

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AMERICAN MEGATRENDS, INC.,  
MICRO-STAR INTERNATIONAL CO., LTD.,  
MSI COMPUTER CORP.,  
GIGA-BYTE TECHNOLOGY CO., LTD., AND  
G.B.T., INC.,  
Petitioner,

v.

KINGLITE HOLDING, INC.,  
Patent Owner.

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Case IPR2016-00122  
Patent 6,282,641 B1

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Before GLENN J. PERRY, TREVOR M. JEFFERSON, and  
BRIAN J. McNAMARA, *Administrative Patent Judges*.

McNAMARA, *Administrative Patent Judge*.

DECISION  
Denial of Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## BACKGROUND

American Megatrends, Inc., Micro-Star International Co., Ltd., MSI Computer Corp., Giga-Byte Technology Co., Ltd., and G.B.T., Inc. (collectively, “Petitioner”) filed a Petition, Paper 1 (“Pet.”), to institute an *inter partes* review of claims 1–20 (the “challenged claims”) of U.S. Patent No. 6,282,641 B1 (“the ’641 patent”). 35 U.S.C. § 311. Kinglite Holding, Inc. (“Patent Owner”) timely filed a Preliminary Response, Paper 15 (“Prelim. Resp.”), contending that the petition should be denied as to all challenged claims. We have jurisdiction under 37 C.F.R. § 42.4(a) and 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Having considered the arguments and the associated evidence presented in the Petition and the Preliminary Response, for the reasons described below, we decline to institute *inter partes* review.

## REAL PARTIES IN INTEREST

Petitioner identifies individual Petitioner entities as real parties-in-interest. Pet. 3.

## PENDING LITIGATION AND RELATED MATTERS

Petitioner states that the ’641 Patent is asserted in the following litigation: *Kinglite Holdings Inc. v. Giga-Byte Tech. Co. Ltd., et al.*, CV 14-04989 (C.D. Ca); and *Kinglite Holdings Inc. v. Micro-Star Int’l Co. Ltd., et al.*, CV 14-03009 (C.D. Ca). Petitioner also identifies the following PTAB matters: IPR2015-001079; IPR2015-01081; IPR2015-01094; IPR2015-01132; IPR2015-01133; IPR2015-01140; IPR2015-01141; IPR2015-01188;

