAST 1100 NEW YORK AVENUE, N.W. WASHINGTON, D.C. 20005-3955

Brief: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS) .

Reel/Frame: 12617/0830 **Date Signed:** 20020221 **Date Recorded:** 20020227

Assignee: BEEBLE, INC. P.O. BOX 4066 NEWPORT BEACH CALIFORNIA 92661

Assignor: M.Y.P.D. TECHNOLOGIES, INC.

Corres. Addr: VENABLE JEFFRI A. KAMINSKI P.O. BOX 34385 WASHINGTON, D.C. 20043-9998

Brief: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Reel/Frame: 12882/0558 **Date Signed:** 20020221 **Date Recorded:** 20020509

Assignee: BEEBLE, INC. PO BOX 4066 NEWPORT BEACH CALIFORNIA 92661

Assignor: M. Y.P.D. TECHNOLOGIES, LTD.

Corres. Addr: VENABLE PO BOX 34385 WASHINGTON, D.C. 20043- 9998

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Reel/Frame: 15494/0243 **Date Signed:** 20041220 **Date Recorded:** 20041221

Assignee: ANCORA TECHNOLOGIES INC. 3972 BARRANCA PKWY, SUITE J458 IRVINE CALIFORNIA 92606

Assignor: BEEBLE, INC.

Corres. Addr: ROBERT KINBERG 575 7TH STREET NW WASHINGTON, DC 20004

Brief: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Legal Status:

Date	+/-	Code	Description
20020227		AS	ASSIGNMENT New owner name: BEEBLE, INC. P.O. BOX 4066 NEWPORT BEACH CALIFORNI; : ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:M.Y.P.D. TECHNOLOGIES, INC.;REEL/FRAME:012617/0830; Effective date: 20020221;
20020227		AS	ASSIGNMENT New owner name: BEEBLE, INC. P.O. BOX 4066NEWPORT BEACH, CALIFORNI; : ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:M.Y.P.D. TECHNOLOGIES, INC. /AR;REEL/FRAME:012617/0830; Effective date: 20020221;
20020509		AS	ASSIGNMENT New owner name: BEEBLE, INC. PO BOX 4066 NEWPORT BEACH CALIFORNIA; : REQUEST FOR CORRECTION TO CORRECT THE ASSIGNOR'S NAME



20020509	AS	PREVIOUSLY RECORDED AT REEL 012617, FRAME 0830;ASSIGNOR:M.Y.P.D. TECHNOLOGIES, LTD.;REEL/FRAME:012882/0558; Effective date: 20020221; ASSIGNMENT New owner name: BEEBLE, INC. PO BOX 4066NEWPORT BEACH, CALIFORNIA,,: REQUEST FOR CORRECTION TO CORRECT THE ASSIGNOR'S NAME PREVIOUSLY RECORDED AT REEL 012617, FRAME 0830;ASSIGNOR:M.Y.P.D. TECHNOLOGIES, LTD. /AR;REEL/FRAME:012882/0558; Effective date: 20020221;
20041221	AS	ASSIGNMENT New owner name: ANCORA TECHNOLOGIES INC. 3972 BARRANCA PKWY, SUITE; : ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:BEEBLE, INC. /AR; REEL/FRAME:015494/0243; Effective date: 20041220;



USPTO Maintenance Report

Patent Bibliographic Data				10/16/2006 01:03 PM	
Patent Number:	6411941		Application Number:	09164777	
Issue Date:	06/25/2002		Filing Date:	10/01/1998	
Title:	METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION				
Status:	8th year fee window opens: 06/25/2009			Entity:	Small
Window Opens:	06/25/2009	Surcharge Date:	12/29/2009	Expiration:	N/A
Fee Amt Due:	Window not open	Surchg Amt Due:	Window not open	Total Amt Due:	Window not open
Fee Code:	2552	MAINTENANCE FEE DUE AT 7.5 YEARS.			
Surcharge Fee Code:					
Most recent events (up to 7):	2006/06/21 2006/06/21 2006/01/11	Payment of Maintenance Fee, 4th Yr, Small Entity. Surcharge for late Payment, Small Entity. Maintenance Fee Reminder Mailed. --- End of Maintenance History ---			
Address for fee purposes:	VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 200439998				

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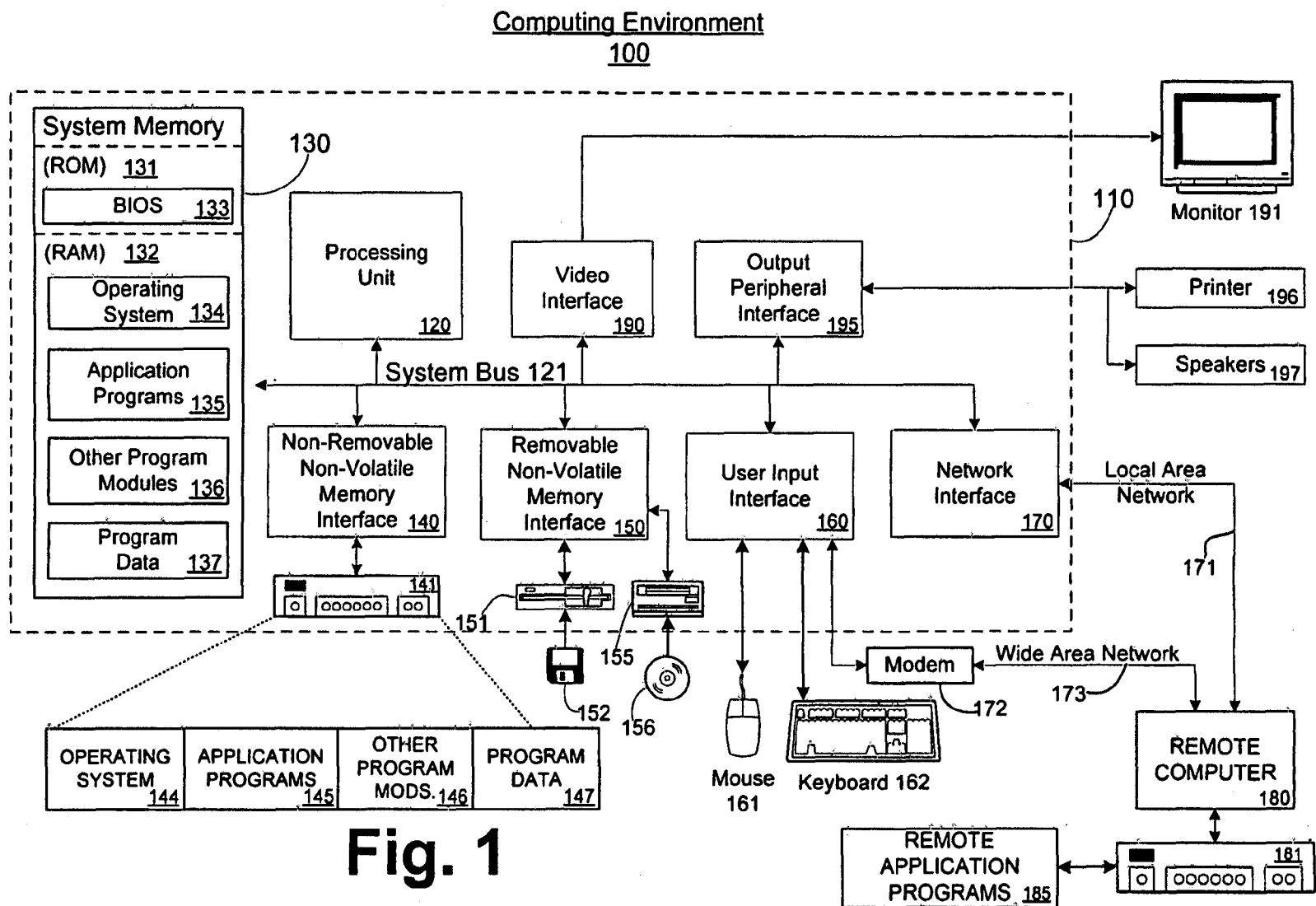
US 20060288422A1

(19) **United States**(12) **Patent Application Publication**(10) **Pub. No.: US 2006/0288422 A1****Liu et al.**(43) **Pub. Date:****Dec. 21, 2006**(54) **DATA STRUCTURE FOR IDENTIFYING
HARDWARE AND SOFTWARE LICENSES
TO DISTRIBUTE WITH A COMPLYING
DEVICE**(21) **Appl. No.: 11/157,886**(22) **Filed: Jun. 21, 2005****Publication Classification**(51) **Int. Cl.**
H04N 7/16 (2006.01)(52) **U.S. Cl. 726/26**(75) **Inventors: Yue Liu, Issaquah, WA (US); Caglar
Gunyakti, Sammamish, WA (US);
Andrew J. Ritz, Sammamish, WA
(US); Todd Haugen, Clyde Hill, WA
(US); Stephanie Ybarra, Issaquah, WA
(US); Douglas Rex Thompson, Bothell,
WA (US); Mark Kyle Svancarek,
Redmond, WA (US); Joshua David
Kriesberg, Seattle, WA (US); John
Peter Hakan Olsson, Kirkland, WA
(US); Allen Edward Nieman,
Redmond, WA (US)****Correspondence Address:****WOODCOCK WASHBURN LLP
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ONE LIBERTY PLACE - 46TH FLOOR
PHILADELPHIA, PA 19103 (US)**(73) **Assignee: Microsoft Corporation, Redmond, WA
(US)**(57) **ABSTRACT**

Systems and methods for software licensing enforcement using an ACPI BIOS. A digital license is provided that includes information about both the software and hardware on which it is to be run. The licensing process receives hardware and software information from the end user and binds the license to both. A main BIOS binary contains code and static motherboard specific data. Dynamic state values containing, e.g., machine-specific system management data, such as, a serial number may be stored subsequently on NVRAM or its equivalent. The main BIOS binary allows provides sufficient functionality to test the hardware. Once the software to be loaded on the system is known, a corresponding digital license containing both the software and hardware information is loaded to NVRAM.

Field	Byte Length	Byte Offset	Description
Structure Type	4	0	X00000000 = license verifier X00000001 = digital license
Licensing Data Length	4	4	Length, in bytes, of the licensing data
Licensing Data	Specified above	8	1 st part of licensing data as string size limit of 64 byte

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Fig. 2

Field	Byte Length	Byte Offset	Description
Header			
Signature	4	0	SLIC. Signature for the Software Licensing Description Table.
Length	4	4	Length, in bytes, of the entire SLIC. The length implies the number of Entry fields at the end of the table.
Revision	1	8	1
Checksum	1	9	Entire table must sum to zero.
OEMID	6	10	OEM name
OEM Table ID	8	16	Optional Motherboard/BIOS logical identifier
OEM Revision	4	24	OEM revision of SLIC table for supplied OEM Table ID.
Creator ID	4	28	Vendor ID of utility that created the table.
Creator Revision	4	32	Revision of utility that created the table.
Software licensing Structure[n]	---	36	A list of the static resource allocation structures for this implementation. This list contains all the software licensing structures. These structures are defined in the following sections.

Fig. 3

Field	Byte Length	Byte Offset	Description
Structure Type	4	0	X00000000 = license verifier X00000001 = digital license
Licensing Data Length	4	4	Length, in bytes, of the licensing data
Licensing Data	Specified above	8	1 st part of licensing data as string size limit of 64 byte

DATA STRUCTURE FOR IDENTIFYING HARDWARE AND SOFTWARE LICENSES TO DISTRIBUTE WITH A COMPLYING DEVICE

FIELD OF THE INVENTION

[0001] This invention relates in general to the field of computer hardware and software distribution. More particularly, this invention relates to a data structure that identifies if software can be distributed and loaded on to a particular hardware device.

BACKGROUND OF THE INVENTION

[0002] Conventionally, software has been licensed for per device usage. However, there have been limited methods to enforce licensee obligations, which has led to software being installed on multiple, unlicensed machines. Digital licenses improved upon shrink wrap licenses, and are used to limit a piece of software to a particular piece of hardware, where the digital license contains both software and hardware information.

[0003] One problem with digital licenses is that every year, over 100 million personal computers are shipped to end customers by OEMs (original equipment manufactures). Asking every end user to acquire the digital license for the copy of software and for the specific machine is not practical. A partial solution to this problem was used in new computers "pre-loaded" with MICROSOFT WINDOWS XP. OEMs were provided the ability to "pre-activate" WINDOWS XP by using a mechanism called "System Locked Pre-installation," SLP.

[0004] SLP uses information stored in the OEM's personal computer BIOS to protect the installation from casual piracy. No communication by the end customer to MICROSOFT is required and no hardware hash is created or necessary. At boot, WINDOWS XP compares the PC's BIOS to the SLP information. If it matches, no activation is required. Thus, every single piece of hardware could be changed on a PC with SLP and no reactivation would be required. However, a limitation of this method is that the OEM information in the BIOS could be written simply by flashing it to the BIOS. Thus, it could be written to the BIOS of an unauthorized machine to make the unauthorized machine appear as an authorized machine.

[0005] Thus, it is desirable that a digital license contain information related to the software and hardware that will be pre-loaded by manufacturers, and that the digital license persist through the system life cycle, such as hard drive corruption or image based installation. It is also desirable that the digital license information not be easily forged onto an unauthorized PC. The present invention provides such a solution to these and other problems.

SUMMARY OF THE INVENTION

[0006] The present invention extends the usage of the ACPI BIOS for software licensing enforcement. ACPI is the acronym for advanced configuration and power interface. A digital license is provided that includes information about both the software and hardware on the computing device on which software may be run. The licensing process receives hardware and software information from the end user and binds the license to both. In accordance with the present

invention, a main BIOS binary (in ROM or its equivalent) contains code and static motherboard specific data. Dynamic state values containing, e.g., machine-specific system management data, such as, a serial number may be stored subsequently on NVRAM or its equivalent. The main BIOS binary allows provides sufficient functionality to test the hardware. Once the software to be loaded on the system is known, a corresponding digital license containing both the software and hardware information is loaded to NVRAM.

[0007] Additional features and advantages of the invention will be made apparent from the following detailed description of illustrative embodiments that proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The foregoing summary, as well as the following detailed description of preferred embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there is shown in the drawings exemplary constructions of the invention; however, the invention is not limited to the specific methods and instrumentalities disclosed. In the drawings:

[0009] FIG. 1 is a block diagram showing an exemplary computing environment in which aspects of the invention may be implemented;

[0010] FIG. 2 is an exemplary ACPI BIOS table in accordance with the present invention; and

[0011] FIG. 3 illustrates the software licensing structure shown in FIG. 2.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0012] Exemplary Computing Environment

[0013] FIG. 1 illustrates an example of a suitable computing system environment 100 in which the invention may be implemented. The computing system environment 100 is only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality of the invention. Neither should the computing environment 100 be interpreted as having any dependency or requirement relating to any one or combination of components illustrated in the exemplary operating environment 100.

[0014] The invention is operational with numerous other general purpose or special purpose computing system environments or configurations. Examples of well known computing systems, environments, and/or configurations that may be suitable for use with the invention include, but are not limited to, personal computers, server computers, handheld or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, distributed computing environments that include any of the above systems or devices, and the like.

[0015] The invention may be described in the general context of computer-executable instructions, such as program modules, being executed by a computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or

implement particular abstract data types. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network or other data transmission medium. In a distributed computing environment, program modules and other data may be located in both local and remote computer storage media including memory storage devices.

[0016] With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a computer 110. Components of computer 110 may include, but are not limited to, a processing unit 120, a system memory 130, and a system bus 121 that couples various system components including the system memory to the processing unit 120. The system bus 121 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. By way of example, and not limitation, such architectures include Industry Standard Architecture (ISA) bus, Micro Channel Architecture (MCA) bus, Enhanced ISA (EISA) bus, Video Electronics Standards Association (VESA) local bus, Peripheral Component Interconnect (PCI) bus (also known as Mezzanine bus), Peripheral Component Interconnect Express (PCI-Express), and Systems Management Bus (SMBus).

[0017] Computer 110 typically includes a variety of computer readable media. Computer readable media can be any available media that can be accessed by computer 110 and includes both volatile and non-volatile media, removable and non-removable media. By way of example, and not limitation, computer readable media may comprise computer storage media and communication media. Computer storage media includes both volatile and non-volatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical disk storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by computer 110. Communication media typically embodies computer readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, RF, infrared and other wireless media. Combinations of any of the above should also be included within the scope of computer readable media.

[0018] The system memory 130 includes computer storage media in the form of volatile and/or non-volatile memory such as ROM 131 and RAM 132. A basic input/output system 133 (BIOS), containing the basic routines that help to transfer information between elements within computer 110, such as during start-up, is typically stored in ROM

131. RAM 132 typically contains data and/or program modules that are immediately accessible to and/or presently being operated on by processing unit 120. By way of example, and not limitation, FIG. 1 illustrates operating system 134, application programs 135, other program modules 136, and program data 137.

[0019] The computer 110 may also include other removable/non-removable, volatile/non-volatile computer storage media. By way of example only, FIG. 1 illustrates a hard disk drive 141 that reads from or writes to non-removable, non-volatile magnetic media, a magnetic disk drive 151 that reads from or writes to a removable, non-volatile magnetic disk 152, and an optical disk drive 155 that reads from or writes to a removable, non-volatile optical disk 156, such as a CD-ROM or other optical media. Other removable/non-removable, volatile/non-volatile computer storage media that can be used in the exemplary operating environment include, but are not limited to, magnetic tape cassettes, flash memory cards, digital versatile disks, digital video tape, solid state RAM, solid state ROM, and the like. The hard disk drive 141 is typically connected to the system bus 121 through a non-removable memory interface such as interface 140, and magnetic disk drive 151 and optical disk drive 155 are typically connected to the system bus 121 by a removable memory interface, such as interface 150.

[0020] The drives and their associated computer storage media, discussed above and illustrated in FIG. 1, provide storage of computer readable instructions, data structures, program modules and other data for the computer 110. In FIG. 1, for example, hard disk drive 141 is illustrated as storing operating system 144, application programs 145, other program modules 146, and program data 147. Note that these components can either be the same as or different from operating system 134, application programs 135, other program modules 136, and program data 137. Operating system 144, application programs 145, other program modules 146, and program data 147 are given different numbers here to illustrate that, at a minimum, they are different copies. A user may enter commands and information into the computer 110 through input devices such as a keyboard 162 and pointing device 161, commonly referred to as a mouse, trackball or touch pad. Other input devices (not shown) may include a microphone, joystick, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit 120 through a user input interface 160 that is coupled to the system bus, but may be connected by other interface and bus structures, such as a parallel port, game port or a universal serial bus (USB). A monitor 191 or other type of display device is also connected to the system bus 121 via an interface, such as a video interface 190. In addition to the monitor, computers may also include other peripheral output devices such as speakers 197 and printer 196, which may be connected through an output peripheral interface 195.

[0021] The computer 110 may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer 180. The remote computer 180 may be a personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the computer 110, although only a memory storage device 181 has been illustrated in FIG. 1. The logical connections depicted

include a local area network (LAN) 171 and a wide area network (WAN) 173, but may also include other networks. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

[0022] When used in a LAN networking environment, the computer 110 is connected to the LAN 171 through a network interface or adapter 170. When used in a WAN networking environment, the computer 110 typically includes a modem 172 or other means for establishing communications over the WAN 173, such as the Internet. The modem 172, which may be internal or external, may be connected to the system bus 121 via the user input interface 160, or other appropriate mechanism. In a networked environment, program modules depicted relative to the computer 110, or portions thereof, may be stored in the remote memory storage device. By way of example, and not limitation, FIG. 1 illustrates remote application programs 185 as residing on memory device 181. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

[0023] Exemplary Embodiments

[0024] The present invention is directed to a data structure within an ACPI BIOS table that exposes licensing information. The ACPI system firmware describes the system's characteristics by placing data, organized into tables, into main memory. These tables have names like RSDT and DSDT. The DSDT (Differentiated System Description Table) is the largest table, because this is where the system's devices are described. The present invention builds upon this structure by implementing a Software Licensing table called, e.g., SLIC.

[0025] The ACPI_SLIC system table structure exposes licensing information that is persisted on the motherboard to a licensing enforcement engine in, e.g., the operating system. The ACPI_SLIC advantageously shares the same header structure as other ACPI tables, as shown in FIG. 2. In addition two additional data structures are provided: (1) digitally signed license data, and (2) public key in verifying the signature of digital license mentioned above.

[0026] The digital license data in the ACPI_SLIC is preferably small because persistent memory on motherboard is expensive. It is preferable that digital license contain at least the following pieces of data: (1) hardware information, for example, individual hardware ID or motherboard type ID, (2) software information, for example, a product key or operating system flag, (3) timestamp, and a digital signature, based on, but not limited to, RSA1024. The digital license in ACPI_SLIC is preferably an opaque string. How an operating system interprets the data is governed by the type value.

[0027] The public key to verify the digital license in item (1) above, may be implemented on a special piece of hardware on the motherboard, embedded in the BIOS, etc. For standardized operating system retrieval, this verifier of digital signature is also exposed through ACPI_SLIC.

[0028] The software licensing structure shown in FIG. 2 is further defined in FIG. 3. The software licensing structure includes the digital license and its signature verifier, which are exposed and differentiated by the value of structure type.

[0029] The present invention supports a flexible manufacturing process for the ACPI BIOS. The BIOS may be conceptually viewed as two parts:

[0030] 1. Main BIOS binary, on ROM or its equivalent, containing code and static motherboard specific data; and

[0031] 2. Dynamic state values, on NVRAM or its equivalent, containing system management data, such as a serial number.

[0032] The former is motherboard specific and the later is individual machine specific.

[0033] During early stage of PC manufacture, an OEM may not necessarily know what software will be loaded on that specific PC for end user during shipping time. However, the OEM may need the full functional firmware/BIOS to test the hardware. Therefore, main BIOS binary is loaded on ROM or its equivalent. After the OEM determines what software will be shipped with the PC, etc., a corresponding digital license containing the information of both software and hardware can be loaded to NVRAM or its equivalent at later manufacture process.

[0034] In addition to the above, the ACPI code varies from one type of motherboard to another. In accordance with the present invention, the OEMID and OEMTableID values in ACPI system table header that are part of compiled BIOS binary can be used as indirect identifier for the motherboard.

[0035] Thus, the ACPI BIOS code in main BIOS binary retrieves the digital license from NVRAM (or its equivalent) and the signature verifier from BIOS binary on ROM (or other special chip on motherboard), and presents the data in previously defined ACPI_SLIC structure to operating system.

[0036] While the present invention has been described in connection with the preferred embodiments of the various Figs., it is to be understood that other similar embodiments may be used or modifications and additions may be made to the described embodiment for performing the same function of the present invention without deviating therefrom. For example, one skilled in the art will recognize that the present invention as described in the present application may apply to any computing device or environment, whether wired or wireless, and may be applied to any number of such computing devices connected via a communications network, and interacting across the network. Furthermore, it should be emphasized that a variety of computer platforms, including handheld device operating systems and other application specific operating systems are contemplated, especially as the number of wireless networked devices continues to proliferate. Still further, the present invention may be implemented in or across a plurality of processing chips or devices, and storage may similarly be effected across a plurality of devices. Therefore, the present invention should not be limited to any single embodiment, but rather should be construed in breadth and scope in accordance with the appended claims.

What is claimed is:

1. A data structure embodied in a computer readable medium for use with an application, the application being suitable for deployment on a computing system, the data structure comprising:

- a header field that includes information regarding said data structure contents; and
- a software license structure that contains a digital signature and information regarding hardware and software in said computing system.
2. The data structure of claim 1, wherein said software license structure comprises a structure type field, a license data length field and a license data field.
3. The data structure of claim 2, wherein said license data field contains information regarding hardware within said computing system.
4. The data structure of claim 2, wherein said license data field contains information regarding software loaded onto said computing system.
5. The data structure of claim 2, wherein said license data field contains a timestamp.
6. The data structure of claim 1, wherein said application comprises a verifier that verifies said digital license and, wherein said verifier is exposed to an operating system installed on said computing system.
7. A method of populating a BIOS during manufacture of a personal computer, comprising:
- loading a main BIOS binary; and
- loading said BIOS with a software license structure that contains a digital signature and information regarding hardware and software in said computing system.
8. The method of claim 7, further comprising providing instructions in said main BIOS binary to retrieve a digital license and a signature verifier.
9. The method of claim 8, further comprising providing instructions in said main BIOS binary to present said digital license to an operating system installed on said personal computer.

10. A method of licensing hardware and software distributed with a computing device using a data structure, comprising:

providing said data structure in a BIOS contained within said computing device, said data structure including a header field that includes information regarding said data structure contents and a software license structure that contains a digital signature and information regarding hardware and software in said computing system;

providing a signature verifier that verifies said digital signature; and

providing said data structure to an operating system running on said computing device.

11. The method of claim 10, wherein said software license structure comprises a structure type field, a license data length field and a license data field.

12. The method of claim 10, wherein said license data field contains information regarding hardware within said computing system.

13. The method of claim 10, wherein said license data field contains information regarding software loaded onto said computing system.