IPR2015-01189; IPR2015- 01191; IPR2015-01197; IPR2015-01487;  
IPR2015-01488; and IPR2015-01515

### THE '641 PATENT (EXHIBIT 1001)

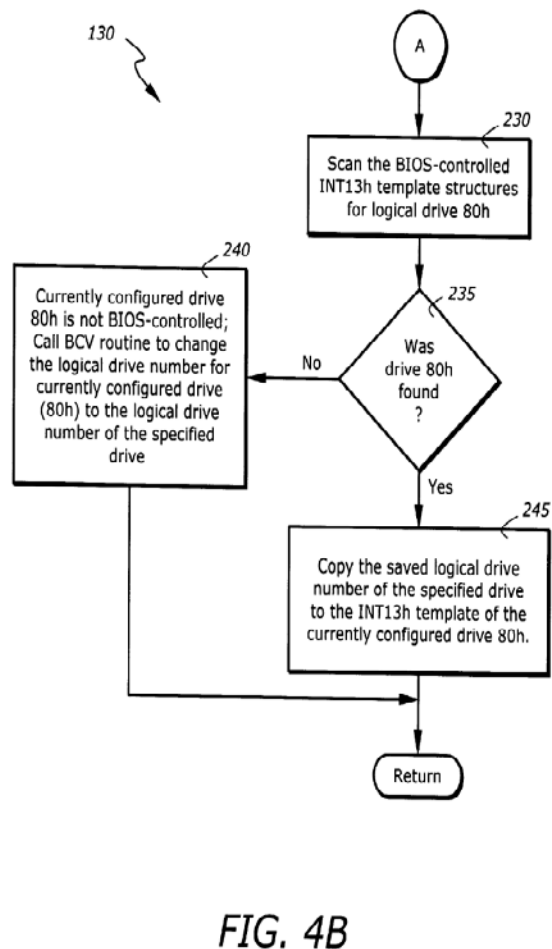
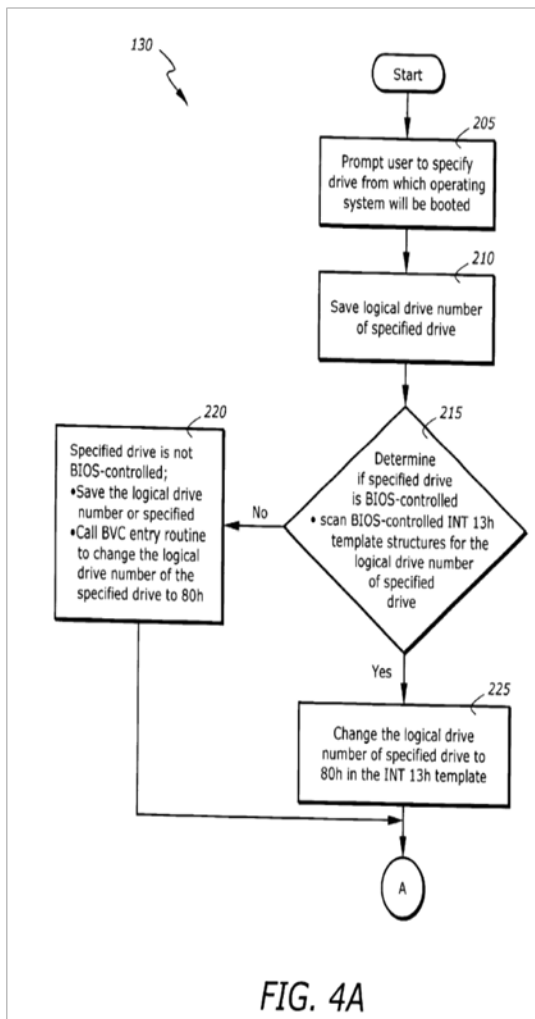
As discussed in the '641 Patent, a computer's Basic Input/Output System (BIOS) contains drivers or software interfaces for hardware devices, such as a keyboard, display, printer, auxiliary devices, and the boot disk device. Ex. 1001, col. 1, ll. 14–19. As background, the '641 Patent discloses that BIOS disk services are typically invoked using an interrupt, e.g., INT 13*h* for hard drives, where the first hard disk drive is designated drive number 80*h*, and INT 40*h*, for BIOS-controlled floppy drives, where the first floppy disk drive is identified by drive number 00*h*. *Id.* at col. 1, ll. 41–51. Each hard drive is configured by assigning its respective interface routine to a location on the INT 13*h* chain, in which the first drive, which is recognized as the boot device, is 80*h*, the second drive is 81*h*, and so on to 9F*h*. *Id.* at col. 1, ll. 59–65. Once devices have been installed in the INT 13*h* chain, the logical drive number cannot be altered, thereby ensuring that the boot process will commence from a specific drive. *Id.* at col. 1, l. 66–col. 2, l. 2. If for any reason the user wishes to begin the boot process from another device, such as logical drive 81*h*, the operating system would override such an instruction and commence to boot from drive 80*h*. *Id.* at col. 2, ll. 2–8.

The '641 Patent discloses a system and method that facilitates the selection of a boot device from a plurality of disk drives that are installed on a computer system. Ex. 1001, col. 2, ll. 10–12. According to Patent Owner, the '641 Patent discloses an enhanced boot drive selection process that allows a user to edit the boot order without having to power cycle the computer for that editing to take effect. Prelim. Resp. 2. The '641 Patent

discloses a memory module having a boot connection vector (BCV) device record that contains the identity of the hardware devices or BCV devices (such as hard disk drives) coupled to the system bus. Ex. 1001, col. 3, ll. 12–15. The BCV device record, which includes a list of BIOS-controlled devices and list of non-BIOS controlled BCV devices and their logical device numbers, is created during initialization of the processor system. *Id.* at col. 3, ll. 13–26. Each BIOS-controlled device is associated with an INT 13h, so that there is an INT13h template structure for each BIOS-controlled hardware device. *Id.* at col. 3, ll. 27–36.

According to the invention, beginning from a start state, power on self-test (POST) is performed and hardware, I/O and peripheral devices are initialized and installed. Ex. 1001, col. 3, ll. 51–56. Hardware devices that are configured to be controlled by the BIOS are installed on the INT 13h template structure, and the BCV device record also is created. *Id.* at col. 3, ll. 56–59. If the boot process is to be performed from the currently specified drive, the boot process is initiated. *Id.* at col. 3, l. 67, col. 4, l. 3. However, if it is determined that the boot process is not to be performed from the currently specified drive, the user is prompted to specify the drive from which the boot process should proceed before initiating the boot process. *Id.* at col. 3, ll. 60–64.