14. The method of claim 10, wherein said license data field contains a timestamp.

15. The method of claim 10, further comprising providing instructions in a BIOS binary to retrieve a digital license and said signature verifier.

* * * * *

2/95b

DECLARATION FOR UNITED STATES PATENT APPLICATION, Attorney Docket
POWER OF ATTORNEY, DESIGNATION OF CORRESPONDENCE ADDRESS

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Method of Restricting Software Operation within a Licensed Limitation

the specification of which

☒ is attached hereto.

☐ was filed on _____ as Application No. --Unknown--

and was amended on _____ [if applicable].

☐ was filed under the Patent Cooperation Treaty on _____

Serial No. _____, the United States of America being designated.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a).

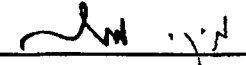
I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent, utility model, design or inventor's certificate listed below and have also identified below any foreign application(s) for patent, utility model, design or inventor's certificate having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Date Filed	Yes	No
124571	Israel	May 21, 1998	X	

I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: George H. Spencer (Reg. No. 18,038), Norman N. Kunitz (Reg.No. 20,586), Robert J. Frank (Reg. No. 19,112), Gabor J. Kelemen (Reg. No. 21,016), Robert Kinberg (Reg. No. 26,924), John W. Schneller (Reg. No. 26,031), Ashley J. Wells (Reg. No. 29,847), Christopher H. Lynt (Reg. No. 33,619) Suite 300 East, 1100 New York Avenue, N.W., Washington, D.C. 20005-3955, Telephone: (202) 414-4000, Telefax: (202) 414-4040. Address all correspondence to SPENCER & FRANK, Suite 300 East, 1100 New York Ave., N.W., Washington, D.C. 20005-3955.

The undersigned hereby authorizes the U.S. attorneys named herein to accept and follow instructions from the undersigned's assignee, if any, and/or, if the undersigned is not a resident of the United States, the undersigned's domestic attorney, patent attorney or patent agent, as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorneys named herein will be so notified by the undersigned.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature: X  Date: X 8/28/98, 1998.

Sole/First Inventor: Miki Mullor

Citizenship: Israeli

Residence and Post Office Address: 3, Zelon Street, Ramat Hasharon 47234, Israel

Signature: X  Date: X 8/28/98, 1998.

Second Inventor: Julian Valiko

Citizenship: Israeli

Residence and Post Office Address: 3, Zelon Street, Ramat Hasharon 47234, Israel



TO THE COMMISSIONER OF
PATENTS AND TRADEMARKS
WASHINGTON, D.C. 20231

Attorney
Reference: REINC 4237.01

BOX ASSIGNMENT

REQUEST FOR RECORDING AND COVER SHEET UNDER 37 C.F.R. 3.28 AND 3.31

Please record the attached original document(s) or copy(ies) thereof.

1. Name of party conveying the interest:

Miki MULLOR and Julian VALIKO

2. Name and address of party receiving the interest:

M.Y.P.D. Technologies Ltd., c/o Keren-Schechter Law Firm,
21 Har Sinai Street, Tel-Aviv 65816, Israel

3. Description of the interest conveyed or transaction to be recorded:

☒ Assignment ☐ Other:

4. Application Number:

Patent Number:

☒ Document filed together with a patent application executed on
August 28, 1998

5. Address correspondence concerning this request to: VENABLE

Suite 300 East, 1100 New York Avenue, N.W., Washington, D.C. 20005-3955

6. Number of Applications, Patents or Registrations and total fee:

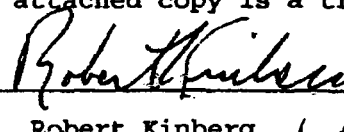
Patents: 1 patent rights @ \$40 Total: \$ 40.00

If no fee is attached, or if a greater or lesser fee is required, please
charge or credit our Account No. 19-3700.

7. Date of execution of document: August 28, 1998

8. To the best of knowledge and belief of the undersigned, the foregoing
information is true and correct and any attached copy is a true copy of
the original document.

9. Date: October 1, 1998


Name: Robert Kinberg

Registration Number: 26,924

WHEREAS Miki Mullor and Julian Valiko, both of Ramast Hasharon, Israel hereinafter collectively referred to as the assignor, has invented a certain improvement relating to Method of Restricting Software Operation within a Licensed Limitation for which said assignor has caused an application for United States Letters Patent to be prepared,

-] the Assignors' declaration for said application being executed concurrently with the execution of this instrument; said application to be filed in the United States Patent and Trademark Office;
-] said application having been filed in the United States Patent and Trademark Office on _____ Serial Number [if known] _____;
-] said application having been filed under the Patent Cooperation Treaty on _____, Serial No. _____, the United States of America being designated.

AND WHEREAS M.Y.P.D. TECHNOLOGIES LTD., of Tel-Aviv, Israel hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the entire and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any all divisions and continuations thereof, and the said invention and any all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations hereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

EXECUTED, this 28 day of August, 1998.

Signature: X [Signature]
Name: Miki Mullor

WITNESS:
Signature: X [Signature]
Name: Kathleen Sasson

WITNESS
Signature: X M. Weil
Name: MICHAEL WEIL

EXECUTED, this 28 day of August, 1998.

Signature: X [Signature]
Name: Julian Valiko

WITNESS:
Signature: X [Signature]
Name: Kathleen Sasson

WITNESS
Signature: X M. Weil
Name: MICHAEL WEIL

ANC 201

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

ANC 202

☐ the owner of the small business concern identified below:

☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN M.Y.P.D. TECHNOLOGIES LTD.

ADDRESS OF CONCERN c/o Keren-Shechter Law Firm, 21 Har Sinai Street,
Tel-Aviv 65816, Israel

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSED LIMITATION inventor(s)

Miki MULLOR and Julian VALIKO
described in

☒ the application filed herewith

☐ application serial no. _____, filed _____

☐ patent no. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME _____

ADDRESS _____

☐ INDIVIDUAL

☐ SMALL BUSINESS CONCERN

☐ NONPROFIT ORGANIZATION

NAME _____

ADDRESS _____

☐ INDIVIDUAL

☐ SMALL BUSINESS CONCERN

☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change of status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING X Miki Mullor

TITLE OF PERSON SIGNING X Manager

ADDRESS OF PERSON SIGNING X 3 Reelon Ranaet-hesherson

JULIAN VALIKO
Manager

FILING RECEIPT



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

AK

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
09/164,777	10/01/98	2766	\$395.00	REINC4237.01	2	15	1

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON DC 20005-3955

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s)

MIKI MULLOR, RAMAT HASHARON, ISRAEL; JULIAN VALIKO,
RAMAT HASHARON, ISRAEL.

FOREIGN APPLICATIONS-

ISRAEL

124571

05/21/98

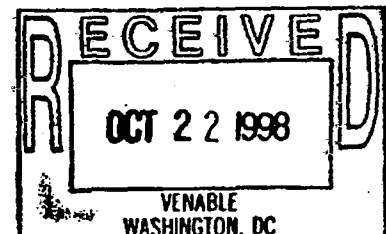
* SMALL ENTITY *

TITLE

METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

PRELIMINARY CLASS: 380

ANC 203



(see reverse)



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ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

REINX-4237.01

RK



100853236A

FEBRUARY 05, 1999

PTAS

VENABLE
ROBERT KINBERG
SUITE 300 EAST
1100 NEW YORK AVENUE, N.W.
WASHINGTON, D.C. 20005-3955

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 10/01/1998

REEL/FRAME: 9510/0320
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
MULLOR, MIKI

DOC DATE: 08/28/1998

ASSIGNOR:
VALIKO, JULIAN

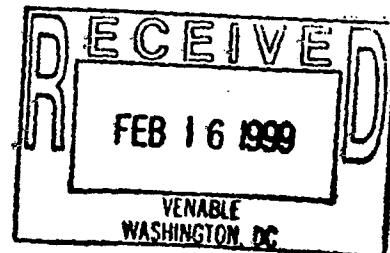
DOC DATE: 08/28/1998

ASSIGNEE:
M.Y.P.D. TECHNOLOGIES LTD., C/O
KEREN-SCHECHTER LAW FIRM
21 HAR SINAI STREET
TEL-AVIV 65816, ISRAEL

SERIAL NUMBER: 09164777
PATENT NUMBER:

FILING DATE: 10/01/1998
ISSUE DATE:

ANC 204



10-20-1998



100853236

VENABLE
ATTORNEYS AT LAW

VENABLE, BAETJER, HOWARD & CIVILETTI, LLP
Incorporating professional corporations

1100 New York Avenue, N.W., Suite 300 East
Washington, D.C. 20005-3955
(202) 414-4000, Fax (202) 414-4040
Telex 64267
www.venable.com

OFFICES IN

MARYLAND
WASHINGTON, D.C.
VIRGINIA

TO THE COMMISSIONER OF
PATENTS AND TRADEMARKS
WASHINGTON, D.C. 20231

Attorney

Reference: REINC 4237.01

JC135 U.S. PTO
09/164777
10/01/98

10.1.98

BOX ASSIGNMENT

REQUEST FOR RECORDING AND COVER SHEET UNDER 37 C.F.R. 3.28 AND 3.31

Please record the attached original document(s) or copy(ies) thereof.

1. Name of party conveying the interest:

Miki MULLOR and Julian VALIKO

2. Name and address of party receiving the interest:

M.Y.P.D. Technologies Ltd., c/o Keren-Schechter Law Firm,
21 Har Sinai Street, Tel-Aviv 65816, Israel

3. Description of the interest conveyed or transaction to be recorded:

☒ [X] Assignment ☐ [] Other:

4. Application Number:

Patent Number:

09 164777

☒ [X] Document filed together with a patent application executed on
August 28, 1998

5. Address correspondence concerning this request to: VENABLE

Suite 300 East, 1100 New York Avenue, N.W., Washington, D.C. 20005-3955

6. Number of Applications, Patents or Registrations and total fee:

Patents: 1 patent rights @ \$40 Total: \$ 40.00

If no fee is attached, or if a greater or lesser fee is required, please

0/09/1998 KJUNCAN 00060025 99164777 credit our Account No. 19-3700.

2 FC:501

7. Date of execution of document: August 28, 1998

8. To the best of knowledge and belief of the undersigned, the foregoing information is true and correct and any attached copy is a true copy of the original document.

9. Date: October 1, 1998

Robert Kinberg
Name: Robert Kinberg

Registration Number: 26,924

02/94

B:AP-ASSTG.COV

ANC 205

WHEREAS Miki Mullor and Julian Valiko, both of Ramast Hasharon, Israel hereinafter collectively referred to as the assignor, has invented a certain improvement relating to Method of Restricting Software Operation within a Licensed Limitation for which said assignor has caused an application for United States Letters Patent to be prepared,

- [x] the Assignors' declaration for said application being executed concurrently with the execution of this instrument; said application to be filed in the United States Patent and Trademark Office;
- [] said application having been filed in the United States Patent and Trademark Office on _____ Serial Number [if known] _____;
- [] said application having been filed under the Patent Cooperation Treaty on _____, Serial No. _____, the United States of America being designated.

AND WHEREAS M.Y.P.D. TECHNOLOGIES LTD., of Tel-Aviv, Israel hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the entire and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any all divisions and continuations thereof, and the said invention and any all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

EXECUTED, this Xth day of August, 1998.

Signature: X *Miki Mullor*
Name : Miki Mullor

WITNESS:
Signature: X *Karen Sasson*
Name : X Karen Sasson

WITNESS
Signature: X *M. Weil*
Name : X MICHAEL WEIL

EXECUTED, this 28 day of August, 1998.

Signature: X *Julian Valiko*
Name : Julian Valiko

ANC 206

WITNESS:
Signature: X *Karen Sasson*
Name : X Karen Sasson

WITNESS
Signature: X *M. Weil*
Name : X MICHAEL WEIL



COMPUTER UPDATED
BN

RZK
39636-176166

JULY 15, 2002

PTAS

Commissioner for Trademark
Arlington, VA 22202-3511
www.uspto.gov

VENABLE
PO BOX 34385
WASHINGTON, D.C. 20043-9998



102089862A

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 05/09/2002

REEL/FRAME: 012882/0558
NUMBER OF PAGES: 4

BRIEF: REQUEST FOR CORRECTION TO CORRECT THE ASSIGNOR'S NAME PREVIOUSLY RECORDED AT REEL 012617, FRAME 0830

ASSIGNOR:
M.Y.P.D. TECHNOLOGIES, LTD.

DOC DATE: 02/21/2002

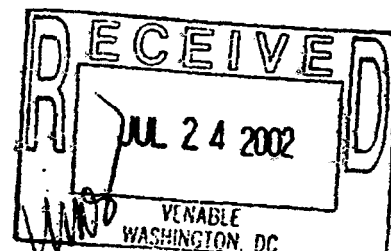
ASSIGNEE:
BEEBLE, INC.
PO BOX 4066
NEWPORT BEACH, CALIFORNIA
92661-
4066

SERIAL NUMBER: 09164777
PATENT NUMBER: 6411941

FILING DATE: 10/01/1998
ISSUE DATE: 06/25/2002

STEVEN POST, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

ANC 207



05-15-2002

R SHEET

U.S. DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office

ILY

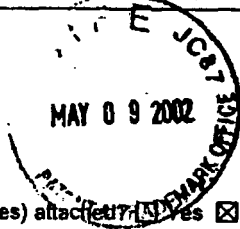
Tab settings ⇨ ⇨ ⇨

102089862

Atty Docket: 39636-176166

To the Honorable Commissioner of Patents and Trademarks: Please Record the attached original documents or copy thereof.

1. Name of conveying party(ies):
M.Y.P.D. Technologies, Ltd.



Additional name of conveying party(ies) attached? ☐ Yes ☒ No

2. Name and address of receiving party(ies)

Name: Beeble, Inc.

Internal Address:

Street Address: P.O. Box 4066

City: Newport Beach

State/Country: California

Zip: 92661-4066

Additional Name(s) & address(es) attached? ☐ Yes ☒ No

3. Nature of conveyance:

☐ Assignment

☐ Merger

☐ Security Agreement

☐ Change of Name

☒ Other **REQUEST FOR CORRECTION**

To correct assignor's name previously recorded at reel
012617, frame 0830

Execution Date: February 21, 2002

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application by the first named inventor is:

A. Patent Application No.(s)

09/164,777

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence
concerning this document should be mailed:



26694

PATENT TRADEMARK OFFICE

Name: VENABLE

Address: P.O. Box 34385

City: Washington

State: D.C.

Zip: 20043-9998

6. Total number of applications and patents involved: ☒

7. Total fee (37 CFR 3.41)\$ 40.00

☒ Enclosed

☐ Authorized to be charged to deposit account

8. Deposit account number:

22-0261

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy
is a true copy of the original document.

Jeff A. Kaminski, Reg. No. 47,709

Name of Person Signing

Signature

Date

Total number of pages including cover sheet, attachments, and documents: ☒

Mail documents to be recorded with required cover sheet information to:

Commissioner of Patents & Trademarks
Washington, D.C. 20231

VENABLE
ATTORNEYS AT LAW

PC Docs No. 372720

ANC 208



Tab settings → → →

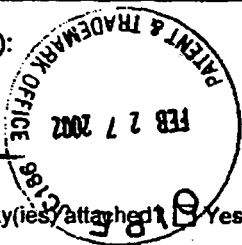
101999450

Atty Docket: 39636-176166

To the Honorable Commissioner of Patents and Trademarks: Please Record the attached original documents or copy thereof.

1. Name of conveying party(ies):
M.Y.P.D. Technologies, Inc.

2-27-02



Additional name of conveying party(ies) attached? ☐ Yes ☒ No

2. Name and address of receiving party(ies)

Name: Beeble, Inc.

Internal Address: _____

Street Address: P.O. Box 4066

City: Newport Beach State/Country: CA

Zip: 92661-4066

Additional Name(s) & address(es) attached? ☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment

☐ Merger

☐ Security Agreement

☐ Change of Name

☐ Other

Execution Date: February 21, 2002

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application by the first named inventor is:

A. Patent Application No.(s)

09/164,777

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☐ No

5. Name and address of party to whom correspondence concerning this document should be mailed:



26694

PATENT TRADEMARK OFFICE

Name: VENABLE

Address: P.O. Box 34385

City: Washington

State: D.C.

Zip: 20043-9998

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) \$ 40.00

☒ Enclosed

☐ Authorized to be charged to deposit account

8. Deposit account number:

22-0261

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Jeffri A. Kaminski

Name of Person Signing

[Signature]
Signature

February 27, 2002

Date

Total number of pages including cover sheet, attachments, and documents:

Mail documents to be recorded with required cover sheet information to:

Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

VENABLE
ATTORNEYS AT LAW

PC Docs No. 2/352006

ANC 209

ASSIGNMENT

WHEREAS, M.Y.P.D. Technologies, Ltd., an Israeli corporation, hereinafter referred to as the assignor, is an owner of United States Patent Application No. 09/164,777 and the inventions disclosed therein (hereinafter the "Patent Application"), as evidenced by an Assignment recorded on October 1, 1998, at Reel/Frame 9510/0320; and

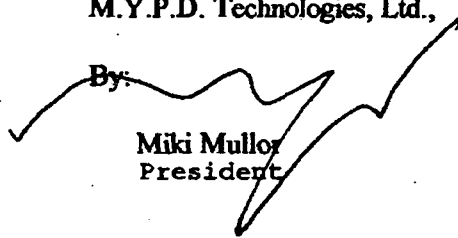
WHEREAS, Beeble, Inc., a Delaware corporation whose mailing address is P. O. Box 4066, Newport Beach, California 92661-4066, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said patent application that is owned by assignor, including any and all divisions and continuations thereof, and in and to said inventions and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSES, that for and in consideration of Ten Dollars (\$10.00), and other good and valuable consideration paid by said assignee to the assignor, the receipt of which is hereby acknowledged, the assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the entire and exclusive right, title and interest in and to said patent application, including any and all divisions and continuations thereof; and in and to said inventions and any and all patents which may be granted thereon; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said inventions and patents and patent applications, including any and all divisions and continuations thereof, and including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

EXECUTED, this 21 day of February, 2002

ASSIGNOR:

M.Y.P.D. Technologies, Ltd.,

By: 

Miki Mullor
President

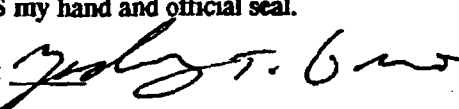
STATE OF CALIFORNIA

COUNTY OF ORANGE

} SS.

On February 21, 2002, before me, the undersigned, a Notary Public in and for said State, personally appeared MIKI MULLOR ~~personally known to me~~ OR proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature: 

ZACHARY T. GRAVES

Name (Typed or Printed)



ANC 210

M.Y.P.D Technologies LTD
An Israeli incorporated company (Israeli ID 51-262869-4)

Board of Directors meeting's protocol dated 16/9/2001

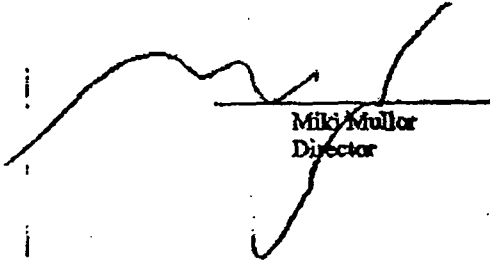
Present: all members of board of directors

Julian Valika, Israeli citizen, ID 0-1157718-6

Miki Mullor, Israeli citizen, ID 0-25327644-4

Decisions:

1. To transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US.
2. To appoint Mr. Miki Mullor as an executor of this assembly's decisions.
3. To authorize Mr. Miki Mullor to carry any action needed to execute this assembly's decisions.



Miki Mullor
Director



Julian Valika
Director

NO.411 P.2/2

INTEL 972 3 9207812

25.SEP.2001 9:21

ANC 211

M.Y.P.D Technologies LTD
An Israeli incorporated company (Israeli ID 51-262869-4)

Protocol of Exceptional General Assembly held on 16/9/2001

Present: all shareholders

Julian Valiku, Israeli citizen, ID 0-1157718-6

Miki Mullor, Israeli citizen, ID 0-25327644-4

All shareholders forfeit their right to receive an official announcement of this assembly.

Agenda:

1. Transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US, that the shareholders present in this meeting have rights in.

Decisions:

1. To transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US.
2. To appoint Mr. Miki Mullor as an executor of this assembly's decisions.
3. To authorize Mr. Miki Mullor to carry any action needed to execute this assembly's decisions.



Miki Mullor



Julian Valiku

NO.411 P.1/2

INTEL 972 3 9207612

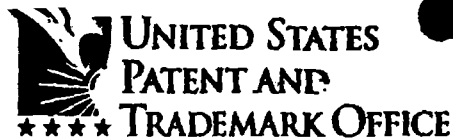
25.SEP.2001 9:20

P.2

FROM BEEBLE, INC. +1 240 250 8254

9-25-2001 9:07AM

ANC 212



22K
39636-

APRIL 24, 2002

PTAS

Chief Information Officer
Washington, DC 202
www.uspto.gov

VENABLE
JEFFRI A. KAMINSKI
P.O. BOX 34385
WASHINGTON, D.C. 20043-9998



101999450A

UNITED STATES PATENT AND TRADEMARK OFFICE
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RECORDATION DATE: 02/27/2002

REEL/FRAME: 012617/0830
NUMBER OF PAGES: 4

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

M.Y.P.D. TECHNOLOGIES, ~~INC.~~ Ltd.

DOC DATE: 02/21/2002

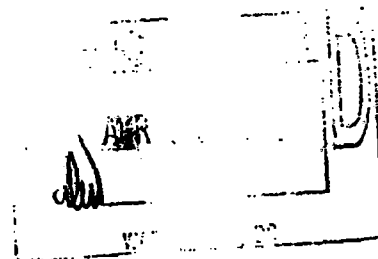
ASSIGNEE:

BEEBLE, INC.
P.O. BOX 4066
NEWPORT BEACH, CALIFORNIA
92661-
4066

SERIAL NUMBER: 09164777
PATENT NUMBER:

FILING DATE: 10/01/1998
ISSUE DATE:

THERESA FREDERICK, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS



ANC 213



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REINC4237.01	7068

7590 01/15/2002

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON, DC 200053955

EXAMINER

HEWITT II, CALVIN L

ART UNIT

PAPER NUMBER

2161

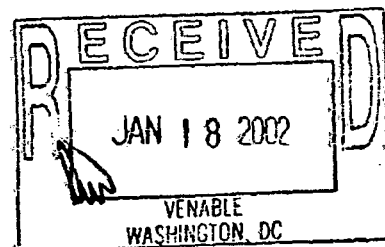
DATE MAILED: 01/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

DOCKETED

39636-
CLIENT/MATTER # 176166 ATTY R2K
DUE DATE 4/15/02 Office Action Response Due
FINAL DEADLINE 7/15/02
DKTED BY [Signature]

Tranell
703 305 9766
706 9057



M.Y.P.D Technologies LTD
An Israeli incorporated company (Israeli ID 51-262869-4)

Protocol of Exceptional General Assembly held on 16/9/2001

Present: all shareholders

Julian Valiku, Israeli citizen, ID 0-1157718-6

Miki Mullor, Israeli citizen, ID 0-25327644-4

All shareholders forfeit their right to receive an official announcement of this assembly.

Agenda:

1. Transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US, that the shareholders present in this meeting have rights in.

Decisions:

1. To transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US.
2. To appoint Mr. Miki Mullor as an executor of this assembly's decisions.
3. To authorize Mr. Miki Mullor to carry any action needed to execute this assembly's decisions.



Miki Mullor



Julian Valiku

NO.411 P.1/2

INTEL 972 3 9207812

25-SEP-2001 9:20

P.2

FROM BEEBLE, INC. +1 240 250 8254

9-25-2001 9:07AM

ANC 215

103438

2/27/02

Filing Date

Venable Filing Number

Atty. Docket No. 39636-176166

Re: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSED LIMITATION

Application No.: 09/164,777

Filing Date: October 1, 1998

Patent No.:

Issue Date

Trademark:

Trademark Reg. No.:

Opposition/Cancellation No.:

The following items were received from Venable, Washington, D.C., by the U.S. Patent & Trademark Office:

U.S. PTO FEES ENCLOSED

_____ RCE Transmittal Sheet	_____ Filing Fee
_____ Issue Fee Part	_____ Surcharge Fee
_____ Invention Declaration	_____ Additional Claim Fee
_____ National Stage Application	_____ Recordation of Assignment Fee
_____ Translation of International Application	_____ \$40.00
_____ New U.S. TM Application (____ specimens)	_____ IDS Fee
_____ Rule 53(d) Continuation or Division Application	_____ Extension Fee
_____ Rule 53(b) Continuation or Division	_____ Notice of Appeal Fee
_____ Application (in Duplicate) (attach copy of	_____ Brief on Appeal Fee
_____ specifications, claims, drawings & declaration)	_____ Oral Hearing Request Fee
_____ Priority Document-Cert. Copy of _____ Appln. #	_____ Petition Fee
_____ Date _____	_____ Issue Fee (Additional)
XX _____ Assignment w/Cover Sheet	_____ Maintenance Fee
_____ IDS w/ PTO-1449 (with references)	_____ TM Statement of Use
_____ Amendment (with marked up version)	_____ 8 Affidavit Fee
_____ Submission of Substitute Specification	_____ TM Renewal Application Fee
_____ Petition/Request for Extension of Time	_____ Notice of Opposition Fee
_____ Notice of Appeal	_____ Terminal Disclaimer
_____ Appeal Brief (in triplicate)	_____ Fee: \$40.00
_____ Request for Oral Hearing	_____ Check Number _____
_____ Confirmation of Hearing Petition	
_____ Letter Under 37 CFR 1.28 (c)	
_____ Certificate of Correction	
_____ Maintenance Fee Transmittal	
_____ TM Statement of Use	
_____ Declaration Under 8	
_____ Declaration Under 8 and 15	
_____ TM renewal Application	
_____ Notice of Opposition	
_____ Supplemental Search Report and Annex	
_____ Postcard	
_____ Change of Address	

#331763v2

ANC 216

PATENTS ONLY

Tab settings ⇌ ⇌ ⇌ ▼ ▼ ▼

Atty Docket: 39636-176166

To the Honorable Commissioner of Patents and Trademarks: Please Record the attached original documents or copy thereof.