Figures 4A and 4B of the '641 Patent below are flowcharts that show an embodiment of the boot drive specification and configuration process of the invention. Figures 4A and 4B are discussed in the '641 Patent Specification at column 4, lines 6–46.



As shown in Figure 4A, the user is prompted to specify the drive from which the operating system will be booted and the logical drive number of the user specified drive is stored. Ex. 1001, Fig. 4, steps 205, 210. Next, the INT13h templates are scanned for the logical drive number of the specified drive to determine if the specified drive is BIOS-controlled. *Id.* at step 215. If so, the logical drive number of the specified drive is changed to 80h in the INT 13h template. *Id.* at step 225. If the user specified drive is not BIOS-controlled, i.e., the logical drive number of the specified drive was not found on any of the BIOS-controlled INT 13h templates (Ex. 1001, col. 4, ll. 17–20), the specified logical drive number is saved and a BCV entry routine is

called to change the logical drive number of the specified drive to 80h. Ex. 1001, Fig. 4A, step 220. In either case, next, the BIOS-controlled INT 13h structures are scanned for logical drive to 80h. Ex. 1001, Fig. 4B, step 230. If drive 80h is found on one of the INT13h template structures, the saved logical drive number of the specified drive is copied to the INT13h template of the currently configured drive 80h. *Id.* at step 245. If drive 80h is not found on one of the INT 13h template structures, the currently configured drive 80h is not BIOS-controlled and the BCV routine is called to change the logical drive number for the currently configured drive (80h) to the logical drive number of the specified drive. *Id.* at step 240.

#### ILLUSTRATIVE CLAIM

1. An apparatus for reconfiguring a boot device from a plurality of boot devices, based on user input, during power on self test in a processor-based system, comprising:
  - a memory for storing instruction sequences by which the processor-based system is processed; and
  - a processor for executing the stored instruction sequences; andwherein the stored instruction sequences cause the processor to:
  - (a) determine if a boot process should proceed from a currently configured device, said currently configured device being assigned a first logical device number;
  - (b) if not,
    - (b.1) prompt a user to specify a device from which the boot process will proceed,
    - (b.2) save a logical device number assigned to the device as a second logical device number,
    - (b.3) change the logical device number assigned to the device to the first logical device number to indicate that the device is the boot device, and
    - (b4) change the logical device number assigned to the currently configured device to the second logical

device number saved in (b.2) to indicate that the currently configured device is no longer the boot device; and  
(c) initiate the boot process.

### CHALLENGES ASSERTED IN PETITION

Petitioner's sole challenge to the patentability of claims 1–20 is that the claims would have been obvious under 35 U.S.C. § 103(a) over the Bios Boot Specification (“BBS”)<sup>1</sup> combined with the general knowledge of a person of ordinary skill in the art. Pet. 11. As evidence that BBS is published prior art under 35 U.S.C. § 102, Petitioner notes that BBS states on its cover that had been made available to the public, that a copy could be obtained from the Phoenix Technologies web site, and that BBS was cited in the prosecution of a patent reference cited during the prosecution of the '641 Patent. *Id.* at 11–12. The Patent Owner Preliminary Response does not dispute the availability of BBS as prior art.

### CLAIM CONSTRUCTION

We interpret claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015) *cert. granted sub nom. Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). In applying a broadest reasonable construction, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*,

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<sup>1</sup> BIOS Boot Specification, Ver. 1.10, Jan. 11, 1996, Compaq Computer Corporation, Phoenix Technologies Ltd., Intel Corporation, Ex. 1005 (“BBS”).

504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

*Preamble*

Both parties agree that the entirety of the preamble should be given patentable weight. Pet. 6–7, Prelim. Resp. 3. Petitioner cites Patent Owner's amendment to the preamble of claim 1 that changed claim 1 from reciting “[A]n apparatus for specifying operation of a boot device” to “[A]n apparatus for reconfiguring a boot device from a plurality of boot devices, based on user input, during power on self test” and the applicant’s associated argument that the Choy reference cited by the Examiner fails to teach changing the logical device numbers of a user selected boot drive to the logical device number of a currently configured boot drive. (Pet. 6 (citing Ex. 1002, 103)). We agree with the parties that the preamble of claim 1 as issued gives life and meaning to the claim and should be accorded patentable weight.