1. Name of conveying party(ies):
M.Y.P.D. Technologies, Inc.

Additional name of conveying party(ies) attached? ☐ Yes ☒ No

2. Name and address of receiving party(ies)

Name: Beeble, Inc.

Internal Address: _____

Street Address: P.O. Box 4066

City: Newport Beach State/Country: CA

Zip: 92661-4066

Additional Name(s) & address(es) attached? ☐ Yes ☒ No

3. Nature of conveyance:

- ☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Other

Execution Date: February 21, 2002

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application by the first named inventor is:

A. Patent Application No.(s)
09/164,777

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☐ No

5. Name and address of party to whom correspondence concerning this document should be mailed:



26694

PATENT TRADEMARK OFFICE

Name: VENABLE

Address: P.O. Box 34385

City: Washington State: D.C. Zip: 20043-9998

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) \$ 40.00

- ☒ Enclosed
☐ Authorized to be charged to deposit account

8. Deposit account number:

22-0261

(Attach duplicate copy of this page if paying by deposit account)

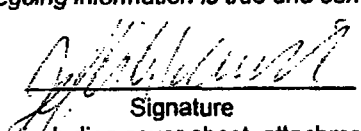
DO NOT USE THIS SPACE

9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Jeffri A. Kaminski

Name of Person Signing


Signature

February 27, 2002

Date

Total number of pages including cover sheet, attachments, and documents:

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

VENABLE
ATTORNEYS AT LAW

PC Docs No. 2/352006

ANC 217

ASSIGNMENT

WHEREAS, M.Y.P.D. Technologies, Ltd., an Israeli corporation, hereinafter referred to as the assignor, is an owner of United States Patent Application No. 09/164,777 and the inventions disclosed therein (hereinafter the "Patent Application"), as evidenced by an Assignment recorded on October 1, 1998, at Reel/Frame 9510/0320; and

WHEREAS, Beeble, Inc., a Delaware corporation whose mailing address is P. O. Box 4066, Newport Beach, California 92661-4066, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said patent application that is owned by assignor, including any and all divisions and continuations thereof, and in and to said inventions and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSES, that for and in consideration of Ten Dollars (\$10.00), and other good and valuable consideration paid by said assignee to the assignor, the receipt of which is hereby acknowledged, the assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the entire and exclusive right, title and interest in and to said patent application, including any and all divisions and continuations thereof; and in and to said inventions and any and all patents which may be granted thereon; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said inventions and patents and patent applications, including any and all divisions and continuations thereof, and including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

EXECUTED, this 21 day of February, 2002

ASSIGNOR:

M.Y.P.D. Technologies, Ltd.,

By:

Miki Mullor
President

STATE OF CALIFORNIA

COUNTY OF ORANGE

SS.

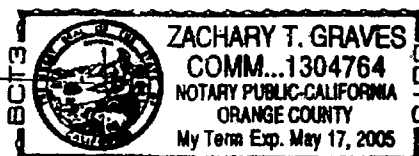
On February 21, 2002, before me, the undersigned, a Notary Public in and for said State, personally appeared MIKI MULLOR ~~personally known to me~~ OR proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature:

ZACHARY T. GRAVES

Name (Typed or Printed)



ANC 218

M.Y.P.D Technologies LTD
An Israeli incorporated company (Israeli ID 51-262869-4)

Board of Directors meeting's protocol dated 16/9/2001

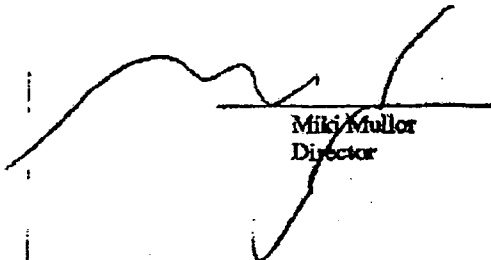
Present: all members of board of directors

Julian Vialku, Israeli citizen, ID 0-1157718-6

Miki Mullor, Israeli citizen, ID 0-25327644-4

Decisions:

1. To transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US.
2. To appoint Mr. Miki Mullor as an executor of this assembly's decisions.
3. To authorize Mr. Miki Mullor to carry any action needed to execute this assembly's decisions.



Miki Mullor
Director



Julian Vialku
Director

NO. 411 P. 2/2

INTEL 972 3 9207812

25-SEP-2001 9:21

ANC 219

M.Y.P.D Technologies LTD
An Israeli incorporated company (Israeli ID 51-262869-4)

Protocol of Exceptional General Assembly held on 16/9/2001

Present: all shareholders

Julian Valiku, Israeli citizen, ID 0-1157718-6

Miki Muller, Israeli citizen, ID 0-25327644-4

All shareholders forfeit their right to receive an official announcement of this assembly.

Agenda:

1. Transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US, that the shareholders present in this meeting have rights in.

Decisions:

1. To transfer with no consideration of all present and future legal rights in the intellectual property of the company, including all rights regarding a patent application in the United States of America and the state of Israel, to Beeble, Inc., an American based company located in California, US.
2. To appoint Mr. Miki Muller as an executor of this assembly's decisions.
3. To authorize Mr. Miki Muller to carry any action needed to execute this assembly's decisions.



Miki Muller



Julian Valiku

NO.411 P.1/2

INTEL 972 3 9287612

25. SEP. 2001 9:20

P.2

FROM BEEBLE, INC. +1 240 250 8254

9-25-2001 9:07AM

ANC 220

12/29/04 12:03 PAGE 001/004 Fax Server

Facsimile Transmission

*This company uses RightFAX® fax
server software from RightFAX, Inc.*

From: **Name:** USPTO ASSIGNMENT DIVISION
 Fax Number:
 Voice Phone: 703-308-9723

To: **Name:** ROBERT KINBERG
 Company: 575 7TH STREET NW
 Fax Number: 12023448300
 Voice Phone:

Fax Notes:

Pg#	Description
1	Cover Page
2	631.TXT
4	Document 1, Batch 398865

PTAS FAX PROCESSING

Date and time of transmission: Wednesday, December 29, 2004 12:03:16 PM
Number of pages including this cover sheet: 04

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ANC 221



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231



DECEMBER 29, 2004

PTAS

500015428A

ROBERT KINBERG
575 7TH STREET NW
WASHINGTON, DC 20004

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 12/21/2004

REEL/FRAME: 015494/0243
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
BEEBLE, INC.

DOC DATE: 12/20/2004

ASSIGNEE:
ANCORA TECHNOLOGIES INC.
3972 BARRANCA PKWY, SUITE J458
IRVINE, CALIFORNIA 92606

SERIAL NUMBER: 09164777

FILING DATE: 10/01/1998

PATENT NUMBER: 6411941

ISSUE DATE: 06/25/2002

TITLE: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

ANC 222

PART B - FEE(S) TRANSMITTAL

Complete and mail this form, together with applicable fee(s), to:

Box ISSUE FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

7590

03/28/2002

SPENCER AND FRANK
SUITE 300 EAST
1100 NEW YORK AVENUE NW
WASHINGTON, DC 200053955

Note: The certificate of mailing below can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,777	10/01/1998	MIKI MULLOR	REDIC4327-01	7068

TITLE OF INVENTION: METHOD OF RESTRICTING SOFTWARE OPERATION WITHIN A LICENSE LIMITATION

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
19	nonprovisional	YES	\$640	\$0	\$640	06/28/2002

EXAMINER	ART UNIT	CLASS-SUBCLASS
HEWITT II, CALVIN L	2161	705-059000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☒ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 VENABLE
2 Robert Kinberg
3 Jeffri A. Kaminski

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Beeble, Inc.

Newport Beach, CA

Please check the appropriate assignee category or categories (will not be printed on the patent)

☐ individual ☒ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

☒ Issue Fee☐ Publication Fee☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

☒ check in the amount of the fee(s) is enclosed.☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 22-0261 (enclose an extra copy of this form).

The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature) Jeffri A. Kaminski (Date) 4/22/02

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, United States Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington, D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

ANC 223

TRANSMIT THIS FORM WITH FEE(S)

PTOL-85 (REV. 07-01) Approved for use through 01/31/2004. OMB 0651-0033

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

IPR2021-01338 / ANCORA EX2011

ANCC000223

CHANGE OF CORRESPONDENCE ADDRESS Application Address to: Assistant Commissioner for Patents Washington, D.C. 20231	Application Number	09/164,777
	Filing Date	October 1, 1998
	First Named Inventor	Miki MULLOR
	Group Art Unit	2161
	Examiner Name	Calvin L. Hewitt II
	Attorney Docket Number	39636-176166 (REINC4237.01)

Please change the Correspondence Address for the above-identified application to:

☒ Customer Number 26694 → Place Customer
Number Bar Code
Label here

Type Customer Number here

OR

☐ Firm or Individual Name	Venable, Baetjer, Howard & Civiletti, L.L.P.				
Address	P.O. Box 34385				
Address					
City	Washington	State	DC	ZIP	20043.9998
Country	USA				
Telephone	202.962.4800	Fax	202.962.8300		

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

The New Attorney Docket Number is 39636-176166.

I am the :

☐ Applicant.

☐ Assignee of record of the entire interest.
Certificate under 37 CFR 3.73(b) is enclosed.

☒ Attorney or agent of record.

☐ Registered practitioner named in the application transmittal letter in an application without an executed oath or declaration. See 37 CFR 1.33(a)(1). Registration Number

Typed or Printed Name Robert Kinberg

Signature *for*
 42,709

Date April 22, 2002

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

VENABLE
BAETJER HOWARD & CIVILETTI

ANC 224

PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Beeble, Inc.	12/20/2004
RECEIVING PARTY DATA	
Name:	Ancora Technologies Inc.
Street Address:	3972 Barranca Pkwy, Suite J458
City:	Irvine
State/Country:	CALIFORNIA
Postal Code:	92606
PROPERTY NUMBERS Total: 1	
Property Type	Number
Patent Number:	6411941
CORRESPONDENCE DATA	
Fax Number:	(202)344-8300
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>	
Phone:	202-344-4000
Email:	mli@venable.com
Correspondent Name:	Robert Kinberg
Address Line 1:	575 7th Street NW
Address Line 4:	Washington, DISTRICT OF COLUMBIA 20004
NAME OF SUBMITTER:	Robert Kinberg
Signature:	/robert kinberg/
Date:	12/21/2004

Total Attachments: 2

ANC 225

file:///C:/WINDOWS/profiles/mzl02/Local%20Settings/Temporary%20Intern... 3/21/201

IPR2021-01338 / ANCORA EX2011

ANCC000225

ASSIGNMENT

WHEREAS Beeble, Inc. having an address at P.O. Box 4066, Newport Beach, California 92661, hereinafter referred to as the assignor, is the owner of the entire right, title, and interest in and to the United States Patent No. 6,411,941 (hereafter the "Patent") and the inventions disclosed therein, by virtue of an Assignment initially recorded on February 27, 2002 at Reel 012617, Frame 0830, and a Request for Correction of the Assignor's Name thereof then recorded on May 9, 2002 at Reel 012882, Frame 0558, in the U.S. Patent and Trademark Office;

AND Ancora Technologies Inc., having an address at 3972 Barranca Pkwy, Suite J458, Irvine, California 92606, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to the Patent, and inventions disclosed therein, including any renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to assignor, the receipt of which is hereby acknowledged, the assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the entire and exclusive right, title and interest in and to the Patent, renewals, reissues and prolongations thereof; said assignees, and said assignee's successors and assigns, to have, hold, exercise and enjoy the Patent and inventions disclosed therein, including all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term of the Patent, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND the assignor agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the asserting of the Patent, including any and all renewals, reissues and prolongations thereof.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of the Patents, including any and all renewals, reissues and prolongations thereof.

This assignment includes the transfer of the right which the assignor has or may have in recovering damages for past infringement of the Patents.

EXECUTED, this 20 day of December, 2004.

Assignor: Beeble, Inc.

Signature:

Typed Name: Miki Mullon

Title: President and CEO

::ODMA\PCDOCS\DC2DOCS\1685572\1

PLEASE SEE ATTACHED
207.12
NETMAY PUBLIC

ANC 226

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of ORANGE

SS.

On December 20, 2004 before me,

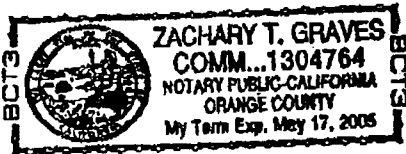
ZACHARY T. GRAVES, NOTARY PUBLIC

Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared MIKI MULLOR

Name(s) of Signer(s)

- ☐ personally known to me
☒ proved to me on the basis of satisfactory evidence



to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

[Signature]
 Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: ASSIGNMENT (REGARDING PAT. NO. 6,411,941)

Document Date: 12/20/04 Number of Pages: 1

Signer(s) Other Than Named Above: NA

Capacity(ies) Claimed by Signer

Signer's Name: NA

☒ Individual

☐ Corporate Officer — Title(s): _____

☐ Partner — ☐ Limited ☐ General

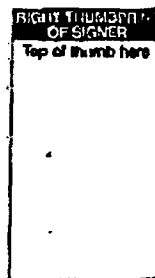
☐ Attorney-in-Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer Is Representing: _____



ANC 227

source=anchora assignment.tif#page1.tif
source=second page#page1.tif

RECEIPT INFORMATION

EPAS ID:	PAT17224
Receipt Date:	12/21/2004
Fee Amount:	\$40

ANC 228

Court: DE Court of Chancery

Judge: Leo E Strine Jr

LexisNexis File & Serve Reviewed Filing ID: 4769245

Date: 12/13/2004

Case Number: 604-N

Case Name: Ltr dtd 09/07/04 filed Under Seal Mullor, Miki vs Blair T Bryant

/s/ Judge Leo E Strine Jr

ANC 229



GRANTED

IN THE COURT OF CHANCERY OF THE STATE OF DELAWARE

IN AND FOR NEW CASTLE COUNTY

MIKI MULLOR and BEEBLE, INC.,)

Plaintiffs,)

v.)

C.A. No. 604-N

BLAIR T. BRYANT, STUART D. ROSE,)
and FRED FOURCHER,)

Defendants.)

STIPULATION AND ORDER OF FINAL JUDGMENT

WHEREAS, Miki Mullor and Beeble, Inc. ("Beeble") filed a complaint against Blair T. Bryant, Stuart D. Rose and Fred Fourcher pursuant to 8 *Del. C.* § 225 seeking a declaration that Mullor and the directors elected by Mullor on or about June 24, 2004 constituted the entire Beeble Board of Directors;

WHEREAS, Bryant and Fourcher answered the complaint on August 18, 2004;

WHEREAS, Rose has never appeared or responded to the complaint; and

WHEREAS, Beeble, Mullor, Bryant and Fourcher settled this litigation and Bryant and Fourcher have resigned from the Beeble Board of Directors, effective as of June 24, 2004;

Mullor, Beeble, Bryant and Fourcher hereby stipulate and agree, subject to the approval of the Court, that:

1. The Beeble Board of Directors consists of Miki Mullor and Dan Weil and Michal Weil;

ANC 230

2. The officers of Beeble are Miki Mullor (Chief Executive Officer and President), Dan Weil (Chairman of the Board of Directors) and Michal Weil (Chief Financial Officer and Secretary);
3. Bryant and Fourcher are no longer shareholders in Beeble as of December 8, 2004; and
4. The Order Maintaining the Status Quo that was granted on August 16, 2004 is dissolved.

MORRIS, JAMES, HITCHENS & WILLIAMS
LLP


Edward M. McNally (#614)
Katherine J. Neikirk (# 4129)
222 Delaware Avenue
P.O. Box 2306
Wilmington, DE 19899
(302) 888-6800

Attorneys for Plaintiffs Miki Mullor and Beeble,
Inc.

Dated: 12-13-04

MORRIS NICHOLS ARSHT & TUNNELL


S. Mark Hurd (#3297)
James G. McMillan (#3979)
1201 North Market Street
P.O. Box 1347
Wilmington, DE 19899

Attorneys for Defendants Blair T. Bryant and Fred
Fourcher

Dated: Dec. 10, 2004

SO ORDERED, this ____ day of December, 2004.

Vice Chancellor Strine

ANC 231

HARVARD BUSINESS SERVICES, INC.

25 GREYSTONE MANOR
LEWES, DELAWARE 19958-9776
Phone: (302) 645-7400 or (800) 345-2677
Fax: (302) 645-1280
www.delawareinc.com

Mr. Miki Mullor
C/O Miki Mullor
35 Marsala`
Irvine, CA 92606

October 20, 2004

Dear Mr. Mullor,

Per your instructions we filed the enclosed General Corporation today for you:

Name: **Ancora Technologies Inc.**

Date of Incorporation: October 20, 2004

Delaware file number: **38700-18** (This is your company's permanent file number
with the Delaware Division of Corporations)

Number of shares: 25,000,000 Par value: \$ 0.0001 / share

Kit sent via: UPS

Kit sent to:

Mr. Miki Mullor
35 Marsala`
Irvine, CA 92606

Directors: (not listed on Certificate of Incorporation)

Enclosed is an "Original Blue Bound Copy" of the Certificate of Incorporation. An identical original of this document has been sent to the Delaware Division of Corporations for processing, and will be sent directly from the "Division" to the Sussex County Recorder of Deeds. The fees are included in our service.

ANC 232

Page Two.

Your corporate Seal will be coming soon by if you have not already received it. If you should require a full corporate kit in the future, including the minutes, bylaws, stock certificates, and boilerplate forms; they are available simply by calling us. (Current price: \$100.00)

CONGRATULATIONS! We wish you a profitable corporate life and thank you for selecting us as your Delaware Registered Agent. We are pleased to be a part of your success. If at any time you have questions, please feel free to call us.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Rick", with a long horizontal flourish extending to the right.

RICHARD H. (Rick) BELL
PRESIDENT

RHB

Enclosures: Original Blue Bound Copy

ANC 233

015494/0243 PAGE 2

DIANE RUSSELL, PARALEGAL
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

ANC 234

PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

12/21/2004
500015428

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
Beeble, Inc.	12/20/2004
RECEIVING PARTY DATA	
Name:	Ancora Technologies Inc.
Street Address:	3972 Barranca Pkwy, Suite J456
City:	Irvine
State/Country:	CALIFORNIA
Postal Code:	92606
PROPERTY NUMBERS Total: 1	
Property Type	Number
Patent Number:	6411941
CORRESPONDENCE DATA	
Fax Number:	(202)344-8300
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>	
Phone:	202-344-4000
Email:	mli@venable.com
Correspondent Name:	Robert Kinberg
Address Line 1:	575 7th Street NW
Address Line 4:	Washington, DISTRICT OF COLUMBIA 20004
NAME OF SUBMITTER:	Robert Kinberg
Total Attachments: 2 source=anchora assignment.tif#page1.tif source=second page#page1.tif	

CH 040 00 6411941

ANC 235

STATEMENT OF INCORPORATOR

STATEMENT OF ORGANIZATION

OF THE INCORPORATOR OF

Ancora Technologies Inc.

I, Richard H. Bell, being the President and Secretary of Harvard Business Services, Inc., the incorporator of Ancora Technologies Inc. -- a Delaware Corporation -- hereby certifies pursuant to Section 108 of the General Corporation Law of Delaware:

1. The certificate of incorporation of Ancora Technologies Inc. was filed with the Secretary of State of Delaware on October 20, 2004.

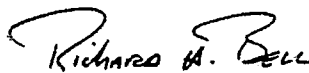
2. On October 20, 2004 the following named persons were elected by me to serve as the initial Directors of the Corporation until the first annual meeting of stockholders or until their successors are elected and qualify:

Miki Mullor

3. The bylaws of the corporation have been approved.

4. The powers of this incorporator are hereby terminated, and said incorporator shall not longer be considered a part of the body corporate of the above named corporation.

In witness whereof, I have signed this instrument as of the date when these actions were so taken this 20th day of October, 2004.



HARVARD BUSINESS SERVICES, INC.

Richard H. Bell

President & Secretary

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HARVARD BUSINESS SERVICES, INC.

25 GREYSTONE MANOR
LEWES, DELAWARE 19958-9776
Phone: (302) 645-7400 or (800) 345-2677
Fax: (302) 645-1280
www.delawareinc.com

ACCOUNT:

Ancora Technologies Inc.
Mr. Miki Mullor
C/O Miki Mullor
35 Marsala`
Irvine, CA 92606

October 20, 2004

INVOICE:

Delaware Incorporation Services for:

Ancora Technologies Inc.
Delaware Division of Corporations file # 38700-18
Filed on the 20th day of October, 2004

AMOUNT PAID:..... \$ 466.00

PAID IN FULL

*** THIS SERVICE FEE IS TAX DEDUCTIBLE! ***

*** Keep this receipt for your record ***

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The First State

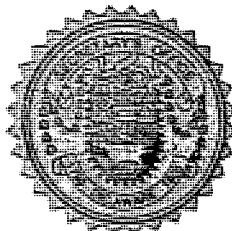
I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "ANCORA TECHNOLOGIES INC." IS DULY INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL CORPORATE EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE TWENTY-FIRST DAY OF OCTOBER, A.D. 2004.

AND I DO HEREBY FURTHER CERTIFY THAT THE FRANCHISE TAXES HAVE NOT BEEN ASSESSED TO DATE.

AND I DO HEREBY FURTHER CERTIFY THAT THE AFORESAID CORPORATION IS DULY INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL CORPORATE EXISTENCE NOT HAVING BEEN CANCELLED OR DISSOLVED SO FAR AS THE RECORDS OF THIS OFFICE SHOW AND IS DULY AUTHORIZED TO TRANSACT BUSINESS.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "ANCORA TECHNOLOGIES INC." WAS INCORPORATED ON THE TWENTIETH DAY OF OCTOBER, A.D. 2004.

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Harriet Smith Windsor
Harriet Smith Windsor, Secretary of State

3870018 8300

AUTHENTICATION: 3424309

040759142

DATE: 10-21-04

CERTIFICATE OF INCORPORATION OF

Ancora Technologies Inc.

FIRST: The name of the corporation is: **Ancora Technologies Inc.**

SECOND: Its registered office in the State of Delaware is located at 25 Greystone Manor, Lewes, Delaware 19958-9776, County of Sussex. The registered agent in charge thereof is *Harvard Business Services, Inc.*

THIRD: The purpose of the corporation is to engage in any lawful activity for which corporations may be organized under the General Corporation Law of Delaware.

FOURTH: The total number of shares of stock which the corporation is authorized to issue is **25,000,000** shares having a par value of \$ **0.0001** per share.

FIFTH: The business and affairs of the corporation shall be managed by or under the direction of the board of directors, and the directors need not be elected by ballot unless required by the bylaws of the corporation.

SIXTH: This corporation shall be perpetual unless otherwise decided by a majority of the Board of Directors.

SEVENTH: In furtherance and not in limitation of the powers conferred by the laws of Delaware, the board of directors is authorized to amend or repeal the bylaws.

EIGHTH: The corporation reserves the right to amend or repeal any provision in this Certificate of Incorporation in the manner prescribed by the laws of Delaware.

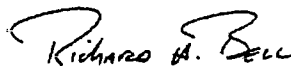
NINTH: The incorporator is Harvard Business Services, Inc., whose mailing address is 25 Greystone Manor, Lewes, DE 19958. The powers of the incorporator are to file this certificate of incorporation, approve the by-laws of the corporation and elect the initial directors.

TENTH: To the fullest extent permitted by the Delaware General Corporation Law a director of this corporation shall not be liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director.

I, Richard H. Bell, for the purpose of forming a corporation under the laws of the State of Delaware do make and file this certificate, and do certify that the facts herein stated are true; and have accordingly signed below, this 20th day of October, 2004.

Signed and Attested to by:

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Richard H. Bell, President & Secretary
HARVARD BUSINESS SERVICES, INC.

State of Delaware
Secretary of State
Division of Corporations
Delivered 01:52 PM 10/20/2004
FILED 01:39 PM 10/20/2004
SRV 040756790 - 3870018 FILE

Windows Genuine Advantage

Reported OEM BIOS Hacks

I know many of you are aware of reports of hacks that attempt to exploit our OEM BIOS based activation. We're aware of this type of hack and I wanted to take a minute to describe how these work and how we plan to respond.

First, what is OEM BIOS based activation?

Here's a little more information on how OEM BIOS based activation works. This form of product activation is also known as OEM Activation or just OA, which is how Microsoft refers to it and how I will refer to it in this post. Back at the launch of Windows XP when Microsoft introduced Windows Product Activation, we recognized that as easy as end-user activation is, it still represented an extra step. In an effort to reduce the impact of even that extra step but maintain the overall effectiveness of product activation, Microsoft worked with OEMs to develop an implementation that would work best for them and their customers while keeping the goals of product activation clearly in focus. As we looked to develop a solution, it was important to ensure that product activation technology could still deliver an acceptable degree of protection, while at the same time, reduce the need for an extra step by the end user. A couple of key factors stand out as enabling the OA 1.0 solution that was delivered in Windows XP.

Large OEMs tend to ship large numbers of PCs with Windows preinstalled. They also have the ability during their manufacturing processes to identify systems that will ship with Windows pre-installed.

Also, because of the direct relationship Microsoft has with those OEMs, the company has a higher degree of confidence that a genuine COA will be attached to each PC and that there will be accurate reporting of the number of units shipped preinstalled with Microsoft Windows.

These factors lead Microsoft and the major OEMs to place a marker in the BIOS of the OEM's motherboard to identify OEM systems that were to be pre-installed with licensed copies of Windows XP. This marker, which is added to a specific location in the BIOS of the motherboard, enables a copy of Windows XP to look for that known value in the BIOS of the motherboard and, when found, confirm it was booting on a PC that was sold by a specific OEM and licensed to boot Windows.

Not the first time

Over the years we've seen examples of BIOS editors that, with some work, allowed people to make an edited BIOS appear to be an OEM BIOS. In Windows XP this kind of BIOS editing wasn't as difficult as it is in Windows Vista and frankly, because there were easier ways to pirate Windows XP, I don't think much attention was ever paid to it. However, because Windows Vista can't be pirated as easily as Windows XP, it's possible that the increased pressure will result in more interest in efforts to hack the OEM Activation 2.0 implementation.

Windows Vistas OEM Hacks

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There appear to be two primary variants of OA 2.0 hacks circulating. One is similar to the XP approach I described above where actual editing of the BIOS on the motherboard is

done to make the motherboard appear to be from an OEM. It is a pretty labor-intensive process and quite risky. If you mess up editing the BIOS of any motherboard, you can quite easily render it permanently useless. So while this method works today, it's potentially hazardous and really doesn't scale well to large numbers of systems, which makes it less of a threat.

The second variant does not change anything in the BIOS itself, but uses a software-based approach to fool the OS into thinking it's running on OA 2.0-enabled hardware. And while this method is easier to implement for the end user, it's also easier to detect and respond to than a method that involves directly modifying the BIOS of the motherboard.

I do want to say something here about how we plan our responses. As I've said in the past, we focus on hacks that pose threats to our customers, partners and products. It's worth noting we also prioritize our responses, because not every attempt deserves the same level of response. Our goal isn't to stop every "mad scientist" that's on a mission to hack Windows. Our first goal is to disrupt the business model of organized counterfeiters and protect users from becoming unknowing victims. This means focusing on responding to hacks that are scalable and can easily be commercialized, thereby making victims out of well-intentioned customers.

Published Tuesday, April 10, 2007 6:46 AM by alexkoc ★★☆☆☆
Filed under: OEM BIOS hack OA Activation

Comments

Tuesday, April 10, 2007 1:57 PM by TheXBlog » Blog Archiv » Windows Vista: Microsoft wird OEM-Hacks bek??mpfen - aber nicht alle
TheXBlog » Blog Archiv » Windows Vista: Microsoft wird OEM-Hacks bek??mpfen - aber nicht alle

PingBack from <http://www.thexboard.de/blog/?p=16>

Wednesday, April 11, 2007 4:45 AM by Tlippy
re: Reported OEM BIOS Hacks

I have a legit copy of XP pro, let that be said right now. As a business owner here I need a copy of Vista for practice on how to repair the multitude of problems that are going to occur with my customers machines. I however am NOT going to give you \$400 for a piece of software which I would be hard pressed to justify the price of \$150 for. You priced yourself out of the market for the average customer. Did you ever consider that people wouldnt be putting forth the extreme effort to pirate this software if you were not gouging them by the eyeballs? How much money would you make at \$50-\$100 a pop, hundreds of millions, instead of half a billion? Vista underlies why people pirate your software, you over charge and under deliver. I'm going to continue to use a bios-emulated Vista as a testing machine, while sticking with my legit XP as primary, mostly because Vista is inferior to XP currently, and possibly in perpetuity, and I refuse to pay 4X more for an inferior OS. Did you ever think that by simply lowering the price of your OS, instead of constantly trying to counter the piracy aspect you just might actually increase sales? If you make it hard to copy, but cheap to buy, people will buy it. If you make it \$400, well, then you just make piracy more attractive. It's that simple folks, you can try to come up with all sorts of defenses about why you HAVE to charge this, and piracy is evil plain and simple, but point is you're greedy. You've priced yourselves out of what the majority of the population is willing

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to pay, and you've made piracy that much more attractive. I'd have paid for an upgrade to Vista Ultimate, but now why bother. Paradox has given you your just desserts, and I hope the public gets fat on that, as opposed to your bank accounts getting fat with the hard earned money of the average consumer.

Wednesday, April 11, 2007 7:40 AM by Cyraq

re: Reported OEM BIOS Hacks

Alex, will you stop your poorly written defensive/offensive stances on the various Vista cracks out there and realize that it's been pirated and that there's nothing you can do about it? I'm using a cracked copy right now (and ever since early February), and I can use Windows update and everything is working perfectly. I have an ISO complete with crack on the internet. All my friends without exception are using a cracked copy.

What are you going to do about it?

Wednesday, April 11, 2007 8:51 AM by Donna's SecurityFlash

Microsoft blogs about "Reported OEM BIOS Hacks"

Alex Kochis, a Microsoft Senior Product Manager, Windows Genuine Advantage blogs yesterday regarding

Wednesday, April 11, 2007 9:38 PM by rdamiani

re: Reported OEM BIOS Hacks

One of the stated goals of WGA is to reduce or eliminate pre-loading by unscrupulous computer manufacturers. The main advantage WGA supposedly offers to end users who have to deal with it is the knowledge that thier software is 'genuine'.

With that in mind, lets say that I am an unscrupulous computer vendor. With XP, I could use VLKs and volume media to bypass activation altogether. If I was both kinda dumb (used the same key over and over again) and kinda successful (sold lots of computers) eventually the on-line validation system might flag the key I was using and I'd get busted. If I'm not mistaken, MS has caught a few folks exactly that way, so we'll call that a win for WGA 1.0.

Now lets suppose I'm a slightly smarter, but still unscrupulous, box builder. I used many different VLKs that I got through various means, so even though I was kinda successful, I managed to fly under the radar of on-line verification. It's kinda nervous-making though. If my supply of VLKs dries up (or my VLK supplier is also unscrupulous and sells me bad or overused keys) or I get careless, on-line verification is gonna catch on and I'll get busted. We'll call that mostly a win, because once I get successful and nervous enough, I'm gonna convince myself that I better get legit.

Now let's look at WGA 2.0. VLKs aren't much good to me now, 'cause VLKs also need activation, and they have a limit on the number of activations. If I acquire one and start using it, someone is gonna notice quickly. So what to do? Go legit? Nah. I'll use OA 2.0. It was a bit too much bother with OA 1.0 'cause VLKs were easy. With OA 2.0, though, I can mod ACPI tables in bulk as I build systems. I don't even need to figure out how on my own, 'casue there are on-line toolkits and instructions for it. Since OEMs apparently use the same (small) set of CD Keys over and over again, I don't have to worry about on-line verification catching one of my customers. Now I'm not nervous anymore, because I don't need a source of VLKs. Unless my numbers get big enough to rival a 'name brand' builder, my little subterfuge is undetectable. Result? We'll call that a loss for WGA 2.0. It fails to have an effect on one of the main reasons we, as consumers and VARs, have been told that WGA is for our own good.

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The way I see it, MS needs to either stop with the doublespeak about the 'advantage' that WGA offers and present it as what it is - software licensing - or it needs to figure out how to put this particular genie back into it's bottle. Good luck with that.

Wednesday, April 11, 2007 10:10 PM by Will

re: Reported OEM BIOS Hacks

About time Microsoft has responded to the paradox crack for Windows Vista.

This crack can easily be made wide scale and just as easy to commercialize it. Already seen a few aholes trying to sell pre cracked Vista dvds.

So yeah you better do something about this one!

Thursday, April 12, 2007 3:00 AM by Customer#985

re: Reported OEM BIOS Hacks

About time you responded

So, when will the ban go into affect? Vista needs to ban more methods than just the old token.dat one. Timerstop, etc all need to be banned in addition to this one.

Thursday, April 12, 2007 3:09 AM by Teamzille.de

OEM BIOS Hacks für Vista-Aktivierung

Schon seit lüngerer Zeit exisieren Möglichkeiten, um die die Aktivierung von Windows Vista zu umgehen. Da Microsoft an OEM-Partner Lizenzschlüssel ausliefert, die nicht aktiviert werden müssen, lassen sich über diesen Weg alle

Thursday, April 12, 2007 6:46 AM by feuvan

re: Reported OEM BIOS Hacks

So it means that the simulation way to fool OA-2.0 would be broken one day?

And it's interesting to call them "mad scientist".

Friday, April 13, 2007 12:29 AM by Santhosh Sivarajan, Houston,TX

Vista OEM BIOS Hacks

Read at <http://blogs.msdn.com/wga/archive/2007/04/10/reported-oem-bios-hacks.aspx>
Technorati : Vista

Friday, April 13, 2007 3:06 AM by Robert McLaws: This Time, It's Personal

The Vista Daily #18

Thursday is now officially Delay Day. Both Apple and Microsoft took their lumps for delaying products

Friday, April 13, 2007 3:06 AM by Robert McLaws: Windows Vista Edition

The Vista Daily #18

Thursday is now officially Delay Day. Both Apple and Microsoft took their lumps for delaying products

Friday, April 13, 2007 4:21 AM by MadDoggyca

re: Reported OEM BIOS Hacks

Just Give up... I don;t want to sound nagitive but face it. the only reson why windows ownz the desktop market is becuz most user do infact use a hacked verion... I be more focusing on Price Competeing with apple OSX at 104\$USD

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the only reason why OSX never gets hacked attack is because a avg user will pay out 104\$USD ever 2 years. and they have no nagging activation BS...

now that I sound like a Apple fan boy I infact do not own a mac and I bought the 499\$ Ultramite edition as I can not stand being jipped out of future that a user should not have to pay for.... and I don't have the time to fiddle with hacks and rehacks ever time they come out with patches...

but honestly give up.. drop Ultramite Edition to around 150\$..drop all over Version altogether.... and start regain people respect... in the end the most Revenue From windows Comes from Corporation anyways and OEM Sales...

homeuser could probably care less of upgrading anyways. If it isn't broken don't fix it..and if Steve gets smart and releases OSX under x86 x64 hardware windows will be running for its money,,,

my 2 cents in

Friday, April 13, 2007 5:32 AM by ::MegaRed::

Microsoft confirma la existencia de un crack para Windows Vista.

Lleva algún tiempo circulando a través de Internet un crack que evita el proceso de activación de Windows Vista. La efectividad del crack ha sido reconocida por Alex Kochisen, Senior Product Manager de Microsoft, que ha admitido la existencia de un fallo

Saturday, April 14, 2007 12:08 PM by Vista News and Resources

Microsoft confirms Vista OEM hack

In response to widespread chatter on blogs and forums, Microsoft has acknowledged the presence of hacks

Monday, April 16, 2007 10:18 PM by rdamiani

re: Reported OEM BIOS Hacks

One of the stated goals of WGA is to reduce or eliminate pre-loading by unscrupulous computer manufacturers. The main advantage WGA supposedly offers to end users who have to deal with it is the knowledge that their software is 'genuine'.

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Friday, April 20, 2007 8:04 AM by Haluk Blog Sayfası

Vista da kırılıyor

Ürün müdürlerinden Alex Kochis, Windows Genuine Advantage blog sayfalarında , yapılan hack işlemi hakkında

Wednesday, December 05, 2007 1:52 PM by 13BIT.com.ar

With SP1, Microsoft plans to ditch the Vista kill switch

With SP1, Microsoft plans to ditch the Vista kill switch

Anonymous comments are disabled

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Technical Details on Microsoft Product Activation for Windows XP

Software piracy is a worldwide problem which negatively impacts software developers, resellers, support professionals, and most importantly, consumers. One form of piracy, estimated to be as high as 50%, is known as casual copying. Casual copying is the sharing and installation of software on multiple PCs in violation of the software's end user license agreement (EULA). Microsoft has developed product activation as one solution to reduce this form of piracy.

Product activation uses several methods and technologies to help achieve Microsoft's goals of protecting intellectual property rights by making it easy for users to comply with the terms of the EULA and reducing software piracy.

In order to help customers and partners better understand the technologies used by product activation, and their unobtrusive and anonymous nature, we will outline in this bulletin:

1. How activation works for Windows XP acquired through:
 - a. A PC manufacturer (OEM)
 - b. A retail store (where customers buy "boxed" software product)
 - c. A volume licensing agreement (customers who acquire their licenses through programs such as Microsoft Open, Enterprise, or Select licensing).
2. How the hardware hash component of the installation ID is created and the scenarios in which a copy of Windows XP may have to be re-activated due to a substantial hardware modification.

For a more general overview on the basics of product activation please see http://www.microsoft.com/piracy/basics/xp_activation.asp. Additionally, this document contains some technical concepts. Pointers to reference material covering certain technical concepts are included in the appendix. Information contained in this document represents product activation in Windows XP as of the document's date of publication.

Product Activation and volume licenses

Windows XP upgrade licenses acquired through one of Microsoft's volume licensing agreements, such as Microsoft Open License, Enterprise Agreement, or Select License, will not require activation. Installations of Windows XP made using volume licensing media and volume license product keys (VLKs) will have no activation, hardware checking, or limitations on installation or imaging.

Product Activation and new pre-loaded PCs

The majority of customers acquire Windows with the purchase of a new computer, and most new computers pre-loaded with Windows XP will not require activation at all. Microsoft provides OEMs with the ability to "pre-activate" Windows XP in the factory and estimates that upwards of 80% of all new PCs will be delivered to the customer pre-activated.

"Pre-activation" of Windows XP by the OEMs will be done in one of two different ways depending on the OEM's own configuration options and choices. Some OEMs may protect Windows XP using a mechanism which locks the installation to OEM-specified BIOS information in the PC. This technology works very similar to existing technologies that many OEMs have used over the years with the CDs they ship to reinstall Windows on these computers. We expanded and integrated the existing OEM CD BIOS locking mechanism with product activation, and call this method of protection "System Locked Pre-installation," or SLP.

Successfully implemented, SLP uses information stored in an OEM PC's BIOS to protect the installation from casual piracy. No communication by the end customer to Microsoft is required and no hardware hash is created or necessary. At boot, Windows XP compares the PC's BIOS to the SLP information. If it matches, no activation is required.

Every single piece of hardware could be changed on a PC with SLP and no reactivation would be required – even the motherboard could be replaced as long as the replacement motherboard was original equipment manufactured by the OEM and retained the proper BIOS. In the unlikely scenario that the BIOS information does not match, the PC would need to be activated within 30 days by contacting the Microsoft activation center via the Internet or telephone call – just as in a retail scenario.

OEMs may also activate Windows XP by contacting Microsoft in the same way the consumer would activate. Activation done in this way is the same as activating a retail boxed version of Windows XP. This is discussed in more detail further below.

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For OEMs who do not employ either of the above two methods of pre-activation, a new PC acquired with Windows XP preinstalled must be activated by the customer. This activation is completed in the exact same way as would someone who acquired Windows XP by purchasing a boxed version at a retailer.

Product Activation and retail boxed software product

Product activation relies on the submission of the Installation ID. The Installation ID is specifically designed to guarantee anonymity and is only used by Microsoft to deter piracy. The Installation ID is comprised of two different pieces of information – the product ID and a hardware hash (a *hash* is a numeric value derived through a mathematical formula and based upon some other, original value). The product ID is unique to the installation of Windows and is created from the product key used during installation. Each product key delivered with retail boxed software is unique, and the product ID it creates is unique. Microsoft uses the product ID for other purposes in addition to product activation such as when requesting product support. The product ID can be found by viewing the *Properties of My Computer* (an example of a product ID is 12345-123-1234567-12345).

The hardware hash is an eight byte value that is created by running 10 different pieces of information from the PC's hardware components through a one-way mathematical transformation. This means that the resultant hash value cannot be backwards calculated to determine the original values. Further, only a portion of the resulting hash value is used in the hardware hash in order to ensure complete anonymity.

Example: A processor serial number is 96 bits in length. When hashed, the resultant one-way hash is 128 bits in length. Microsoft uses only six bits from that resultant hash in activation's hardware hash. Due to the nature of the hashing algorithm, those six bits cannot be backwards calculated to determine anything at all about the original processor serial number.

Moreover, six bits represent 64 (2^6) different values. There were over 100 million PCs sold last year worldwide. From those 100 million PCs sold, only 64 different hardware hash values could be created as part of activation.

Microsoft developed the hardware hash in this way in order to maintain the user's privacy.

Additionally, whether or not the PC can be put into a docking station or accepts PCMCIA cards is also determined (the possibility of a docking station or PCMCIA cards existing means that hardware may disappear or seem changed when

those devices are not present). Finally, the hardware hash algorithm has a version number. Together with the general nature of the other values used, two different PCs could actually create the same hardware hash. The 10 different hardware values used to create the hash are outlined in the table below:

Table 1: Hardware hash component values

Component Name		Example Hash Value (#o of bits)
1	Display Adapter	00010 (5)
2	SCSI Adapter	00011 (5)
3	IDE Adapter	0011 (4)
4	Network Adapter MAC Address	1001011000 (10)
5	RAM Amount Range (i.e. 0-64mb, 64-128mb, etc)	101 (3)
6	Processor Type	011 (3)
7	Processor Serial Number	000000 (6)
8	Hard Drive Device	1101100 (7)
9	Hard Drive Volume Serial Number	1001000001 (10)
10	CD-ROM / CD-RW / DVD-ROM	0101111 (7)
-	"Dockable"	0 (1)
-	Hardware Hash version (version of algorithm used)	001 (3)

The product ID (nine bytes) and hardware hash (eight bytes) are used by Microsoft to process the activation request. When activation is done over the Internet, these two values form the Installation ID (in a binary format) and are sent along with request header information directly through secure sockets (SSL in HTTP) to the Microsoft activation system in a binary format. There are three communications made to complete Internet activation:

1. Handshake request: Contains product ID, hardware hash, and request header data such as request ID (for linking the handshake, request, and acknowledgement) and activation technology version. 262 bytes total.
2. License request: Contains product ID, hardware hash, and customer data structure for holding voluntary registration information if provided. If registration is skipped, this structure is empty. Also contains request header data such as request ID and the PKCS10 digital certificate request structure. The PKCS10 structure can vary slightly based on the inclusion of voluntary registration information; about 2763 to 3000 bytes total.
3. Acknowledgement request: Contains certificate ID (returned to user's machine after license request), issue date, and error code. 126 bytes total.

If Internet activation is successful, the activation confirmation is sent directly back to the user's PC as a digital certificate. This certificate is digitally signed by Microsoft so that it cannot be altered or counterfeited. The confirmation packet returned as part of Internet activation is approximately 9 kbytes in size (the digital certificate chain accounts for most of the confirmation data packet size).

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If activation is done by telephoning a customer service representative, the product ID and hardware hash are automatically displayed to the user as the Installation ID; a 50 digit decimal representation. The encoding encrypts the data so that it cannot be altered and provides check digits to help aid in error handling. Telephone activation is a four step process:

1. Selecting the country from which the call is being made so that an appropriate phone number can be shown in the product UI.
2. Dialing the phone number
3. Providing the Installation ID to the customer service representative
4. Entering the Confirmation ID provided by the customer service representative.

The confirmation ID is a 42-digit integer containing the activation key and check digits that aid in error handling. Both the installation ID and confirmation ID are displayed to the user in easily understandable segments in the product UI.

Modifications to hardware and how they affect the activation status of Windows XP

Product activation rechecks the hardware it is running only to help reduce illegal hard disk cloning – another prevalent piracy method. Hard disk cloning is where a pirate copies the entire image of a hard disk from one PC to another PC. At each login, Windows XP checks to see that it is running on the same or similar hardware that it was activated on. If it detects that the hardware is “substantially different”, reactivation is required. This check is performed after the SLP BIOS check discussed above, if the SLP BIOS check fails. This means that if your PC is pre-activated in the factory using the SLP pre-activation method, *all* the components in the PC could be swapped, including the motherboard, so long as the replacement motherboard was genuine and from the OEM with the proper BIOS. As noted above, installations of Windows XP made using volume licensing media and volume license product keys (VLKs) will not have any hardware component checking.

Microsoft defines “substantially different” hardware differently for PCs that are configured to be dockable. Additionally, the network adapter is given a superior “weighting.” If the PC is not dockable and a network adapter exists and is not changed, 6 or more of the other above values would have to change before reactivation was required. If a network adapter existed but is changed or never existed at all, 4 or more changes (including the changed network adapter if it previously existed) will result in a requirement to reactivate.

Scenario A:

PC One has the full assortment of hardware components listed in Table 1 above. User swaps the motherboard and CPU chip for an upgraded one, swaps the video adapter, adds a second hard drive for additional storage,

Microsoft Technical Market Bulletin on Product Activation in Windows XP

doubles the amount of RAM, and swaps the CD ROM drive for a faster one.

Result: Reactivation is NOT required.

Scenario B:

PC Two has the full assortment of hardware components listed in Table 1 except that it has *no* network adapter. User doubles the amount of RAM, swaps the video card and the SCSI controller.

Result: Reactivation is NOT required.

Dockable PCs are treated slightly more leniently. In a dockable PC, if a network adapter exists and is not changed, 9 or more of the other above values would have to change before reactivation was required. If no network adapter exists or the existing one is changed, 7 or more changes (including the network adapter) will result in a requirement to reactivate.

Scenario C:

Dockable PC Three has the full assortment of hardware components listed in Table 1 except that it has *no* network adapter. User doubles the amount of RAM, swaps to a bigger hard disk drive, and adds a network adapter.

Result: Reactivation is NOT required.

The change of a single component multiple times (e.g. from video adapter A to video adapter B to video adapter C) is treated as a single change. The addition of components to a PC, such as adding a second hard drive which did not exist during the original activation, would not trigger the need for a reactivation nor would the modification of a component not listed in the above table. Additionally, reinstallation of Windows XP on the same or similar hardware and a subsequent reactivation can be accomplished an infinite number of times. Finally, the Microsoft activation clearinghouse system will automatically allow activation to occur over the Internet four times in one year on substantially different hardware. This last feature was implemented to allow even the most savvy power users to make changes to their systems and, if they must reactivate, do so over the Internet rather than necessitating a telephone call.

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Conclusions

Microsoft believes that product activation will be successful at deterring the casual copier, thereby reducing the piracy of Windows XP. Product activation achieves this goal by implementing a technology solution that deters the casual copier while:

- Continuing to meet the needs of corporate customers and their unique deployment needs for deployment of volume licenses
- Maintaining Windows XP's ease of use
- Striking a balance in protecting intellectual property clearly in favor of the user
- Protecting the user's privacy by utilizing information that is not personally identifiable. At no time is personally identifiable information secretly gathered or submitted to Microsoft as part of activation.

Furthermore, Microsoft believes that product activation be completely unobtrusive to most Windows users. Most users of Windows XP will acquire it with the purchase of a new PC. The vast majority of these users will never see activation, either on first boot or with substantial hardware upgrades. For those users whose new PC requires that Windows XP be activated or who acquire Windows XP through a retail box, activation will most likely be a one-time occurrence that, whether completed via the Internet or by telephoning a Microsoft customer service representative, will be a simple, quick, and straightforward process.

Appendix A: This bulletin and Microsoft Product Activation for Office XP Family Products

Office XP Family products use an underlying activation technology similar to that of Windows XP. Please see the forthcoming Microsoft Technical Market Bulletin on product activation in Office XP Family products for details.