*Determine if a boot process should proceed from and determining whether to boot from*

Petitioner contends that there is no substantive difference between the two expressions *determine if a boot process should proceed from* (claims 1 and 19) and *determining whether to boot from* (claim 10) and that they are co-extensive in scope. Pet. 8. According to Petitioner, both expressions should be read to mean “[determine/determining], based on a user’s command to continue to boot from.” *Id.* at 9. Patent Owner contends that Petitioner reads “based on the user input” into these terms from an example

in the specification and that Petitioner's construction is superfluous if the claim preamble, which recites "based on user input" (independent claims 1 and 10),<sup>2</sup> is given patentable weight. Prelim. Resp. 3–4. We agree with Patent Owner that the expressions are self-explanatory and should be given their plain and ordinary meaning in the context of the claims in which they appear.

*Currently configured device*

Noting that the purpose of the invention described in the '641 Patent is to change the boot device used when booting the computer, Petitioner contends that *currently configured* device should be construed to mean "the device which is originally designated as the first device from which to boot." Pet. 9. Patent Owner argues that Petitioner's construction would be inconsistent with the specification because it would mean that a system would check to determine if the currently configured boot device is the device originally designated as the boot device, even if the user had designated a different drive for booting since the original power on. Prelim. Resp. 4–6. Patent Owner's argument is persuasive and we determine that this term should be construed to mean *the device that currently specified as the device from which to boot*.

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<sup>2</sup> The expression "based on user input" is explicitly recited in the first limitations of independent claim 19, which is drawn to a computer program product.

*If not*

Petitioner contends that *if not* should be construed to be at least as broad as “[determine/determining] to not continue to boot from.” Pet. 9. Patent Owner contends that *if not* should be construed to mean “if it is determined not to proceed with a boot process from a currently configured device. Prelim. Resp. 6. Patent Owner notes that the use of the word “continue” in Petitioner’s definition implies that a boot process has already been initiated, when that is not the case. *Id.* at 7. Patent Owner points to Figure 3 of the ’641 Patent in which the process flow first determines whether the boot process proceeds from the currently specified drive (step 120) and later, after making that determination and the desired drive is complete, the process flow initiates the boot process (step 140). Claim 1 recites as step (b) performing sub-steps (b.1), (b.2), and (b.3) if the condition in step (a) is not satisfied. The condition in step (a) is determining if a boot process should proceed from a currently configured device. The claim requires no further construction. If the boot process should proceed from the currently configured device the condition in step (a) is met, step (b) is bypassed, and at step (c) the boot process is initiated; if the boot process should not proceed from the currently configured device, the condition in step (a) is not met, the process moves to step (b) and sub-steps (b.1), (b.2), and (b.3) are performed.

*First logical device number and predetermined logical device number*

Petitioner contends that the terms *first logical device number* (claim 1 and 10) and the *predetermined logical device number* (claim 19) are coextensive in scope and refer to the logical device number of the device that is designated as the boot device. Pet. 10. Patent Owner agrees that

these two terms are coextensive, but contends that they should be construed to mean “the number assigned to a device on the INT 13h chain.”

Patent Owner argues that the specification discloses that a logical device number is a number from 80h to 9Fh on the INT 13h chain. Prelim. Resp. 8 (citing Ex. 1001, 59–65)<sup>3</sup>. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Claim 1 recites “[the] currently configured device being assigned a first logical device number.” The specification states that “[O]nce the drive has been configured, it is assigned a logical drive number from 80h to 9Fh.” Ex. 1001, col. 1, ll.61–62. This portion of the specification defines the range of values of the logical drive numbers assigned to the drives as they are configured. The specification also states that “[E]ach hard disk drive is configured by assigning its respective interface routine to a location on the INT 13h chain.” *Id.* at col. 1, ll. 59–60. This portion of the specification does not describe how the interface routine configures the drive to have a particular logical device number. The specification later discusses an INT 13h template that includes the physical and logical drive number of the corresponding BIOS-controlled hardware device. *Id.* at col. 3, ll. 28–39, Fig. 2.