Appendix B: Technologies used in Product Activation

An overview of digital certificate technologies can be found on Microsoft's MSDN website at http://msdn.microsoft.com/library/default.asp?url=/library/en-us/security/hh/crypto/aboutcrypto_3xdf.asp

A comprehensive overview of cryptography solutions available to Microsoft developers can also be found on Microsoft's MSDN website at http://msdn.microsoft.com/library/default.asp?url=/library/en-us/security/hh/crypto/aboutcrypto_6fl5.asp

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For more information, press only:

Rapid Response Team, Waggener Edstrom, (503) 443-7000, rrt@wagged.com

For online product information:

Microsoft Windows XP Web site: <http://www.microsoft.com/xp>

Microsoft Piracy Web site: <http://www.microsoft.com/piracy/>

Microsoft Product Activation Web site:

http://www.microsoft.com/piracy/basics/xp_activation.asp

For independent information on software piracy:

Business Software Alliance web site: <http://www.bsa.org>

Software & Information Industry Association web site: <http://www.siiia.net/piracy>

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Piracy is a significant problem that persists worldwide. The Business Software Alliance and market research firm IDC reported in the Global Software Piracy Study¹ that 35% of the software installed in 2006 on personal computers (PCs) worldwide was obtained illegally, amounting to nearly \$40 billion in global losses due to software piracy. Often, counterfeit copies are bundled with malicious, unwanted code that can lead to system crash, data loss, and even stolen identity, and are difficult to detect.²

Many consumers who end up with a counterfeit copy of Microsoft software are unwitting victims of a crime. They believe they purchased a properly licensed copy and often have documents to back this up, but their copy of Windows or Office is actually not properly licensed.

For these reasons, Microsoft continually invests in technologies and programs to protect its intellectual property, and to help protect its customers from the risks and the hidden costs of running counterfeit software. Throughout this document the term Windows is used to refer both Windows Vista and Windows Server 2008.

Windows Product Activation

All editions and distributions of Windows Vista and Windows Server 2008, including those obtained through a volume license program, are required to complete activation within the first 30 days of using Windows. Product activation establishes the relationship between the product key (obtained through appropriate licensing) and a copy of the software on a device to which the licensing rights are applied.³ Completing the activation process allows a user continued access to full Windows functionality. After initial installation (or 30 days after installation), product activation will be required.

Product activation uses several methods and technologies to help achieve Microsoft's goals of protecting intellectual property rights by making it easy for users to comply with the terms of the EULA and reducing software piracy.

¹ See a study of the piracy summary at <http://w3.bsa.org/globalstudy/>

² See a summary or access the complete the white paper at http://www.microsoft.com/protect/promotions/us/wga_idc_us.mspix

³ Learn more about volume activation at <http://www.microsoft.com/licensing/resources/vol/default.mspix>

In order to help customers and partners better understand the technologies used by product activation, and their unobtrusive and anonymous nature, we will outline in this bulletin:

1. How activation works for Windows acquired through:
 - a. A PC manufacturer (OEM)
 - b. A retail store (where customers buy "boxed" software product)
 - c. A volume licensing agreement (customers who acquire their licenses through programs such as Microsoft Open, Enterprise, or Select licensing).
2. How the hardware hash component of the installation ID is created and the scenarios in which a copy of Windows may have to be re-activated due to a substantial hardware modification.

A Note About Privacy

Protecting our customers' privacy is very important to Microsoft. Product Activation is built with privacy in mind and is implemented in accordance with a clear privacy policy. Microsoft does not use any information collected through product activation to identify or contact customers.

Product Activation and volume licenses

Volume Activation 2.0 is a configurable solution that helps IT Pros automate and manage the product activation of systems licensed under volume licensing. The benefits of Volume Activation 2.0 include transparent activation experience for the end-users, no need for handling product keys during installation, better protection and management of customer specific license keys, and avoid the risks associated with running non-genuine software.

Multiple activation options are available using two types of customer specific keys: Multiple Activation Key (MAK) and Key Management Service (KMS) key. Multiple Activation Key as the name implies can be used on multiple systems to activate the corresponding system against Microsoft activation service by online, phone or proxy methods. Volume Activation Management Tool (VAMT) available at <http://go.microsoft.com/fwlink/?LinkID=77533> enables proxy activation of systems using Multiple Activation Key. Key Management Service (KMS) enables organizations to perform local activations of systems in a managed environment without connecting them to Microsoft individually. A KMS Key is used to enable the Key Management Service on a system controlled by an organization's system administrator.

Product Activation and new pre-loaded PCs

The majority of customers acquire Windows with the purchase of a new computer, and most new computers pre-loaded with Windows will already be pre-activated. Microsoft provides OEMs with the ability to "pre-activate" Windows in the factory and estimates that upwards of 80% of all new PCs will be delivered to the customer pre-activated.

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“Pre-activation” of Windows by the OEMs will be done in one of two different ways depending on the OEM's own configuration options and choices. Some OEMs may protect Windows using a mechanism which locks the installation to OEM-specified BIOS information in the PC. This technology is an improvement over the existing technology used in Windows XP call “System Locked Pre-installation,” or SLP. The improved product activation technology used in Windows is called “OEM Activation 2.0,” or OA 2.0.

OEM Activation 2.0 uses information stored in an OEM PC's BIOS and Hard Disk Drive (HDD) to protect the installation from casual piracy. No communication by the end customer to Microsoft is required and no hardware hash is created or necessary. At boot, Windows compares the PC's BIOS to the OA 2.0 information on the HDD. If it matches, activation is successful.

Every single piece of hardware could be changed on a PC with OA 2.0 and no reactivation would be required – even the motherboard could be replaced as long as the replacement motherboard was original equipment manufactured by the OEM and retained the proper BIOS. In the unlikely scenario that the BIOS information does not match, the PC would need to be activated by contacting the Microsoft activation center and requesting activation with a customer support representative.

OEMs may also activate Windows by contacting Microsoft in the same way the consumer would activate. Activation done in this way is the same as activating a retail boxed version of Windows. This is discussed in more detail further below.

For OEMs who do not employ either of the above two methods of pre-activation, a new PC acquired with Windows Vista or Windows Server 2008 preinstalled must be activated by the customer. This activation is completed in the exact same way as would someone who acquired Windows Vista or Windows Server 2008 by purchasing a boxed version at a retailer.

Product Activation and retail boxed software product

Product Activation can be done in two ways; Phone activation and Online Activation.

Phone activation relies on the submission of the Installation ID. The Installation ID is specifically designed to guarantee anonymity and is only used by Microsoft to deter piracy. The Installation ID is comprised of two different pieces of information – the product ID and a short hardware hash value (a *hash value* is a digital fingerprint of the data that is derived through a mathematical formula, or hash function,). The product ID is unique to the installation of Windows and is created from the product key used during installation. Each product key delivered with retail boxed software is unique, and the product ID it creates is

unique. Microsoft uses the product ID for product activation. The product ID can be found by viewing the *Properties of My Computer* (an example of a product ID is 12345-123-1234567-12345).

The short hardware hash value is an eight byte value that is created by running 10 different pieces of information from the PC's hardware components through a one-way mathematical transformation. This means that the resultant hash value cannot be backwards calculated to determine the original values. Further, only a portion of the resulting hash value is used in the hardware hash in order to ensure complete anonymity.

Example: A processor serial number is 96 bits in length. When hashed, the resultant one-way hash is 128 bits in length. Microsoft uses only six bits from that resultant hash in activation's hardware hash. Due to the nature of the hashing algorithm, those six bits cannot be backwards calculated to determine anything at all about the original processor serial number.

Moreover, six bits represent 64 (2^6) different values. There were over 100 million PCs sold last year worldwide. From those 100 million PCs sold, only 64 different hardware hash values could be created as part of activation.

Microsoft developed the hardware hash in this way in order to maintain the user's privacy.

Additionally, whether or not the PC can be put into a docking station or accepts PCMCIA cards is also determined (the possibility of a docking station or PCMCIA cards existing means that hardware may disappear or seem changed when those devices are not present). Finally, the hardware hash algorithm has a version number. Together with the general nature of the other values used, two different PCs could actually create the same hardware hash. The 10 different hardware values used to create the hash are outlined in the table below:

Table 1: Hardware hash component values (phone activation)

BIOS ID	000000 (6)
RemovablePolicy (One bit per component; Network Card, CD-ROM, Audio, SCSI, and IDE Adapter)	11111 (5)
Network Adapter MAC Address	1001011000 (10)
CD-ROM / CD-RW / DVD-ROM	0101111 (7)
IDE Adapter	0011 (4)
Hardware Hash version (version of algorithm used)	001 (3)

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Audio Adapter	100100 (6)
Physical OS Drive Serial	1101100 (7)
SCSI Adapter	00011 (5)
Display Adapter	00010 (5)
Processor Type	011 (3)
RAM Amount Range (i.e. 0-512mb, 512mb - 1 GB, etc)	101 (3)
"Dockable" flag	011 (3)

The product ID (nine bytes) and hardware hash (eight bytes) are used by Microsoft to process the phone activation request.

Online activation over the internet can be accomplished automatically or manually. During setup the user can select automatic activation, which will result in automatic activation three days after running setup. If the user chooses manual activation, then at some point over the next 30 days, the user will need to activate their system by either responding to one of the activation prompts or by invoking the product activation wizard. The product id information sent to the server is the same as in Phone Activation. But the hardware Id sent during online activation is different. We collect 2 bytes of hash information from all the hardware instances that are in the table above. Again these 2 bytes of information will not uniquely identify a customer. It is to differentiate between different hardware devices. These two values (product id and hardware id (long)) are sent along with request header information directly through secure sockets (SSL in HTTP) to the Microsoft activation system in a binary format. There are three communications made to complete Internet activation:

1. Handshake request: Contains product ID, hardware hash, and request header data such as request ID (for linking the handshake, request, and acknowledgement) and activation technology version. 262 bytes total.
2. License request: Contains product ID, hardware hash, and customer data structure for holding voluntary registration information if provided. If registration is skipped, this structure is empty. Also contains request header data such as request ID and the PKCS10 digital certificate request structure. The PKCS10 structure can vary slightly based on the inclusion of voluntary registration information; about 2763 to 3000 bytes total.
3. Acknowledgement request Contains certificate ID (returned to user's machine after license request), issue date, and error code. 126 bytes total.

If Internet activation is successful, the activation confirmation is sent directly back to the user's PC as a digital certificate. This certificate is digitally signed by Microsoft so that it cannot be altered or counterfeited. The confirmation packet returned as part of Internet activation is approximately 9 kbytes in size (the digital certificate chain accounts for most of the confirmation data packet size).

If activation is done by telephoning a customer service representative, the product ID and short hardware hash are automatically displayed to the user as

the Installation ID; a 50 digit decimal representation. The data is encoded and has check digits so that it cannot be altered. Telephone activation is a four step process:

1. Selecting the country from which the call is being made so that an appropriate phone number can be shown in the product UI.
2. Dialing the phone number
3. Providing the Installation ID to the customer service representative
4. Entering the Confirmation ID provided by the customer service representative.

The confirmation ID is a 42-digit integer containing the activation key and check digits that aid in error handling. Both the installation ID and confirmation ID are displayed to the user in easily understandable segments in the product UI.

Impact of Hardware Modifications to Activation

At each login, Windows Vista or Windows Server 2008 checks to see that it is running on the same or similar hardware that it was activated on. If it detects that the hardware is “substantially different”, reactivation is required. This check is performed after the OA 2.0 BIOS check discussed above, if the OA 2.0 BIOS check fails. This means that if your PC is pre-activated in the factory using the OA 2.0 pre-activation method, *all* the components in the PC could be swapped, including the motherboard, so long as the replacement motherboard was genuine and from the OEM with the proper BIOS.

The retail activation hardware check is accomplished by assigning each of the ten hardware elements a weighting factor. The sum of the weighting factors for the unchanged elements must exceed a threshold, otherwise reactivation is required. Microsoft changes the ten weighting factors and threshold value on its product activation servers periodically based on product activation and product support data. These changes on the activation server only impact online activation. Phone activation is still controlled by the weighting factors and threshold values maintained in the Windows client code. For example, the weighting factor for the HDD on Windows XP required the end user to reactivate whenever the HDD was replaced. Product support data showed that many of these reactivations were due to failed hard drives or user initiated upgrade to a higher capacity hard drive. Shortly after Windows Vista RTM and prior to Windows Vista consumer launch, the HDD weighting factor on the activation servers was reduced slightly to allow the end user to replace the HDD without requiring reactivation.

The actual weighting factors and threshold value are not published by Microsoft, since PC hardware is constantly evolving and real life data is utilized to adjust these values for the best user experience possible, but at the same time protecting Microsoft’s intellectual property by reducing piracy.

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Installations of Windows Vista or Windows Server 2008 using Volume activation are now subject to reactivation if the hardware changes. Volume MAK activation utilizes the same reactivation rules as retail activation. Volume KMS activation only requires reactivation if the HDD has changed.

Scenario A:

PC One has the full assortment of hardware components listed in Table 1 above. User swaps the CPU chip for an upgraded one, swaps the video adapter, adds a second hard drive for additional storage, doubles the amount of RAM, and swaps the CD ROM drive for a faster one.

Result: Reactivation is NOT required.

Scenario B:

PC Two has the full assortment of hardware components listed in Table 1 above. The HDD fails and the user replaces the failed drive with a new HDD. The user loads the new HDD from a backup or from the original installation media.

Result: Reactivation is NOT required.

Scenario C:

PC Three has the full assortment of hardware components listed in Table 1 above. The motherboard fails, and the user is forced to replace the failed motherboard with a new one.

Result: Reactivation is required. Why? Changing the motherboard results in a hardware configuration that is substantially different, since several of the ten hardware elements change when installing a new motherboard.

The change of a single component multiple times (e.g. from video adapter A to video adapter B to video adapter C) is treated as a single change. The addition of components to a PC, such as adding a second hard drive which did not exist during the original activation, would not trigger the need for a reactivation nor would the modification of a component not listed in the above table.

Reinstallation of Windows Vista or Windows Server 2008 on the same or similar hardware and a subsequent reactivation can be accomplished five times.

Conclusions

Software piracy is a persistent and evolving crime. Each year, the software industry, businesses, and consumers are harmed by counterfeit software. Microsoft has increased its investments to address this challenge and help to protect businesses and consumers from the risks of counterfeit and unlicensed software. With Windows Vista and Windows Server 2008, a markedly different experience is offered as Windows Vista is among the first products from

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Microsoft to take advantage of the Software Protection Platform, an innovative platform from Microsoft that strengthens anti-piracy technologies to help better protect customers and improve the overall licensing experience.

Microsoft is strengthening its commitment to make progress against software piracy with technologies to identify counterfeit software built right in to new software products. Windows Vista and Windows Server 2008 has new built-in anti-piracy technologies making it more difficult to pirate, providing a superior experience for customers who do pay, and creating consequences for those who pirate – including diminished functionality if the software is detected to have been tampered with or is counterfeit. A key goal is to maintain a great experience for our customers using genuine software. Another important goal is fairness; we have taken steps to make it easy and convenient for victims of counterfeit to obtain a genuine copy. All in all, Microsoft would like customers to expect fairness, great service, and a positive experience in the implementation of our anti-piracy measures.

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Product Activation for Windows Vista® and Windows Server® 2008

Technical Bulletin

March 2008

Piracy is a significant problem that persists worldwide. The Business Software Alliance and market research firm IDC reported in the Global Software Piracy Study¹ that 35% of the software installed in 2006 on personal computers (PCs) worldwide was obtained illegally, amounting to nearly \$40 billion in global losses due to software piracy. Often, counterfeit copies are bundled with malicious, unwanted code that can lead to system crash, data loss, and even stolen identity, and are difficult to detect.²

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For these reasons, Microsoft continually invests in technologies and programs to protect its intellectual property, and to help protect its customers from the risks and the hidden costs of running counterfeit software. Throughout this document the term Windows is used to refer both Windows Vista and Windows Server 2008.

Windows Product Activation

All editions and distributions of Windows Vista and Windows Server 2008, including those obtained through a volume license program, are required to complete activation within the first 30 days of using Windows Vista or the first 60 days of using Windows Server 2008. Product activation establishes the relationship between the product key (obtained through appropriate licensing) and a copy of the software on a device to which the licensing rights are applied.³ Completing the activation process allows a user continued access to full Windows functionality. After initial installation (or 30 or 60 days after installation depending on the operating system), product activation will be required.

Product activation uses several methods and technologies to help achieve Microsoft's goals of protecting intellectual property rights by making it easy for users to comply with the terms of the EULA and reducing software piracy.

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³ Learn more about volume activation at <http://www.microsoft.com/technet/volumeactivation>

Microsoft Technical Bulletin on Product Activation in Windows

In order to help customers and partners better understand the technologies used by product activation, and their unobtrusive and anonymous nature, we will outline in this bulletin:

1. How activation works for Windows acquired through:
 - a. A computer manufacturer (Original Equipment Manufacturer, or OEM)
 - b. A retail store (where customers buy "boxed" software product)
 - c. A volume licensing agreement (customers who acquire their licenses through programs such as Microsoft Open, Enterprise, or Select licensing).
2. How the hardware hash component of the installation ID is created and the scenarios in which a copy of Windows may have to be re-activated due to a substantial hardware modification.

A Note About Privacy

Protecting our customers' privacy is very important to Microsoft. Product Activation is built with privacy in mind and is implemented in accordance with a clear privacy policy. Microsoft does not use any information collected through product activation to identify or contact customers.

Product Activation and volume licenses

Volume Activation 2.0 is a configurable solution that helps IT Pros automate and manage the product activation of systems licensed under volume licensing. The benefits of Volume Activation 2.0 include transparent activation experience for the end-users, no need for handling product keys during installation, better protection and management of customer specific license keys, and avoid the risks associated with running non-genuine software.

Multiple activation options are available using two types of customer specific keys: Multiple Activation Key (MAK) and Key Management Service (KMS) key. Multiple Activation Key as the name implies can be used on multiple systems to activate the corresponding system against Microsoft activation service by online, phone or proxy methods. Volume Activation Management Tool (VAMT) available at <http://go.microsoft.com/fwlink/?LinkID=77533> enables proxy activation of systems using Multiple Activation Key. Key Management Service (KMS) enables organizations to perform local activations of systems in a managed environment without connecting them to Microsoft individually. A KMS key is used to enable the Key Management Service on a system controlled by an organization's system administrator.

Product Activation and new pre-loaded Computers

The majority of customers acquire Windows with the purchase of a new computer, and most new computers pre-loaded with Windows will already be pre-activated. Microsoft provides OEMs with the ability to "pre-activate" Windows

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in the factory and estimates that upwards of 80% of all new PCs will be delivered to the customer pre-activated.

“Pre-activation” of Windows by the OEMs will be done in one of two different ways depending on the OEM's own configuration options and choices. Some OEMs may protect Windows using a mechanism which locks the installation to OEM-specified BIOS information in the computer. This technology is an improvement over the existing technology used in Windows XP called “System Locked Pre-installation,” or SLP. The improved product activation technology used in Windows is called “OEM Activation 2.0,” or OA 2.0.

OEM Activation 2.0 uses information stored in an OEM computer's BIOS and Hard Disk Drive (HDD) to protect the installation from casual piracy. No communication by the end customer to Microsoft is required and no hardware hash is created or necessary. At boot, Windows compares the computer's BIOS to the OA 2.0 information on the HDD. If it matches, activation is successful.

Every single piece of hardware could be changed on a computer with OA 2.0 and no reactivation would be required – even the motherboard could be replaced as long as the replacement motherboard was original equipment manufactured by the OEM and retained the proper BIOS. In the unlikely scenario that the BIOS information does not match, the computer would need to be activated by contacting the Microsoft activation center and requesting activation with a customer support representative.

OEMs may also activate Windows by contacting Microsoft in the same way the consumer would activate. Activation done in this way is the same as activating a retail boxed version of Windows. This is discussed in more detail below.

For OEMs who do not employ either of the above two methods of pre-activation, a new computer acquired with Windows Vista or Windows Server 2008 preinstalled must be activated by the customer. This activation is completed in the exact same way as would someone who acquired Windows Vista or Windows Server 2008 by purchasing a boxed version at a retailer.

Product Activation and retail boxed software product

Product Activation can be done in two ways; Phone activation and Online Activation.

Phone activation relies on the submission of the Installation ID. The Installation ID is specifically designed to guarantee anonymity and is only used by Microsoft to deter piracy. The Installation ID is comprised of two different pieces of information – the product ID and a short hardware hash value (a *hash value* is a digital fingerprint of the data that is derived through a mathematical formula, or hash function). The product ID is unique to the installation of Windows and is

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created from the product key used during installation. Each product key delivered with retail boxed software is unique, and the product ID it creates is unique. Microsoft uses the product ID for product activation. The product ID can be found by viewing the *Properties of My Computer* (an example of a product ID is 12345-123-1234567-12345).

The short hardware hash value is an eight byte value that is created by running ten different pieces of information from the computer's hardware components through a one-way mathematical transformation. This means that the resultant hash value cannot be backwards calculated to determine the original values. Further, only a portion of the resulting hash value is used in the hardware hash in order to ensure complete anonymity.

Example: A processor serial number is 96 bits in length. When hashed, the resultant one-way hash is 128 bits in length. Microsoft uses only six bits from that resultant hash in activation's hardware hash. Due to the nature of the hashing algorithm, those six bits cannot be backwards calculated to determine anything at all about the original processor serial number.

Moreover, six bits represent 64 (2^6) different values. There were over 100 million PCs sold last year worldwide. From those 100 million PCs sold, only 64 different hardware hash values could be created as part of activation.

Microsoft developed the hardware hash in this way in order to maintain the user's privacy.

Additionally, whether or not the PC can be put into a docking station or accepts PCMCIA cards is also determined (the possibility of a docking station or PCMCIA cards existing means that hardware may disappear or seem changed when those devices are not present). Finally, the hardware hash algorithm has a version number. Together with the general nature of the other values used, two different PCs could actually create the same hardware hash. The different hardware values used to create the hash are outlined in the table below:

Table 1: Hardware hash component values (phone activation)

BIOS ID	000000 (6)
RemovablePolicy (One bit per component; Network Card, CD-ROM, Audio, SCSI, and IDE Adapter)	11111 (5)
Network Adapter MAC Address	1001011000 (10)
CD-ROM / CD-RW / DVD-ROM	0101111 (7)

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IDE Adapter	0011 (4)
Audio Adapter	100100 (6)
Physical OS Drive Serial	1101100 (7)
SCSI Adapter	00011 (5)
Display Adapter	00010 (5)
Processor Type	011 (3)
RAM Amount Range (i.e. 0-512mb, 512mb - 1 GB, etc)	101 (3)
"Dockable" flag	011 (3)

The product ID (nine bytes) and hardware hash (eight bytes) are used by Microsoft to process the phone activation request.

Online activation over the internet can be accomplished automatically or manually. During setup the user can select automatic activation, which will result in automatic activation three days after running setup. If the user chooses manual activation, then at some point over the next 30 or 60 days depending on the operating system, the user will need to activate their system by either responding to one of the activation prompts or by invoking the product activation wizard. The product ID information sent to the server is the same as in Phone Activation. But the hardware ID sent during online activation is different. Microsoft collects 2 bytes of hash information from all the hardware instances that are in the table above. Again these 2 bytes of information will not uniquely identify a customer. It is to differentiate between different hardware devices. These two values (product ID and hardware ID (long)) are sent along with request header information directly through secure sockets (SSL in HTTP) to the Microsoft activation system in a binary format. There are three communications made to complete Internet activation:

1. Handshake request: Contains product ID, hardware hash, and request header data such as request ID (for linking the handshake, request, and acknowledgement) and activation technology version. 262 bytes total.
2. License request: Contains product ID, hardware hash, and customer data structure for holding voluntary registration information if provided. If registration is skipped, this structure is empty. Also contains request header data such as request ID and the PKCS10 digital certificate request structure. The PKCS10 structure can vary slightly based on the inclusion of voluntary registration information; about 2763 to 3000 bytes total.
3. Acknowledgement request: Contains certificate ID (returned to user's machine after license request), issue date, and error code. 126 bytes total.

If Internet activation is successful, the activation confirmation is sent directly back to the user's computer as a digital certificate. This certificate is digitally signed by Microsoft so that it cannot be altered or counterfeited. The confirmation packet

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returned as part of Internet activation is approximately 9 kbytes in size (the digital certificate chain accounts for most of the confirmation data packet size).

If activation is done by telephoning a customer service representative, the product ID and short hardware hash are automatically displayed to the user as the Installation ID; a 50 digit decimal representation. The data is encoded and has check digits so that it cannot be altered. Telephone activation is a four step process:

1. Selecting the country from which the call is being made so that an appropriate phone number can be shown in the product UI.
2. Dialing the phone number
3. Providing the Installation ID to the customer service representative
4. Entering the Confirmation ID provided by the customer service representative.

The confirmation ID is a 42-digit integer containing the activation key and check digits that aid in error handling. Both the installation ID and confirmation ID are displayed to the user in easily understandable segments in the product UI.

Impact of Hardware Modifications to Activation

At each login, Windows Vista or Windows Server 2008 checks to see that it is running on the same or similar hardware that it was activated on. If it detects that the hardware is "substantially different", reactivation is required. This check is performed after the OA 2.0 BIOS check discussed above, if the OA 2.0 BIOS check fails. This means that if your computer is pre-activated in the factory using the OA 2.0 pre-activation method, *all* the components in the computer could be swapped, including the motherboard, so long as the replacement motherboard was genuine and from the OEM with the proper BIOS.

The retail activation hardware check is accomplished by assigning each of the ten hardware elements a weighting factor. The sum of the weighting factors for the unchanged elements must exceed a threshold, otherwise reactivation is required. Microsoft changes the ten weighting factors and threshold value on its product activation servers periodically based on product activation and product support data. These changes on the activation server only impact online activation. Phone activation is still controlled by the weighting factors and threshold values maintained in the Windows client code. For example, the weighting factor for the HDD on Windows XP required the end user to reactivate whenever the HDD was replaced. Product support data showed that many of these reactivations were due to failed hard drives or user initiated upgrade to a higher capacity hard drive. Prior to Windows Vista consumer launch, the HDD weighting factor on the activation servers was reduced slightly to allow the end user to replace the HDD without requiring reactivation.

The actual weighting factors and threshold value are not published by Microsoft, since computer hardware is constantly evolving and real life data is utilized to

adjust these values for the best user experience possible, but at the same time protecting Microsoft's intellectual property by reducing piracy.

Installations of Windows Vista or Windows Server 2008 using Volume Activation are now subject to reactivation if the hardware changes. MAK activation utilizes the same reactivation rules as retail activation. KMS activation only requires reactivation if the HDD has changed.

Scenario A:

Computer One has the full assortment of hardware components listed in Table 1 above. User swaps the CPU chip for an upgraded one, swaps the video adapter, adds a second hard drive for additional storage, doubles the amount of RAM, and swaps the CD ROM drive for a faster one.

Result: Reactivation is NOT required.

Scenario B:

Computer Two has the full assortment of hardware components listed in Table 1 above. The HDD fails and the user replaces the failed drive with a new HDD. The user loads the new HDD from a backup or from the original installation media.

Result: Reactivation is NOT required.

Scenario C:

Computer Three has the full assortment of hardware components listed in Table 1 above. The motherboard fails, and the user is forced to replace the failed motherboard with a new one.

Result: Reactivation is required. Why? Changing the motherboard results in a hardware configuration that is substantially different, since several of the ten hardware elements change when installing a new motherboard.

The change of a single component multiple times (e.g. from video adapter A to video adapter B to video adapter C) is treated as a single change. The addition of components to a computer, such as adding a second hard drive which did not exist during the original activation, would not trigger the need for a reactivation nor would the modification of a component not listed in the above table. Reinstallation of Windows Vista or Windows Server 2008 on the same or similar hardware and a subsequent reactivation can be accomplished five times.

Conclusions

Software piracy is a persistent and evolving crime. Each year, the software industry, businesses, and consumers are harmed by counterfeit software. Microsoft has increased its investments to address this challenge and help to

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protect businesses and consumers from the risks of counterfeit and unlicensed software. With Windows Vista and Windows Server 2008, a markedly different experience is offered as these operating systems are the first products from Microsoft to take advantage of the Software Protection Platform, an innovative platform from Microsoft that strengthens anti-piracy technologies to help better protect customers and improve the overall licensing experience.

Microsoft is strengthening its commitment to make progress against software piracy with technologies to identify counterfeit software built right in to new software products. Windows Vista and Windows Server 2008 have new built-in anti-piracy technologies making it more difficult to pirate, providing a superior experience for customers who do pay, and creating consequences for those who pirate – including diminished functionality if the software is detected to have been tampered with or is counterfeit. A key goal is to maintain a great experience for our customers using genuine software. Another important goal is fairness; we have taken steps to make it easy and convenient for victims of counterfeit to obtain a genuine copy. All in all, Microsoft would like customers to expect fairness, great service, and a positive experience in the implementation of our anti-piracy measures.

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March 2008

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System Locked Preinstallation

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System Locked Preinstallation, often abbreviated as **SLP**, is a procedure used by major OEM computer manufacturers in order to preactivate Microsoft's operating systems Windows XP, Windows Server 2003 and Windows Vista before mass distribution. There are two different versions of SLP; 2.0 is used for Windows Vista and Server 2008 while SLP, which is commonly now referred to as SLP 1.0 to avoid confusion, for Windows XP and Server 2003. Operating systems that use SLP 1.0 check for a particular text string in a computer's BIOS upon booting. If the text string does not match the information stored in the particular installation's OEMBIOS files, the user is prompted to activate his or her copy as normal. SLP 2.0 works in a similar manner. This effectively "locks" the operating system to the qualified motherboard. In addition, if an end user feels the need to perform a "clean install" of Windows, and if the manufacturer supplies the user with an installation disc (not a "System Recovery" disc that is a hard drive image), the user will not be prompted to activate the copy, given that the installation is performed on the same motherboard. Furthermore, because the check only involves the BIOS and not hardware, a user is allowed to change virtually all hardware components within the machine, a procedure that would normally trigger re-activation in retail XP/Server 2003 copies.

It is important to note that SLP installations still require a product key, which are unique to the specific version of Windows (Home, Professional, Server, etc...). The product key printed on the Certificate of Authenticity affixed to an OEM assembled computer will usually suffice. As of February 28, 2005[1] (http://www.betanews.com/article/Microsoft_Closes_Activation_Loop_hole/1109293194), those keys were invalidated for normal activation by Microsoft in an effort to further reduce software piracy, but does not apply to SLP. If the COA product key is lost, then product key finders, readily available on the Internet, can decrypt the key from a local installation. Keys from either source will allow the user to avoid activation upon reinstallation. Also, Microsoft released the following generic product keys that can be used to avoid product activation on any SLP-enabled computer using the corresponding version of Windows XP:

(Please note that the following keys are **not** volume license keys. The installation source must also be SLP-enabled by the manufacturer.)

Windows XP Professional (32-bit)	MVF4D-W774K-MC4VM-QY6XY-R38TB
Windows XP Professional (64-bit)	FM634-HJ3QK-6QVTY-RJY4R-XCR9J
Windows XP Tablet PC Edition	XT67V-GY7FW-GR6FR-WDK2C-8T97J

Source: <http://www.microsoft.com/technet/prodtechnol/winxppro/deploy/oempreac.mspx>

Retrieved from "http://en.wikipedia.org/wiki/System_Locked_Preinstallation"

Categories: Microsoft Windows stubs | Windows administration

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[Windows Server TechCenter](#) > [Windows Compute Cluster Server 2003 Technical Library](#) > [Compute Cluster Server: Operating System Administrator Operations](#)

License Management

Updated: June 06, 2006

Product IDs (PIDs), also called license keys, are product identification used for authorization and activation. When modifying a Remote Installation Services (RIS) installation image, the compute cluster administrator must provide a valid license key in order that each node configured with this key can be authorized for use. If your organization uses volume licensing, one PID can be used for as many computers as the license agreement authorizes. Organizations that have retail versions of a supported operating system must either modify the RIS image by adding a valid license key each time the cluster administrator wants to add a new node, or create separate images, each with a valid license key.

Beta license keys

Beta customers of Microsoft® Windows® Compute Cluster Server 2003 will obtain this product either from the Internet or on CD-ROM.

If you obtain your copy through Internet distribution, you can also obtain your beta license key from the [Microsoft Connect Web site](http://go.microsoft.com/fwlink/?LinkID=52066) (<http://go.microsoft.com/fwlink/?LinkID=52066>). If you obtain your copy on CD-ROM, the beta license key will be on the CD-ROM package cover.

Each beta license key can be used to install and activate up to 30 compute nodes. Activation can be done remotely running an activation script.

MSDN and MSDNA

MSDN is licensed to individual developers. The customer gets one product key for up to 10 computers. Activation is

MSDNA (Academic) is sold to departments within accredited educational institutions (high school and up). The customer gets one product key (VLK) and no activation is required.

Volume License Agreement

Volume License Agreements are used by medium, large, or enterprise organizations. A Microsoft Volume License Agreement, Select License, or Enterprise License Agreement. The customer receives one license key which can be used as needed, up to the limit specified in the agreement. No activation is required for each installation.

System Locked Preinstallation

Used by Original Equipment Manufacturers (OEMs), System Locked Preinstallation (SLP) uses information stored in the BIOS to protect each installation from casual copying. No communication by the end customer to Microsoft is required. At system startup, the system compares the computer's BIOS to the SLP information. If it matches, no activation is required.

Retail licensing

When organizations purchase a copy of an operating system that is supported by the Compute Cluster Pack, the customer gets an individual product key for each copy. The customer then has to activate Windows after successful installation of the operating system on the computer. However, if the same PID is used to deploy another computer, activation will fail. No retail version of Windows Server 2003, Compute Cluster Edition. But in the case where the cluster administrator has preinstalled the operating system on a node (adding a node manually), the operating system must be activated.

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Node sequencing (retail only)

When you are using retail operating systems for your nodes, the sequence in which you reimage the nodes is important. If you want to reimage two nodes named Node01 and Node02. Node01 was originally configured with an operating system with PID 1. Node02 had an operating system with PID 2 installed. Windows Product Authorization authenticated PID 1 to the Node01, and PID 2 was authenticated to the specific physical computer Node02.

Now when you reimage both nodes, if you reimage Node01 with an image that has PID 2, because that license was authenticated to another computer, authorization will fail. As a result, if you are using individual retail products, you must install the operating system that was originally installed on that specific node. You do this by modifying a RIS image with the correct Product ID. This modified image on the specific computer on which the product was originally installed. For a large number of nodes, an efficient method exists — using the file Unique.ldb.

Using the unique.ldb file

If the Unique.ldb file exists, RIS uses it instead of Unattended.txt. By creating this file, you can match a specific node to a specific Product ID. Then when you reimage a compute node, no matter what the new node name is, a specific Product ID will be used and Windows Product Authorization will succeed.

You can match node and PID by using a file called Unique.ldb. This file must exist in D:\RemoteInstall\Setup\<language>\amd64\templates. The format for the file is as follows:

```
[uniqueIds]Nodename01 = UserDataNodename02 = UserDataNodename03 = UserData
[Nodename01:UserData]ProductID="PID01"[Nodename02:UserData]ProductID="PID02"[Nodename03:UserData]ProductID="PID03"
```

A typical Product ID looks like XXXXX-XXXXX-XXXXX-XXXXX-XXXX, where X is either a letter or number.

◆ Important:

The order in which nodes with retail licenses are rebooted is important. Nodes should be rebooted during RIS reinstallation in the order they were originally imaged.

Windows activation

After a compute node is successfully installed and added to the cluster, the cluster administrator must activate Windows. If the node relies on Internet connectivity, so the cluster administrator should ensure that proxy configuration (if necessary) is in place to have Internet access.

☑ Note:

Beta customers of Windows Compute Cluster Server 2003 will need to activate Windows. However, if you license Windows through one of the Microsoft volume licensing programs, such as Open License, Select License, or Enterprise License, you are not required to activate those licenses.

The following script can be submitted to the Job Scheduler as a job sent to all nodes in order to activate Windows:

```
strComputer = "."
Set objWMIService = GetObject("winmgmts:" & "{impersonationLevel=impersonate}!\\" & strComputer & "\root\cimv2")

Set colWindowsProducts = objWMIService.ExecQuery _
("Select * from Win32_WindowsProductActivation")

For Each objWindowsProduct in colWindowsProducts
    objWindowsProduct.ActivateOnline()
Next
```

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You can also get this script on the Web at [Activate Windows Online](http://go.microsoft.com/fwlink/?LinkId=51186) (<http://go.microsoft.com/fwlink/?LinkId=51186>)

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This document pertains to HP and Compaq desktop computers that came with Windows Vista or Windows XP.

To help prevent software piracy Microsoft Windows requires product activation before used as full version software. There are different methods to make sure that the Windows Product Activation is fulfilled: Windows Product Activation (WPA) and System Locked installation (SLP).

Windows Product Activation method sends an installation ID number to Microsoft before Windows is verified and then activated. WPA involves two numbers. One is an Installation ID (generated by someone entering the COA or Product key) that the computer owner sends to Microsoft. The second is a Confirmation ID, assigned by Microsoft, and is used to activate the operating system's software.

System Locked Pre-installation method takes place at the factory. No intervention is required to activate the operating system software before initial use. With SLP-activated systems, most of the computer's hardware can be replaced without needing to re-activate software through Microsoft.

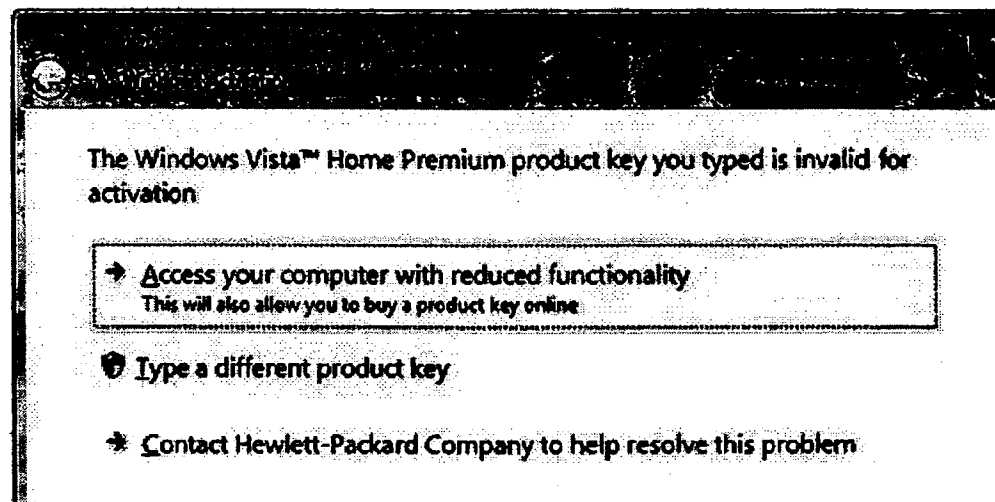
Most HP computers use System Locked Pre-installation (SLP) to reduce the amount of time it takes to setup the computer.

Windows Vista product activation

You may be prompted to activate Windows Vista.

Figure 1: Windows Activation message

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Normally, activation in Windows Vista is done automatically on HP and Compaq Desktop computers, but some conditions (turning off the computer during Windows setup, for example) can cause a Windows Activation message to appear. When this happens, Windows Vista requires activation or a system recovery.

If you can still use the Windows Vista desktop, you can click **Start**, right-click **Computer**, and select **Properties** to view the status of Windows Activation. Scroll down on the System Properties window to view the status information.

Figure 2: Not activated

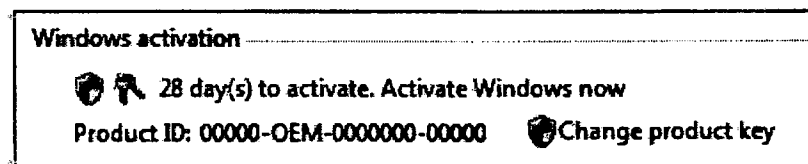
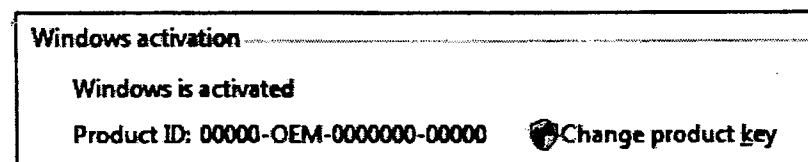


Figure 3: Activated



If you can still open Windows Vista, you may be able to download a software update to resolve this issue. Use Windows Update and HP Update to install all critical updates from Microsoft and HP and then restart the computer. If computer Windows Activation screen continues or you were not able to update your computer, the rest of this information can help you activate or recover your computer.

There are three ways to activate Windows Vista: by broadband connection, by dial-up connection, or by automated phone system (voice). The first two methods require an Internet connection; the last method requires a voice telephone to dial a toll-free number. The Automated System may take several minutes due to the number of digits that need to be entered. Follow the following steps to activate a computer when the Windows Product Activation message appears:

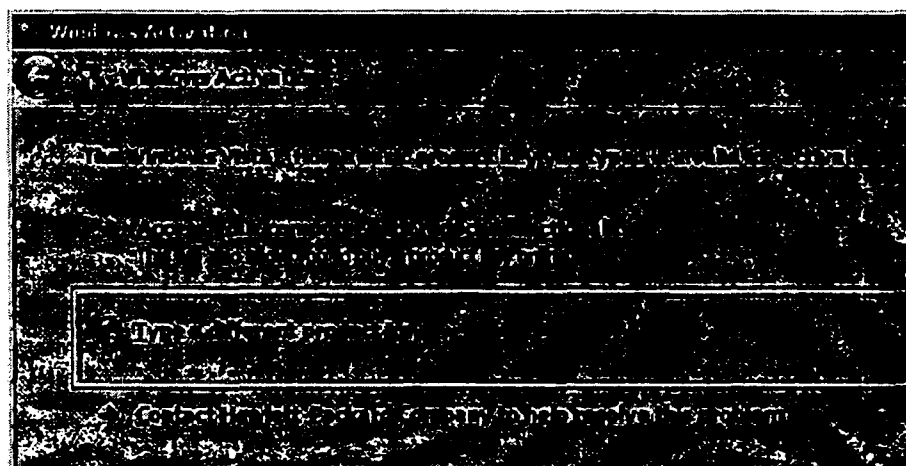
NOTE: A system recovery can be used as an alternative to resolve the activation issue. To start a system recovery, turn on the computer and press the F11 key repeatedly after the first screens appear. For computers sold in the United States that are being used for the first time, the system recovery process may take a little more than fifteen minutes. For computers sold in other countries/regions and for computers that experience the message after a system recovery, system recovery may take longer than 45 minutes. For more information about system recovery, see the Windows Vista documentation.

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recovery, please refer to the HP support document, [Performing a Sys Recovery in Windows Vista](#).

1. Before starting, if you have a broadband internet connection, make sure the network cable is connected to the computer. If you have a dial-up modem Internet connection, make sure a phone line is connected to the modem connection on the computer.
2. From the Windows Activation window, click **Type a different product key**.

Figure 4: Windows Activation: Type a different product key



3. Enter the product key number into the product key field and then click **Next**. The product key can be found on a Certificate of Authenticity label adhered to the lower right side of the computer's case.

Figure 5: Product key on Certificate of Authenticity label

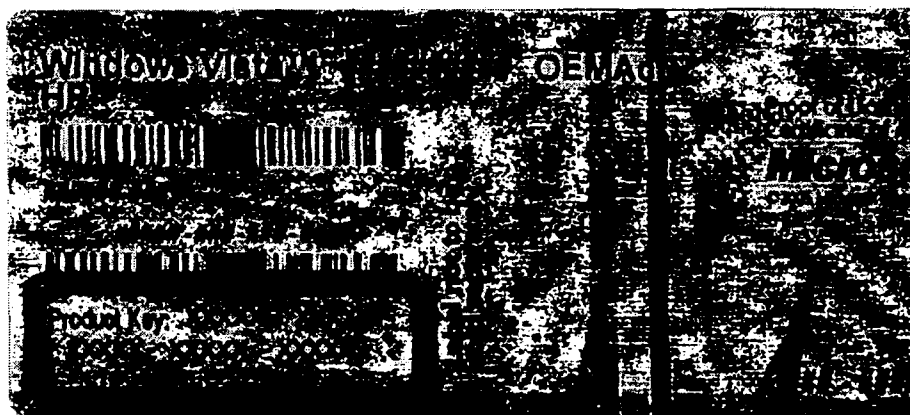
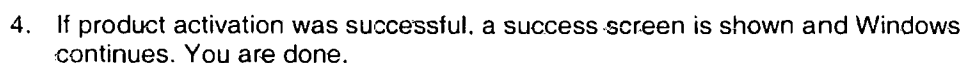


Figure 6: Windows Activation: Change your product key for activation

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5. Click **Show me other ways to activate** and then click **Next**.

Figure 7: Windows Activation: How do you want to activate?



If a modem is connected, use the following sub-steps to activate over the mod

- Make sure the phone line is not in use, click **Use my modem to connect to the activation service** , and then click **Next** .
- Select the most appropriate country/region from the dropdown labeled "nearest location", and then click **Next** .

NOTE: Do **NOT** click **Activate Windows Online** now .

Connecting to the activation service is displayed and the modem dials a number to activate automatically.

- c. If product activation was successful, a success screen is shown and Windows Vista setup continues. You are done.

If product activation is not successful, you are returned to a previous screen.

Repeat these steps using the automated phone system or perform a system recovery.

7. To use the automated phone system, click **Use the automated phone system** "How do you want to Activate?" window and then click **Next**.
8. To find available phone numbers for activation, select a location near you from dropdown and click **Next**.
9. If a phone is not near the computer, get paper and a pencil to write down the installation IDs and Confirmation IDs.
10. Use a phone to dial the number provided in the "Activate Windows Now" window.

Figure 8: Windows Activation: Activate Windows now

Windows Activation

Activate Windows now

Step 1: To get a confirmation ID, call:

1-866-740-1256 (toll-free)

not available (toll)

not available (SMS)

Step 2: Follow phone system instructions to enter the installation ID:

1	2	3	4	5	6	7	8
000000	000000	000000	000000	000000	000000	000000	000000

Step 3: Type the confirmation ID the phone system gives you:

A	B	C	D	E	F	G
000000						

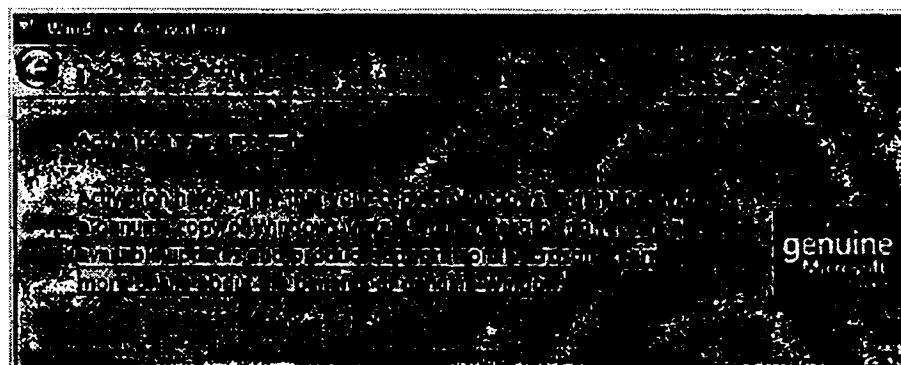
Next

11. Follow the instruction from the phone system to enter the installation ID number and write down the confirmation ID numbers.
12. Enter the confirmation ID numbers into the fields A through H, in the same sequence the phone system provided them. When done, click **Next**.
13. If product activation still fails, perform a system recovery. For more information on system recovery, please refer to the HP support document, [Performing a System Recovery in Windows Vista](#).

If product activation was successful, a success screen is shown and Windows continues. You are done.

Figure 9: Windows Activation: Activation was successful

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For more information about Windows Vista activation, please refer to the Microsoft support article "[You may be prompted to activate Windows Vista on a computer on which Windows activation was not previously required](#)" (in English).

Windows XP product activation

If you need to activate an HP or Compaq computer that came with Windows XP, do the following:

1. When you try to activate your computer online, using the product key, you are to call the Microsoft Activation call-center. The appropriate regional phone number displays.
2. A Microsoft representative asks you for the Installation Identification Number (generated based on the Certificate of Authenticity (COA) key entered during the installation of XP) and the PC brand.
3. If the Installation Identification Number matches one assigned to an HP product, the Microsoft representative should provide a Confirmation Identification Number to you to complete the activation process.

Reasons why an HP or Compaq computer may need to be activated

The following conditions may cause an SLP-activated computer to require activation to Microsoft:

1. After recovering from HP Recovery Discs, a system recovery using "F11" is done.
2. Installing certain device drivers and software.
3. Opening certain software.
4. Installing certain software.
5. Uninstalling certain software or files.
6. Updating the BIOS or installing a new BIOS flash from another company besides HP.
7. Replacing the motherboard with one that does not contain the OEM-specific version of the BIOS.
8. Breaking the End-User License Agreement (EULA) by attempting to load SLP-media onto a different PC.

Windows Activation terms

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- Windows Product Activation (WPA) - Requires a person to unlock the computer so Windows can be used.
- System Locked Pre-installation (SLP) - No personal intervention is normally required to reactivate Windows.
- End-User License Agreement (EULA). The agreement that the user of Windows must accept in order to use the Windows product.
- Certificate of Authenticity (COA) - A proof of ownership identification method to ensure that a product is not counterfeit or copied. Could be in the form of a label that contains a bar code and product identification number.
- Installation Identification Number (Generated based on the Certificate of Authenticity entered during Windows setup).
- Confirmation Identification Number (number that allows you to complete the activation process).

Related support

To learn more about Microsoft Product Activation, go to the [Microsoft Product Activation](#) (in English).