The specification discusses logical drive numbers, while the claims recite logical device numbers. It is unclear if there is a distinction between

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<sup>3</sup> Patent Owner appears to have intended to cite Ex. 1001, col. 1, ll. 59–65.

logical drive numbers and logical device numbers. Nevertheless, the claims are not limited to assigning logical device numbers or logical drive numbers by INT 13h templates. If a feature is not necessary to give meaning to what the inventor means by a claim term, it would be “extraneous” and should not be read into the claim. *Renishaw PLC*, 158 F.3d at 1249; *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). Claim 2, which depends from claim 1, recites that the first logical device number is 80h, and the second logical device number is one of 81h through 84h. Claim 3, which depends from claim 1, recites that the first logical device is 00h and the second logical device number is one of 01h through 04h. Thus, the logical device number recited in claim 1 is not limited to any particular range of values. In consideration of the above, we construe “logical device number” to be a numerical identifier of a device and the terms *first logical device number* and *predetermined logical device number* to mean “a numerical identifier of the device designated as the boot device.”

*Second logical device number and selected logical device number*  
Petitioner contends that the terms *second logical device number* (claims 1 and 10) and *selected logical device number* (claim 19) are coextensive in scope and refer to the logical device number of the device the user selects. Pet. 10. Noting that if a determination is made not to boot from the currently configured device, the logical number assigned to that device is changed to a second logical number, Patent Owner contends that these terms should be construed to mean “the number assigned to a currently configured device on the INT 13h chain when it is determined not to boot from that device.” Prelim. Resp. 9. Claim 1 recites that the processor is caused to

“change the logical device number assigned to the currently configured device to the second logical device number saved in (b.2).” In step (b.1) the user specified a device from which the boot process will proceed and in step (b.2) a logical device number assigned to that device was saved as the second logical device number. In view of the discussion above, we construe the *second logical device number* and the *selected logical device* number to mean a numerical indicator of the device specified by the user.

#### ANALYSIS OF PETITIONER’S PRIOR ART CHALLENGE

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

#### *BBS*

BBS is a specification that describes a method by which a BIOS will identify all Initial Program Load (IPL) devices in the system, i.e., devices that can boot and load an operating system (O/S), prioritize them in the order the user selects, go through them in the prioritized sequence, and attempt to boot. Ex. 1006, 5, 7. BBS defines a feature within a BIOS that creates and maintains a list of all IPL devices, and stores this list in non-volatile

memory. *Id.* at 9. Each BIOS Aware IPL Device (BAID) and Bootstrap Entry Vector (BEV) device must have a corresponding entity in an IPL Table. *Id.* at 10. A BAID is any device that can boot an O/S, but requires the BIOS to have specific code to support it, e.g., the first hard drive, the first floppy drive. *Id.* at 6. A BEV resides in a plug and play (PnP) option ROM and is a pointer that points to code in the option ROM that will directly load an O/S. *Id.* at 6.

BBS discloses IPL Priority, i.e., a user specified priority of IPL devices that is arranged in Setup. *Id.* at 9. The IPL priority remains in effect either until the user changes it or the number of BEV devices changes. *Id.* at 17. The priority consists of an array of ordinal values, one for each BAID and BEV device found in the system at POST. *Id.* at 16. When a BIOS issues INT 19h and the INT 19h handler gains control, the first device in the IPL priority is used to attempt the boot. *Id.* at 16–17. If an IPL device fails to load an O/S, the BIOS regains control and attempts to boot from the next available IPL device, until all possible devices are exhausted. *Id.* at 9, 16.

BBS also describes BCV priority, i.e., a user-specified priority list of INT13h Device Controllers that is arranged in Setup. *Id.* at 6, 9. BCV devices are not part of IPL Priority because, after a BCV is called, there is no way to know how many drives it has (or if any are bootable) and because whatever drive ends up as INT 13h drive 80h will become the BAID for the system's hard drive. *Id.* at 26. A BCV device, e.g. a SCSI controller, is not directly bootable, but instead adds its drives to the system by hooking into the BIOS' INT 13h services and appending drive numbers to any existing drives. *Id.* at 12. An INT 13h device controller installs one or more drives in the BIOS' INT 13h services by hooking the INT 13h software interrupt

and chaining to the old vector. *Id.* at 19. Once a controller has hooked into INT 13h services, it can never unhook. *Id.* at 21. Because only drive 80h is bootable, a BCV would only be able to boot one of its drives if it installed before any other drives in the system, making it necessary to control the order that all drives are installed. *Id.* The only way to control a BCV device's drives in the boot order is by allowing the user to specify the order of initialization. *Id.*