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larger projects, higher goals, greater productivity

Dell - Awesome Manufacturing - Says It All

Wednesday 12th March 2003

Some people wonder out-loud about the success of Dell. The conundrum is that in an industry famed for innovation and clever ideas, Dell looks like a bit of an anomaly because it doesn't appear to do innovation or clever ideas. Its R&D spend is low and it has no "grand strategic plan" for the future of computing.

However it will probably end up having a big say in the future of computing. You only have to look at the figures. It is already the dominant PC manufacturer. Not so long ago it had only a small piece of the high-end workstation market, but in a whirlwind 18 months it grabbed more than 60 percent of the US market and over 50 percent of the world market.

It didn't used to do PDAs either, but it moved into the market and in its first trading quarter (and it only had the product available for about half of that quarter) it took about 20 percent of the market. In many product markets Dell is the dominant vendor and it is rapidly becoming the dominant IT hardware vendor overall, perhaps destined to reach a position that IBM once held.

Dell is a tough competitor because its manufacturing operations are brilliant. This is no secret of course, but a trip round a Dell manufacturing plant provides food for thought. Here's the flavor: All of Dell's plants are run on the basis of the continual monitoring of critical success factors. The ones used are:

- **Hours of Sales Inventory:** This is the amount of inventory held in production and you want it to be as low as possible. In the Austin (Texas) factory I visited the figure was a remarkable 22 hours for the servers they build, but in Dell PC plants it is more like 7 hours.
- **Actual Uptime:** The amount of time that the plant as a whole is unavailable because of failures of any kind from machine failure to lack of supplies. The target is 97 percent but most Dell plants run at 99 percent.
- **Ship to Target:** In the server plant in Austin, the target is 5 days from order to shipment. When the factory is really humming it can get down to 2 days, but that's exceptional.
- **Deliver To Target:** This is the same as above except it measures when the customer receives the goods, so it monitors the delivery process.

The plant is automated by a large manufacturing system, built by Dell itself from various packages and a good deal of custom code. This picks off the orders to be built and sends a request for pieces to the inbound supplies area of the plant. The bits are picked and routed to an assembler, with the more difficult assemblies going to the more experienced staff.

Once built the computer goes to a load and test area, where the requested software that was ordered with the system is automatically loaded and the whole assembly is tested. Then it goes to packaging where it is put in boxes along with documentation and other accoutrements and is shipped. There are just four steps in all this; pick, assemble, load and test, and box - so the plant is laid out in that fashion.

However there are two prototyping areas where ideas for improving the production process are tested. These

are included as an alternative part of the production process but are monitored closely. If they prove to be effective then they will be implemented. Such prototyping can take up to a year and may fail. However Dell is always improving its process.

Dell's Lee Kirk, a Production Control Manager describes Dell operation as "High Velocity Mass Customisation". Dell's manufacturing is very much a team based activity with every member of staff involved in at least one Business Process Improvement (BPI) project. These projects run at every plant and are always targeted at squeezing out cost. This more than anything else is what gives Dell the edge.

Last year Dell claimed to have squeezed out a further \$1 billion from costs and may do something similar this year. Mostly this comes from the BPI projects. It's not surprising then that Dell wins awards for having one of the top manufacturing plants in the US. It is a little surprising that it has cut costs to the point where manufacturing in the USA is no more expensive for it than manufacturing in Malaysia or anywhere else.

In the end it all adds up to Dell's killer advantage. It can offer lower prices. That's why it wins market share. In reality Dell is inventive and does have clever ideas, many of them - the evidence is on display at its manufacturing plants.

Robin Bloor

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US 20060288422A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0288422 A1**
Liu et al. (43) **Pub. Date: Dec. 21, 2006**(54) **DATA STRUCTURE FOR IDENTIFYING
HARDWARE AND SOFTWARE LICENSES
TO DISTRIBUTE WITH A COMPLYING
DEVICE**(21) **Appl. No.: 11/157,886**(22) **Filed: Jun. 21, 2005****Publication Classification**(75) **Inventors: Yue Liu, Issaquah, WA (US); Caglar
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Redmond, WA (US)**(51) **Int. Cl.****H04N 7/16 (2006.01)**(52) **U.S. CL. 726/26**

(57)

ABSTRACT

Systems and methods for software licensing enforcement using an ACPI BIOS. A digital license is provided that includes information about both the software and hardware on which it is to be run. The licensing process receives hardware and software information from the end user and binds the license to both. A main BIOS binary contains code and static motherboard specific data. Dynamic state values containing, e.g., machine-specific system management data, such as, a serial number may be stored subsequently on NVRAM or its equivalent. The main BIOS binary allows provides sufficient functionality to test the hardware. Once the software to be loaded on the system is known, a corresponding digital license containing both the software and hardware information is loaded to NVRAM.

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Field	Byte Length	Byte Offset	Description
Structure Type	4	0	X00000000 = license verifier X00000001 = digital license
Licensing Data Length	4	4	Length, in bytes, of the licensing data
Licensing Data	Specified above	8	1 st part of licensing data as string size limit of 64 byte

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Computing Environment 100

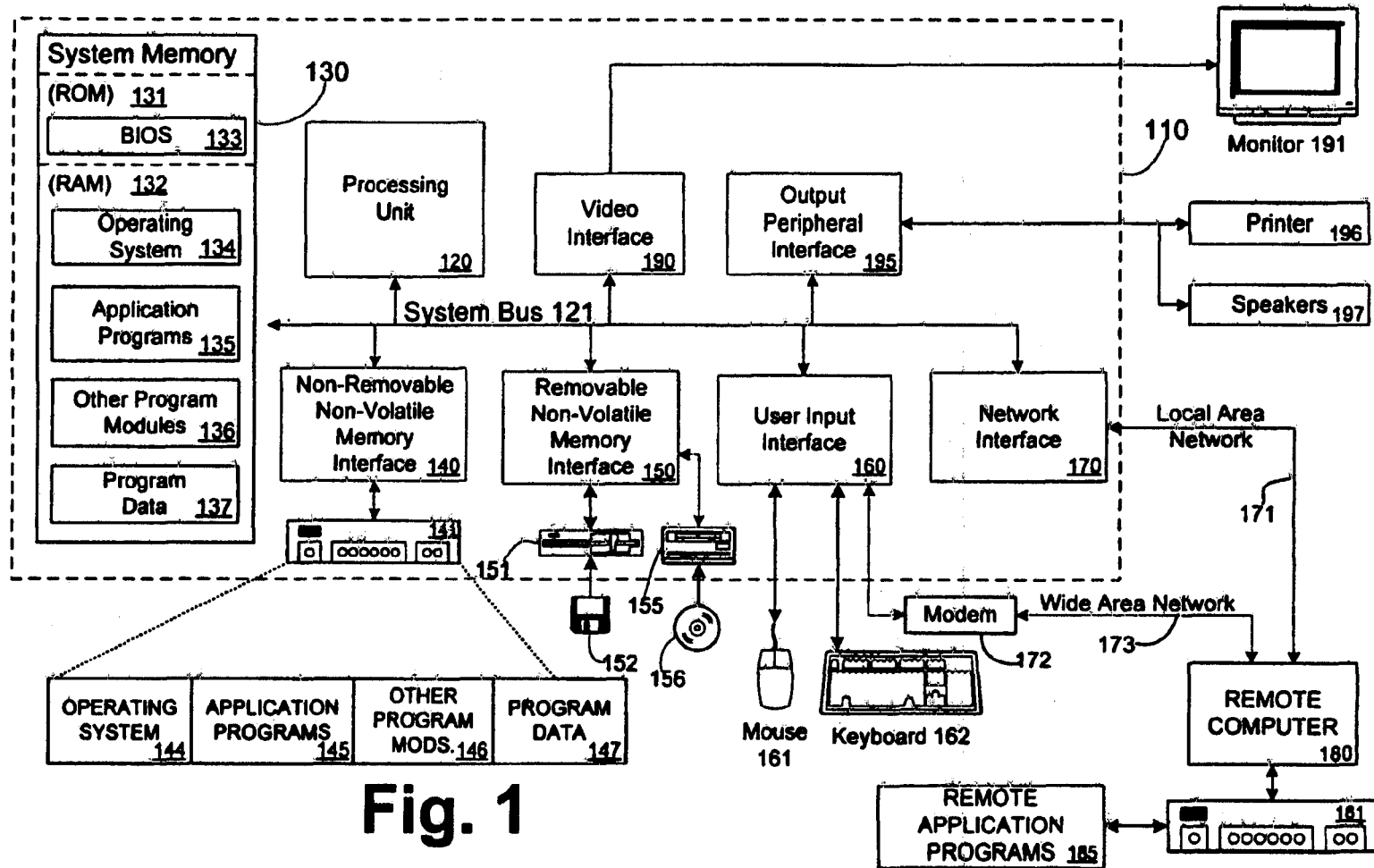


Fig. 1

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Fig. 2

Field	Byte Length	Byte Offset	Description
Header			
Signature	4	0	SLIC. Signature for the Software Licensing Description Table.
Length	4	4	Length, in bytes, of the entire SLIC. The length implies the number of Entry fields at the end of the table.
Revision	1	8	1
Checksum	1	9	Entire table must sum to zero.
OEMID	6	10	OEM name
OEM Table ID	8	16	Optional Motherboard/BIOS logical identifier
OEM Revision	4	24	OEM revision of SLIC table for supplied OEM Table ID.
Creator ID	4	28	Vendor ID of utility that created the table.
Creator Revision	4	32	Revision of utility that created the table.
Software licensing Structure[n]	---	36	A list of the static resource allocation structures for this implementation. This list contains all the software licensing structures. These structures are defined in the following sections.

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Fig. 3

Field	Byte Length	Byte Offset	Description
Structure Type	4	0	X00000000 = license verifier X00000001 = digital license
Licensing Data Length	4	4	Length, in bytes, of the licensing data
Licensing Data	Specified above	8	1 st part of licensing data as string size limit of 64 byte

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DATA STRUCTURE FOR IDENTIFYING HARDWARE AND SOFTWARE LICENSES TO DISTRIBUTE WITH A COMPLYING DEVICE

FIELD OF THE INVENTION

[0001] This invention relates in general to the field of computer hardware and software distribution. More particularly, this invention relates to a data structure that identifies if software can be distributed and loaded on to a particular hardware device.

BACKGROUND OF THE INVENTION

[0002] Conventionally, software has been licensed for per device usage. However, there have been limited methods to enforce licensee obligations, which has led to software being installed on multiple, unlicensed machines. Digital licenses improved upon shrink wrap licenses, and are used to limit a piece of software to a particular piece of hardware, where the digital license contains both software and hardware information.

[0003] One problem with digital licenses is that every year, over 100 million personal computers are shipped to end customers by OEMs (original equipment manufacturers). Asking every end user to acquire the digital license for the copy of software and for the specific machine is not practical. A partial solution to this problem was used in new computers "pre-loaded" with MICROSOFT WINDOWS XP. OEMs were provided the ability to "pre-activate" WINDOWS XP by using a mechanism called "System Locked Pre-installation," SLP.

[0004] SLP uses information stored in the OEM's personal computer BIOS to protect the installation from casual piracy. No communication by the end customer to MICROSOFT is required and no hardware hash is created or necessary. At boot, WINDOWS XP compares the PC's BIOS to the SLP information. If it matches, no activation is required. Thus, every single piece of hardware could be changed on a PC with SLP and no reactivation would be required. However, a limitation of this method is that the OEM information in the BIOS could be written simply by flashing it to the BIOS. Thus, it could be written to the BIOS of an unauthorized machine to make the unauthorized machine appear as an authorized machine.

[0005] Thus, it is desirable that a digital license contain information related to the software and hardware that will be pre-loaded by manufacturers, and that the digital license persist through the system life cycle, such as hard drive corruption or image based installation. It is also desirable that the digital license information not be easily forged onto an unauthorized PC. The present invention provides such a solution to these and other problems.

SUMMARY OF THE INVENTION

[0006] The present invention extends the usage of the ACPI BIOS for software licensing enforcement. ACPI is the acronym for advanced configuration and power interface. A digital license is provided that includes information about both the software and hardware on the computing device on which software may be run. The licensing process receives hardware and software information from the end user and binds the license to both. In accordance with the present

invention, a main BIOS binary (in ROM or its equivalent) contains code and static motherboard specific data. Dynamic state values containing, e.g., machine-specific system management data, such as, a serial number may be stored subsequently on NVRAM or its equivalent. The main BIOS binary allows provides sufficient functionality to test the hardware. Once the software to be loaded on the system is known, a corresponding digital license containing both the software and hardware information is loaded to NVRAM.

[0007] Additional features and advantages of the invention will be made apparent from the following detailed description of illustrative embodiments that proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The foregoing summary, as well as the following detailed description of preferred embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there is shown in the drawings exemplary constructions of the invention; however, the invention is not limited to the specific methods and instrumentalities disclosed. In the drawings:

[0009] FIG. 1 is a block diagram showing an exemplary computing environment in which aspects of the invention may be implemented;

[0010] FIG. 2 is an exemplary ACPI BIOS table in accordance with the present invention; and

[0011] FIG. 3 illustrates the software licensing structure shown in FIG. 2.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0012] Exemplary Computing Environment

[0013] FIG. 1 illustrates an example of a suitable computing system environment 100 in which the invention may be implemented. The computing system environment 100 is only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality of the invention. Neither should the computing environment 100 be interpreted as having any dependency or requirement relating to any one or combination of components illustrated in the exemplary operating environment 100.

[0014] The invention is operational with numerous other general purpose or special purpose computing system environments or configurations. Examples of well known computing systems, environments, and/or configurations that may be suitable for use with the invention include, but are not limited to, personal computers, server computers, handheld or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, distributed computing environments that include any of the above systems or devices, and the like.

[0015] The invention may be described in the general context of computer-executable instructions, such as program modules, being executed by a computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or

implement particular abstract data types. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network or other data transmission medium. In a distributed computing environment, program modules and other data may be located in both local and remote computer storage media including memory storage devices.

[0016] With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a computer 110. Components of computer 110 may include, but are not limited to, a processing unit 120, a system memory 130, and a system bus 121 that couples various system components including the system memory to the processing unit 120. The system bus 121 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. By way of example, and not limitation, such architectures include Industry Standard Architecture (ISA) bus, Micro Channel Architecture (MCA) bus, Enhanced ISA (EISA) bus, Video Electronics Standards Association (VESA) local bus, Peripheral Component Interconnect (PCI) bus (also known as Mezzanine bus), Peripheral Component Interconnect Express (PCI-Express), and Systems Management Bus (SMBus).

[0017] Computer 110 typically includes a variety of computer readable media. Computer readable media can be any available media that can be accessed by computer 110 and includes both volatile and non-volatile media, removable and non-removable media. By way of example, and not limitation, computer readable media may comprise computer storage media and communication media. Computer storage media includes both volatile and non-volatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical disk storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by computer 110. Communication media typically embodies computer readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, RF, infrared and other wireless media. Combinations of any of the above should also be included within the scope of computer readable media.

[0018] The system memory 130 includes computer storage media in the form of volatile and/or non-volatile memory such as ROM 131 and RAM 132. A basic input/output system 133 (BIOS), containing the basic routines that help to transfer information between elements within computer 110, such as during start-up, is typically stored in ROM

131. RAM 132 typically contains data and/or program modules that are immediately accessible to and/or presently being operated on by processing unit 120. By way of example, and not limitation, FIG. 1 illustrates operating system 134, application programs 135, other program modules 136, and program data 137.

[0019] The computer 110 may also include other removable/non-removable, volatile/non-volatile computer storage media. By way of example only, FIG. 1 illustrates a hard disk drive 141 that reads from or writes to non-removable, non-volatile magnetic media, a magnetic disk drive 151 that reads from or writes to a removable, non-volatile magnetic disk 152, and an optical disk drive 155 that reads from or writes to a removable, non-volatile optical disk 156, such as a CD-ROM or other optical media. Other removable/non-removable, volatile/non-volatile computer storage media that can be used in the exemplary operating environment include, but are not limited to, magnetic tape cassettes, flash memory cards, digital versatile disks, digital video tape, solid state RAM, solid state ROM, and the like. The hard disk drive 141 is typically connected to the system bus 121 through a non-removable memory interface such as interface 140, and magnetic disk drive 151 and optical disk drive 155 are typically connected to the system bus 121 by a removable memory interface, such as interface 150.

[0020] The drives and their associated computer storage media, discussed above and illustrated in FIG. 1, provide storage of computer readable instructions, data structures, program modules and other data for the computer 110. In FIG. 1, for example, hard disk drive 141 is illustrated as storing operating system 144, application programs 145, other program modules 146, and program data 147. Note that these components can either be the same as or different from operating system 134, application programs 135, other program modules 136, and program data 137. Operating system 144, application programs 145, other program modules 146, and program data 147 are given different numbers here to illustrate that, at a minimum, they are different copies. A user may enter commands and information into the computer 110 through input devices such as a keyboard 162 and pointing device 161, commonly referred to as a mouse, trackball or touch pad. Other input devices (not shown) may include a microphone, joystick, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit 120 through a user input interface 160 that is coupled to the system bus, but may be connected by other interface and bus structures, such as a parallel port, game port or a universal serial bus (USB). A monitor 191 or other type of display device is also connected to the system bus 121 via an interface, such as a video interface 190. In addition to the monitor, computers may also include other peripheral output devices such as speakers 197 and printer 196, which may be connected through an output peripheral interface 195.

[0021] The computer 110 may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer 180. The remote computer 180 may be a personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the computer 110, although only a memory storage device 181 has been illustrated in FIG. 1. The logical connections depicted

include a local area network (LAN) 171 and a wide area network (WAN) 173, but may also include other networks. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

[0022] When used in a LAN networking environment, the computer 110 is connected to the LAN 171 through a network interface or adapter 170. When used in a WAN networking environment, the computer 110 typically includes a modem 172 or other means for establishing communications over the WAN 173, such as the Internet. The modem 172, which may be internal or external, may be connected to the system bus 121 via the user input interface 160, or other appropriate mechanism. In a networked environment, program modules depicted relative to the computer 110, or portions thereof, may be stored in the remote memory storage device. By way of example, and not limitation, FIG. 1 illustrates remote application programs 185 as residing on memory device 181. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

[0023] Exemplary Embodiments

[0024] The present invention is directed to a data structure within an ACPI BIOS table that exposes licensing information. The ACPI system firmware describes the system's characteristics by placing data, organized into tables, into main memory. These tables have names like RSDT and DSDT. The DSDT (Differentiated System Description Table) is the largest table, because this is where the system's devices are described. The present invention builds upon this structure by implementing a Software Licensing table called, e.g., SLIC.

[0025] The ACPI_SLIC system table structure exposes licensing information that is persisted on the motherboard to a licensing enforcement engine in, e.g., the operating system. The ACPI_SLIC advantageously shares the same header structure as other ACPI tables, as shown in FIG. 2. In addition two additional data structures are provided: (1) digitally signed license data, and (2) public key in verifying the signature of digital license mentioned above.

[0026] The digital license data in the ACPI_SLIC is preferably small because persistent memory on motherboard is expensive. It is preferable that digital license contain at least the following pieces of data: (1) hardware information, for example, individual hardware ID or motherboard type ID, (2) software information, for example, a product key or operating system flag, (3) timestamp, and a digital signature, based on, but not limited to, RSA1024. The digital license in ACPI_SLIC is preferably an opaque string. How an operating system interprets the data is governed by the type value.

[0027] The public key to verify the digital license in item (1) above, may be implemented on a special piece of hardware on the motherboard, embedded in the BIOS, etc. For standardized operating system retrieval, this verifier of digital signature is also exposed through ACPI_SLIC.

[0028] The software licensing structure shown in FIG. 2 is further defined in FIG. 3. The software licensing structure includes the digital license and its signature verifier, which are exposed and differentiated by the value of structure type.

[0029] The present invention supports a flexible manufacturing process for the ACPI BIOS. The BIOS may be conceptually viewed as two parts:

[0030] 1. Main BIOS binary, on ROM or its equivalent, containing code and static motherboard specific data; and

[0031] 2. Dynamic state values, on NVRAM or its equivalent, containing system management data, such as a serial number.

[0032] The former is motherboard specific and the later is individual machine specific.

[0033] During early stage of PC manufacture, an OEM may not necessarily know what software will be loaded on that specific PC for end user during shipping time. However, the OEM may need the full functional firmware/BIOS to test the hardware. Therefore, main BIOS binary is loaded on ROM or its equivalent. After the OEM determines what software will be shipped with the PC, etc., a corresponding digital license containing the information of both software and hardware can be loaded to NVRAM or its equivalent at later manufacture process.

[0034] In addition to the above, the ACPI code varies from one type of motherboard to another. In accordance with the present invention, the OEMID and OEMTableID values in ACPI system table header that are part of compiled BIOS binary can be used as indirect identifier for the motherboard.

[0035] Thus, the ACPI BIOS code in main BIOS binary retrieves the digital license from NVRAM (or its equivalent) and the signature verifier from BIOS binary on ROM (or other special chip on motherboard), and presents the data in previously defined ACPI_SLIC structure to operating system.

[0036] While the present invention has been described in connection with the preferred embodiments of the various Figs., it is to be understood that other similar embodiments may be used or modifications and additions may be made to the described embodiment for performing the same function of the present invention without deviating therefrom. For example, one skilled in the art will recognize that the present invention as described in the present application may apply to any computing device or environment, whether wired or wireless, and may be applied to any number of such computing devices connected via a communications network, and interacting across the network. Furthermore, it should be emphasized that a variety of computer platforms, including handheld device operating systems and other application specific operating systems are contemplated, especially as the number of wireless networked devices continues to proliferate. Still further, the present invention may be implemented in or across a plurality of processing chips or devices, and storage may similarly be effected across a plurality of devices. Therefore, the present invention should not be limited to any single embodiment, but rather should be construed in breadth and scope in accordance with the appended claims.

What is claimed is:

1. A data structure embodied in a computer readable medium for use with an application, the application being suitable for deployment on a computing system, the data structure comprising:

- a header field that includes information regarding said data structure contents; and
- a software license structure that contains a digital signature and information regarding hardware and software in said computing system.
- 2. The data structure of claim 1, wherein said software license structure comprises a structure type field, a license data length field and a license data field.
- 3. The data structure of claim 2, wherein said license data field contains information regarding hardware within said computing system.
- 4. The data structure of claim 2, wherein said license data field contains information regarding software loaded onto said computing system.
- 5. The data structure of claim 2, wherein said license data field contains a timestamp.
- 6. The data structure of claim 1, wherein said application comprises a verifier that verifies said digital license and, wherein said verifier is exposed to an operating system installed on said computing system.
- 7. A method of populating a BIOS during manufacture of a personal computer, comprising:
 - loading a main BIOS binary; and
 - loading said BIOS with a software license structure that contains a digital signature and information regarding hardware and software in said computing system.
- 8. The method of claim 7, further comprising providing instructions in said main BIOS binary to retrieve a digital license and a signature verifier.
- 9. The method of claim 8, further comprising providing instructions in said main BIOS binary to present said digital license to an operating system installed on said personal computer.
- 10. A method of licensing hardware and software distributed with a computing device using a data structure, comprising:
 - providing said data structure in a BIOS contained within said computing device, said data structure including a header field that includes information regarding said data structure contents and a software license structure that contains a digital signature and information regarding hardware and software in said computing system;
 - providing a signature verifier that verifies said digital signature; and
 - providing said data structure to an operating system running on said computing device.
- 11. The method of claim 10, wherein said software license structure comprises a structure type field, a license data length field and a license data field.
- 12. The method of claim 10, wherein said license data field contains information regarding hardware within said computing system.
- 13. The method of claim 10, wherein said license data field contains information regarding software loaded onto said computing system.
- 14. The method of claim 10, wherein said license data field contains a timestamp.
- 15. The method of claim 10, further comprising providing instructions in a BIOS binary to retrieve a digital license and said signature verifier.

* * * * *

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SLP 2 Hacked To Activate Windows Vista Ultimate Permanently

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On 9th of Feb, Chinese duo pseudo-named Binbin and Aeno written SLP 2.0 weakness and cracking guide, which lead to a most successful Windows Vista activation crack as of today!

The SLP 2.0 (System Locked Preinstallation 2.0), also known as OA 2.0 (OEM Activation 2.0) is supposed the improved OEM activation technique of Microsoft, which allows most branded OEM computer manufacturers (such as Dell, HP, IBM, ASUS, etc) to pre-activate Windows Vista in factory before shifting to the market. So, the end users will not have to go through Windows Vista activation process, either by toll-free phone or activation online to Microsoft network.

The original SLP 2.0 cracking guide of Binbin and Aeno details the steps required to flash and modify motherboard BIOS - embed the Windows Vista SLP 2.0 data segments - in order to perfectly activate all Windows Vista editions! The authors thought to share their finding of cracking SLP 2.0 as academic references for those who interested in the topic of BIOS technology and security.

Microsoft Windows Vista

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However, the SLP 2.0 weakness or cracking guide turns out be sweet and honey of pirated vista camp. The guide leads them to develop and adopt in mass the BIOS emulator software that works easier to "legally" activate Windows Vista Ultimate - the most expensive Vista edition that built with all the Vista features, but the pirated Vista copy is available in a flat price of less than 5 bucks!

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The Paradox OEM BIOS Emulation Tool-kits For Windows Vista, is believed the first of its kind.

Thereafter, there are more OEM BIOS emulators for Windows Vista activation available for download from most torrent P2P networks and warez sites, such as STRO One Click Windows Vista Emulator or Windows Vista Activation And OEM Information version FF2.1.2.1.1 by sTRo, Windows XP and Windows Vista Crack By Mobile Latham, Rajpreet Singh Windows Vista Activator 2007, etc.

Unlike the Binbin and Aeno guide that involves flashing and modifying physical BIOS, these OEM Vista BIOS emulator may not working well after Vista SP1 or KB released. Moreover, many of the new coming Vista activator may end up with bundled virus / malware or malicious code!

Hence, the Binbin and Aeno SLP 2.0 cracking demonstrate a more reliable Vista activation crack to permanently activate Windows Vista, even with release of Vista SP1, unless the SLP 2.0 activation will be abandoned by Microsoft at later stage. But, this is NOT likely to happen until the next Windows OS code-named Windows Vienna is introduced, as this will affecting millions of OEM computers installed with Windows Vista that have been sold out to the market as of today!

So, how technical is the Binbin and Aeno SLP 2.0 cracking guide works to activate Windows Vista permanently?

Follow is my attempt to briefly English-translate Binbin original guide (Mandarin version). For full resolution of pictures below, please refer to Binbin original guide. Corrections of this translated version are welcome. To contact Binbin, the original author and cracker of SLP 2.0, please email him at binbin123.cn@gmail.com.

Quoted Binbin as mentioning in his original guide, this SLP 2.0 cracking guide is meant as an academic reference and demonstration for those who are interest on the topic of BIOS technology and security. However, different readers will have different mind of using this guide, which is out of the author control and against the author intention!

Part One : SLP Introduction

Starting with Windows XP, Microsoft introduced SLP (System-locked Preinstallation) technology to activate Microsoft OEM Windows products.

SLP 1.0 works by detecting OEM hardware SLP-related data string that embedding into the BIOS DMI table - activate Windows if it is valid. Otherwise, it will prompt the end users to enter COA product key and activate Windows XP by calling to Microsoft toll-free activation number or online activation by connecting to Microsoft activation center.

SLP 1.0 is pretty simple in theory and immediately cracked by hackers who know well about BIOS and BIOS-editing related software. The most widely adopted XP activation crack is by using the DMI editor to add in SLP-related license certificate in BIOS DMI table, and fools Windows XP to activate as it is running on legit OEM hardware computer system!

While Windows Vista introduced, Microsoft upgrade SLP 1.0. to SLP 2.0 to tackle the security flaws. Instead of using DMI table, SLP 2.0 adding SLIC structure to the BIOS ACPI table, which is used to store SLP Pubkey (SLP Public key) and SLP Marker. Overall, Microsoft SLP 2.0, or OA 2.0, working concept is summarized as this:

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1. If the Windows licensing module detects SLP private key - the special Vista Product key or CD Key used with SLP 2.0 - then the SLP activation process will be executed.
2. Windows activation module verify the loaded OEM certificate. If the Microsoft certified OEM certificate is not found, then SLP 2.0 activation will be failed, and in turn require end user to activate Windows Vista via toll free phone number or online to Microsoft network.
3. Next, the Microsoft certified OEM certificate is compared and matched with SLP Public Key stored in the BIOS ACPI_SLIC table.
4. Now, both of the SLP 2.0 Public Key and SLP Marker that stored in the BIOS ACPI_SLIC table are verified. The
5. Then, the OEMID and OEMTableID data string that found in the SLP Marker, ACPI_RSDT, and ACPI_XSDT are compared and matched.

Part Two: SLP 2.0 weakness and vulnerability study

As the BIOS of all DIY motherboards (such as Asus P5B or Gigabyte motherboard) doesn't contain the ACPI_SLIC table that storing Microsoft SLP 2.0 related data string, installing Windows Vista on these computers will not be activated via SLP 2.0 mechanism.

However, the technical weakness of SLP 2.0 allows cracker to extract SLP 2.0 data segments from genuine OEM BIOS of DELL, ASUSTEK, HP, FUJITSU, etc. Next, the BIOS of DIY motherboard will be modified to add in ACPI_SLIC table that storing the SLP 2.0 data segments!

A branded OEM computer that pre-install Windows Vista comes with Recovery CD that used by end user to restore the corrupted Windows Vista.

The OEM Vista product key (known as SLP 2.0 private key) and Microsoft certified OEM certificate are both found in this Windows Vista recovery CD.

The SLP Public Key, SLP Marker, OEMTableID, and OEMID are also found in the ACPI_SLIC table of this OEM BIOS.

Technically, it's quite impossible to add a new SLIC table to the BIOS of DIY motherboard. So, Binbin and Aeno SLP 2.0 cracking demonstration is actually attempt to replace the existing ACPI table for SLIC table.

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Microsoft Windows Vista

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Part Three: The generic technical guide demonstration of cracking SLP 2.0 to permanently activate Windows Vista

Award BIOS is the most common BIOS used among DIY motherboard. So, Binbin and Aeno SLP 2.0 cracking guide demonstrate how to add in SLP 2.0 data segments in Award BIOS version 6.0, to permanently activate the OEM Windows Vista.

The tools and utilities used in this guide:

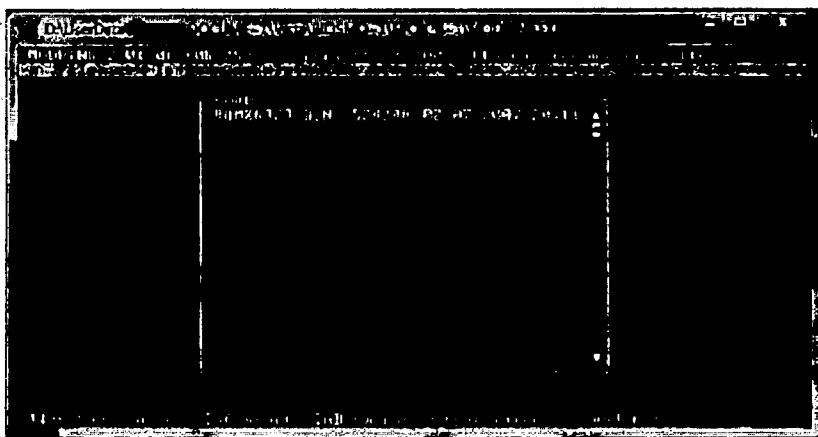
- CBROM 2.19 - used to add and replace Award BIOS ACPI table contents.
- MODBIN6 2.01.01 - used to modify Award BIOS data strings and options.
- WinHEX - used to modify the contents of ACPI table.
- Windows Vista - the newest Windows OS used to execute the tools and perform this demo.

1. Put the target motherboard BIOS template, MODBIN 6, CBROM in one folder.

Name	Date modified	Type
 8HIMX6323.BIN	2007/2/7 20:11	BIN File
 CBROM219.EXE	2001/9/4 6:05	Application
 MODBIN6.EXE	2004/6/25 10:14	Application

2. MODBIN 6 only recognize BIOS template that end with BIN file extension. Rename the BIOS template to end with BIN extension if it's currently not.
3. Double-click MODBIN6.EXE and choose the target BIOS template.

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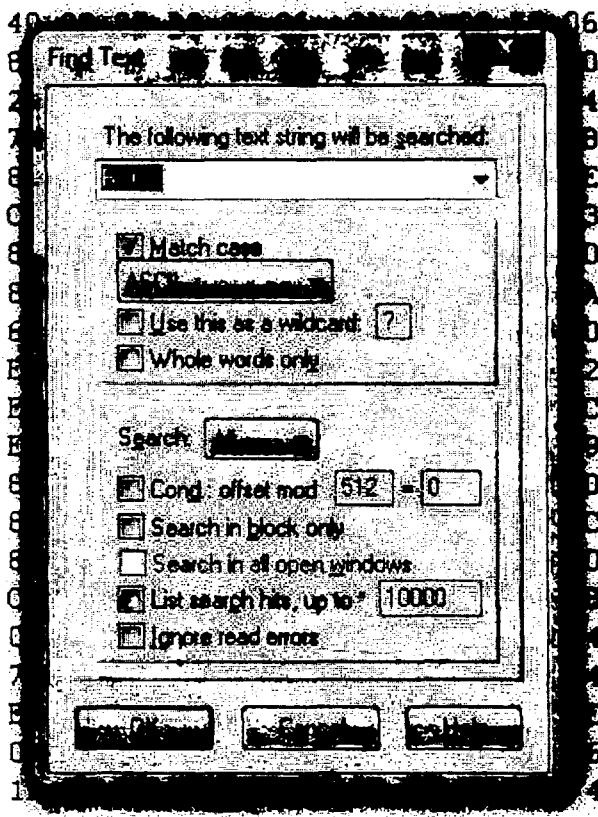


4. Now, there are some temporarily files created in the working directory. The ORIGINAL.BIN is the target file of editing.

Name	Date modified	Type
8HMX6323.BIN	2007/2/7 20:11	BIN File
CBROM219.EXE	2001/9/4 6:05	Application
MLSTRING.BIN	2007/2/9 10:19	BIN File
MODBIN5.EXE	2004/6/25 10:14	Application
ORIGINAL.BIN	2007/2/9 10:19	BIN File
XGROUP.BIN	2007/2/9 10:19	BIN File

5. Execute WinHEX editor to open ORIGINAL.BIN file and search for RSDT data string.

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6. Press OK to find the ACPI table index. Each 4-byte words representing a BIOS ACPI table-entry. Find out the less useful ACPI table entry and convert it for SLIC table to store SLP 2.0 data string.

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
00	00	00	00	20	10	01	C0	00	00	00	00	00	00	00	00	7.....
21	10	01	C0	00	00	00	00	00	00	00	00	22	10	01	C0	(...?...".2
00	00	00	00	00	00	00	00	23	10	01	C0	00	00	00	00	#...?
00	00	00	00	10	00	01	C0	00	00	00	00	00	00	00	00	9.....
15	00	01	C0	00	00	00	00	00	00	00	00	FF	02	00	00	...?.....
00	00	00	00	00	00	00	00	30	00	01	C0	00	00	00	00	0...?
00	00	00	00	31	00	01	C0	00	00	00	00	00	00	00	00	1...?.....
32	00	01	C0	00	00	00	00	00	00	00	00	33	00	01	C0	2..7.....3..?
00	00	00	00	00	00	00	00	34	00	01	C0	00	00	00	00	4...?
00	00	00	00	35	00	01	C0	00	00	00	00	00	00	00	00	5..7.....
FF	FF	FF	FF	C3	00	00	00	00	00	00	00	00	00	00	00	?.....
53	44	54	46	41	43	50	44	53	44	54	41	50	49	43	50	RSDFACPDSDTAPIC

There are four possibilities of ACPI table entries found in most BIOS of DIY motherboard:

- o The longest ACPI index is found, such as this RSDFACPDSDTAPICSSDTSRATFACS. Binbin suggests that replace and convert SRAT table entry as SLIC table entry, since this table entry is not used by default.
- o Shorter ACPI index is found, such as RSDFACPDSDTAPICMCFGFACS. Binbin suggests to convert MCFG table entry. If MCFG is not found, then ACPI is the last resource.

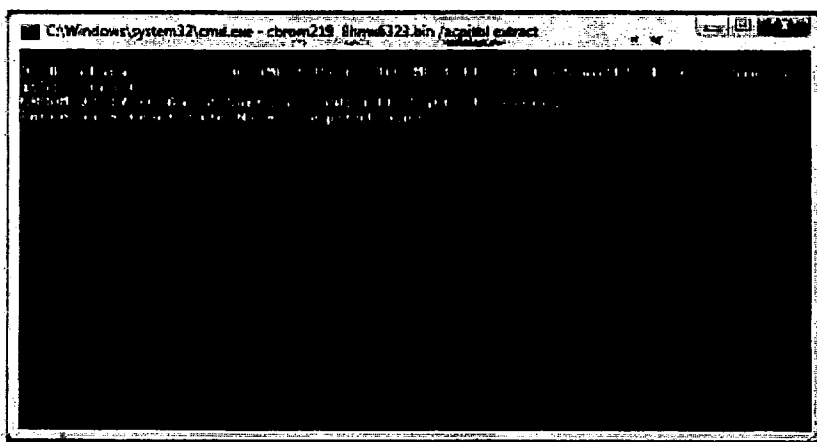
However, converting ACPI table entry for SLIC might cause the installed OS failed to operate. A re-installation is needed to resolve the problem after this step. This situation is similar when the ACPI function is disable / enable in the normal BIOS configuration screen.

- ```
C3 00 00 00 00 00 00 00 00 00 00 00 00 7.....
46 41 43 50 44 53 44 54 41 50 49 43 RSDTFACPDSDTAPIC
53 4C 49 43 46 41 43 53 1E 06 E8 4A SSDTSLEFACS...J
```

- The image is a high-contrast, black-and-white scan of a document page, possibly a form or report. The page is heavily degraded with significant noise and artifacts. On the left side, there is a large, dark, rectangular area that appears to be a redacted section or a large stamp. To the right of this area, there is faint, illegible text, which seems to be a list or table of contents. The overall quality is poor, making the content almost entirely unreadable.

- Press Enter to accept the default when prompt for file name.**

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11. Switch to WinHEX editor and open the extracted acpitbl.bin BIOS template.
12. Modify the OEMID and OEMTableID in RSDT table as the SLP Marker matching data string. OEMID is fixed as 6-byte words, while OEMTableID is fixed as 8-byte words. Fill up the empty byte with space (0x20). Save the change when done.

| 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | A  | B  | C  | D  | E  | F  |                  |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------|
| 52 | 53 | 44 | 54 | 34 | 00 | 00 | 00 | 01 | 00 | 5F | 41 | 53 | 55 | 53 | 5F | RSDT4.....ASUS   |
| 4E | 6F | 74 | 65 | 62 | 6F | 6F | 5D | 31 | 2E | 30 | 42 | 41 | 57 | 52 | 44 | Notebook1.OBAWRD |

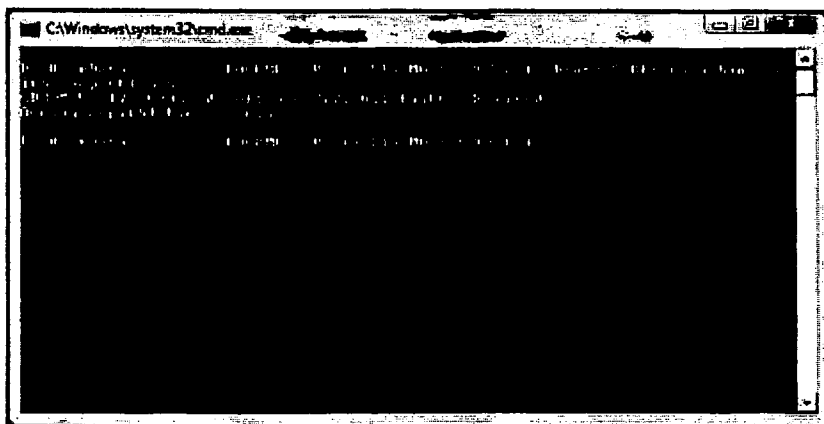
13. Appends the SLIC table to ACPI data structure. In the opened Windows Vista Command Prompt, type this command

```
copy acpitbl.bin /b + acpislic.bin /b acpitbl.bin /b
```

The acpislic.bin is the SLIC table that containing both the SLP Public Key and SLP Marker.

14. Now, restore the extracted ACPI table structure back to BIOS template. In the Command Prompt, execute

```
cbrom219 8hmx6323.bin /acpitbl acpitbl.bin
```



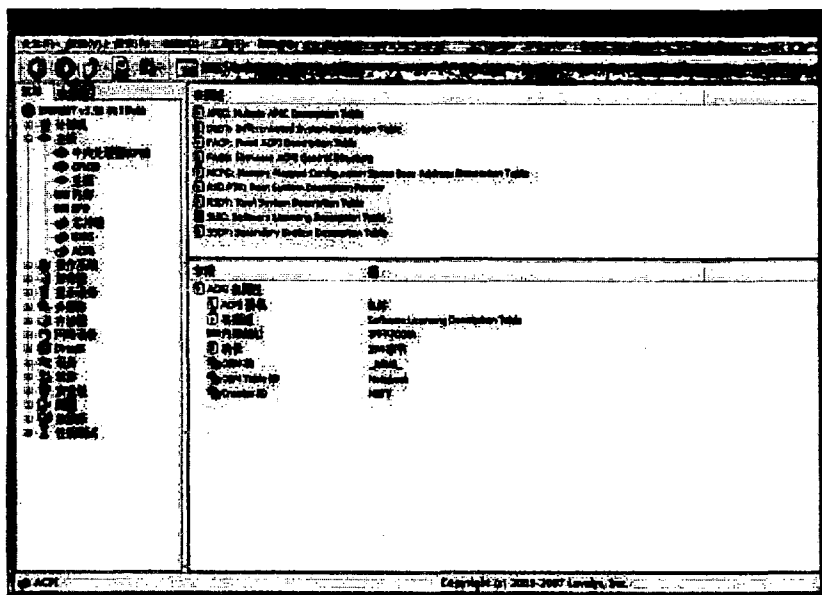
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15. Lastly, flash (update) the existing BIOS with the new BIOS template that containing ACPI\_SLIC table. Reinstall Windows Vista or boot into the existing installed Windows Vista, to verify that the OEM Windows Vista has been successfully activated as a genuine copy!

Part Five : Verify the BIOS modification result.

Binbin suggests to use Everest Ultimate v3.50.888 Beta to verify the modified BIOS.

1. Execute Everest and locate the Motherboard entry in the left panel.
2. Double-click the ACPI entry and take a look on the SLIC table. The length of SLIC table entry should be 374-byte words.



3. Next, verify that the OEMID and OEMTableID in RSDT table are matched with those in SLP Marker.

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## 表描述

|                                                                        |
|------------------------------------------------------------------------|
| APIC: Multiple APIC Description Table                                  |
| DSDT: Differentiated System Description Table                          |
| FACP: Fixed ACPI Description Table                                     |
| FACS: Firmware ACPI Control Structure                                  |
| MCFG: Memory Mapped Configuration Space Base Address Description Table |
| RSD PTR: Root System Description Pointer                               |
| SLIC: Software Licensing Description Table                             |
| SSDT: Secondary System Description Table                               |

## 字段

## 值

|              |                               |
|--------------|-------------------------------|
| ACPI 表属性     |                               |
| ACPI 签名      | RSDT                          |
| 表描述          | Root System Description Table |
| 内存地址         | 3FFF3000h                     |
| 表长           | 56 字节                         |
| OEM ID       | _ASUS_                        |
| OEM Table ID | Notebook                      |
| Creator ID   | AWRD                          |

- Should the SLIC and RSDT table verification are passed, proceed to install Windows Vista with OEM Vista product key that specifically for SLP Private key and load in the OEM BIOS certificate.

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news: window vista cracked( microsoft 5 years work in vain  
gym

The hottest new in the internet world is that the gaint vista has been cracked  
microsoft is in big problem

here is a story how vista was cracked

This is a nightmare for microsoft that their 5 yeays continous work by top software eng  
has been cracked in just 2 months of its release

the crack was perfect and even microsoft server cannot trace that their software has  
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its base on apple computer free version

for now see this video a footage

<http://www.techcheckdaily.com/2007/0...cked-for-real/>

ppl u must be thinking how does the crack of world gaint window vista works

here is some explanation

What's the purpose of this release?

Bypassing the product activation requirement of Microsoft Windows Vista x86.

How does it work?

Microsoft allows large hardware manufacturers (e.g. ASUS, HP, Dell) to ship their  
products

containing a Windows Vista installation that does NOT require any kind of product  
activation as

this might be considered an unnecessary inconvenience for the end-user.

Instead these so-called 'Royalty OEMs' are granted the right to embed certain license  
information

into their hardware products, which can be validated by Windows Vista to make obtaining  
further

activation information (online or by phone) obsolete.

This mechanism is commonly referred to as 'SLP 2.0' ('system-locked pre-installation  
2.0') and

consists of the following three key elements:

1. The OEM's hardware-embedded BIOS ACPI\_SLIC information signed by Microsoft.

2. A certificate issued by Microsoft that corresponds to the specific ACPI\_SLIC  
information.

The certificate is an XML file found on the OEM's installation/recovery media,  
usually called something like 'oemname.xrm-ms'.

3. A special type of product key that corresponds to the installed edition of Windows  
Vista.

This key can usually be obtained from some installation script found on the OEM's  
installation/recovery media or directly from a pre-installed OEM system.

If all three elements match Windows Vista's licensing mechansim considers the given  
installation a valid system-locked pre-activated copy (that does not require any  
additional product activation procedures).

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So the basic concept of the tool at hand is to present any given BIOS ACPI\_SLIC information to Windows Vista's licensing mechanism by means of a device driver. In combination with a matching product key and OEM certificate this allows for rendering any system practically indistinguishable from a legit pre-activated system shipped by the respective OEM.



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here is easier explanation how the pirates cracked vista

t's official: Pirates crack Vista at last

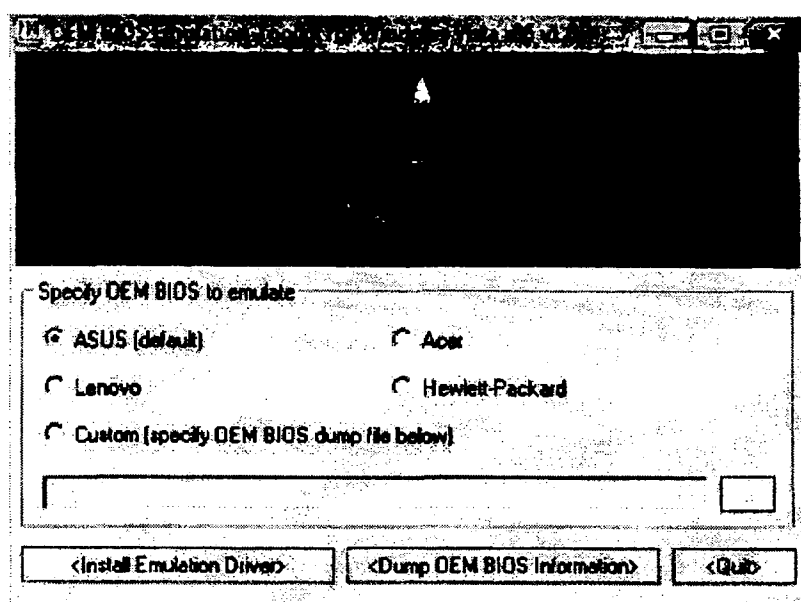
\* 4th March 2007

\*

\* Vista

A genuine crack for Windows Vista has just been released by pirate group Pantheon, which allows a pirated, non-activated installation of Vista (Home Basic/Premium and Ultimate) to be properly activated and made fully-operational.

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Unlike cracks which have been floating around since Vista RTM was released in late November, this crack doesn't simply get around product activation with beta activation files or timestop cracks - it actually makes use of the activation process. It seems that M'zoft has allowed large OEMs like ASUS to ship their products with a pre-installed version of Vista that doesn't require product activation - apparently because end users would find it too inconvenient.

#### OEM Emulation

This version of Vista uses System-Locked Pre-Installation 2.0 (SLP 2.0). It allows the "Royalty OEMs" to embed specific licensing information into the operating system which Vista can activate without having to go back to M'zoft for verification. The licensing components include the OEM's hardware-embedded BIOS ACPI\_SLIC (which has been signed by M'zoft), an XML certificate file which corresponds to this ACPI\_SLIC and a specific OEM product key.

Pantheon released a bundle which includes the certificate files from ASUS, Dell, HP and Lenovo along with OEM product keys for Vista Home Basic, Home Premium and Ultimate, and an emulator which allows the BIOS ACPI\_SLIC driver for any manufacturer to be installed without requiring the system to be physically running that hardware. For example, you can install the ASUS certificate information on any machine, not just an ASUS.

And yes, the crack most certainly works. You end up with an activated, legitimate copy of Vista which passes all the Windows Genuine Advantage checks.

The release of this crack does make a bit of a mockery of the whole volume activation process. I was beginning to think the new activation process introduced with Vista might spell the end of easy and large-scale Windows piracy, and if the only way to activate Vista was to have it communicate directly with M'zoft, then that just might have been a possibility. But allowing such a workaround to OEMs just because their users might not like it has introduced a weakness into the system. Pirate groups are well known for exploiting any weakness no matter how small (as evidenced by the cracking of KMS), so once this activation process became known it was only a matter of time.

As the crack is tied to specific product keys, it remains to be seen whether M'zoft will be

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able to do anything about shutting out machines activated using this method. But their work will be made much more difficult now that such machines have completely bypassed the online activation process, and are connecting as legitimate copies of Window

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