The BCV Priority list specifies the order the controllers will be called to install their INT 13h drive support during POST. *Id.* at 9. The installation ordering is similar to the process used for managing IPL priority for BAIDs and BEV Devices, i.e., a BCV Table of controllers with pointers to code that can install them and a set of ordinal values called BCV priority is built early in POST. *Id.* at 22. The first INT 13h Device controller that successfully installs support for drive 80h becomes the Hard Drive BAID, thus making it an IPL device and relating it to IPL priority. *Id.* at 20. The controller then knows it controls the hard drive boot device. *Id.* A controller must install INT 13h support using sequentially increasing drive numbers starting after the drives previously installed, e.g., 81h, 82h, etc. *Id.*

BBS discloses a POST sequence in which devices are initialized, the non-volatile memory is checked, and if corrupted, a default IPL Priority and BCV Priority that represents the devices present is constructed. *Id.* at 25. Priorities also are updated if the number of BEV and BCV devices found differs from that of the last POST, and INT 13h device controller installation takes place. *Id.* By the time INT 19h is invoked by the BIOS, IPL devices have been identified and installed, all INT 13h device controllers have installed and the IPL table contains references to all available IPL devices.

*Id.* at 27. As previously discussed, the first INT 13h device controller that installed successfully will be represented by the Hard Drive BAID in the IPL Table. *Id.* The system will then proceed through the IPL Table in sequence according to the ordinal priority value and attempt to boot from that device using the procedure indicated by the corresponding pointer. *Id.* at 28. The BIOS calls this boot handler address. *Id.* The first IPL device that succeeds loads the O/S. *Id.*

In Appendix C, BBS discloses that if a user presses <HOT-KEY> during POST, a BOOT MENU that displays all the devices in the order they will be selected for booting pops up just before the BIOS issues INT 19h. *Id.* at 42. The Boot Menu allows the user to select a Boot First device, but does not edit the position of the IPL devices in the IPL Priority. *Id.* The ordinal value for the user's selection is stored so that later the INT 19h handler can boot from the device selected by the user. *Id.*

#### *Analysis of Claim 1*

The preamble of claim 1, which the parties agree is limiting, recites an apparatus for “reconfiguring a boot device from a plurality of boot devices, based on user input, during power on self test in a processor based system.” Petitioner cites the disclosure in BBS that a user can override the IPL priority to select the Boot First device by using the Boot Menu that pops up in POST. Pet. 14 (citing Ex. 1006, 42). Noting that a user selects the Boot First device by using up/down arrow keys to highlight the desired device and then pressing <Enter>, Petitioner argues that BBS “teaches reconfiguring a plurality of boot devices (e.g., IPL devices).” *Id.* Patent Owner responds that the BBS Boot Menu only allows the selection of a Boot First device and that Petitioner ignores the disclosure in BBS that “unlike in Setup, the Boot

Menu doesn't allow you to edit the position of an IPL device in the IPL Priority." Prelim. Resp. 10 (citing Ex. 1006, 42). We agree with Patent Owner that the BBS Boot First feature discloses only scrolling up and down a list to select the Boot First device, but does not allow the user to edit the IPL priority list. *Id.* at 10. However, Petitioner's expert contends that "the only purpose of the Boot Menu is to allow the user to reconfigure the boot device for the current boot." Prelim. Resp.. 10 (citing Ex. 1011, Declaration of Stefano Righi, ("Righi Decl.") ¶73.

As discussed above, when the user makes a selection from the Boot Menu, the ordinal value of that selection is stored, so that upon issuance of the INT 19h, the INT19h handler can boot from the user specified device. Ex. 1006, 42. Patent Owner contends that the Boot Menu INT 19h pseudo code disclosed in Appendix C demonstrates that the Set Boot First function preempts, but does not change, the regular IPL Priority. Prelim. Resp. 12–13 (citing Ex. 1006, 42). As Patent Owner notes, the Boot menu INT 19h pseudo code shows that if a Boot Menu selection was made, "currentIPL" is set to the IPL Priority of the Boot Menu selection and used to select the BAID or BEV table entry. Ex. 1006, 42. Then a "far call" to the boot handler is made and, if successful, there is no return. Otherwise the BIOS gets control back, either from a RETF (return) or INT 18h (boot failure) and IPL Priority based processing resumes. Prelim. Resp. 13, Ex. 1006, 42–43. Thus, for at least the first attempt to boot, the apparatus has been used to reconfigure the boot device from the device corresponding to the "currentIPL" to the user's Boot First selection, i.e., to another device specified by the user.

Noting that claim 3 requires the currently configured device to be assigned a first logical number, Petitioner cites industry conventions, with hard drives beginning with *80h* and floppy drive beginning with *00h*. Pet. 16–17. Noting that the first drive assigned number *80h* will represent the hard drive BAID in the IPL Table and IPL Priority, Petitioner contends that the device having an IPL priority index of 0 in the IPL priority array is assigned a logical device number of *80h* if the device is a hard disk. *Id* at 17 (citing Ex. 1006, 25–27, Righi Decl. ¶ 77–79). Patent Owner responds that there is no priority index number taught anywhere in BBS, that Petitioner selectively treats IPL priority index numbers as logical device numbers when it suits Petitioner’s purpose, and that BBS only teaches logical device numbers through the use of INT 13*h*. Prelim. Resp. 11–12. We addressed some of these issue in our claim constructions.

BBS discloses that an IPL Priority ordinal value is the index of a BAID or BEV device entry in the IPL table. Ex. 1006, 16. Thus, for purposes of analysis in this Decision, we consider the IPL Priority number in BBS to be an index to a device that has a logical device number. We agree with Petitioner that in BBS, checking if a user pressed the <HOT KEY> to access the Boot Menu to select a different boot device from the one that would be selected from the IPL Priority list discloses the claimed element of determining if a boot process should proceed from a currently configured device assigned a first logical device number. Pet. 15. We further agree that displaying the Boot Menu pop-up prompts the user to specify a device from which the boot will proceed, by allowing the user to highlight and select a device other than the one that would be used if the user had not accessed the Boot Menu via the <HOT KEY>. Pet. 17.

Petitioner discusses the elements of claim 1 that Petitioner designates [1.6], [1.7], and [1.8] together. Pet. 18. Petitioner's designations correspond to elements (b.2), (b.3), and (b.4) of claim 1. Elements (b.2), (b.3), and (b.4) are executed by the processor if the processor determines that the boot process should not proceed from the currently configured device, which was assigned a first logical number. For convenience, we map elements (b.2), (b.3), and (b.4) as if they corresponded to actions taken by a system that uses IPL Priority as an index to the logical device number.

Element (b.2) of claim 1 recites saving the logical device number specified by the user as a second logical device number (in the context of an IPL priority based system, assume the user specified the device corresponding to priority 6, thus saving as the second logical device number the device number that corresponds to priority 6). Element (b.3) of claim 1 recites changing the logical device number assigned to the user specified device to the first logical device number to indicate that the user specified device is now the boot device (in the context of an IPL Priority based system, the device with priority 6 would be changed to priority 0). Element (b.4) of claim 1 recites changing the logical device number assigned to the currently assigned device to the second logical number saved in (b.2) to indicate that the currently configured device is no longer the boot device (in the context of an IPL priority based system, the device with priority 0 would be changed to priority 6).

The changes recited in steps (b.3) and (b.4) of claim 1 are not disclosed in BBS. As Patent Owner notes, BBS discloses only preempting the current booting of the O/S from the device specified in the IPL Priority

selection with the device selected by the user from the Boot Menu. Prelim. Resp. 12–13. BBS does not disclose any other reconfiguration.

Petitioner acknowledges that BBS does not teach expressly that a specific logical device number should be assigned to the currently configured device once the user selects a new device from which to boot. Pet. 19–20. Instead, Petitioner cites the speculative testimony of Mr. Righi to argue that “swapping is the simplest way to assign a different priority to the device currently in first position after the user selected device is taking the first position.” Pet. 22 (citing Righi Decl. ¶ 86). Petitioner assumes that the swapping, which is a well-known expedient in computer systems (Pet. 24), would be required because BBS is silent about what happens to the logical device number of the currently configured device, i.e., the priority zero device, and no two boot devices can have the same priority. Pet. 19–20.

According to Petitioner, the only technical difference between BBS and the '641 Patent is that the '641 Patent requires the currently configured boot device to take on the logical device number of the user specified device (e.g., swapping logical device numbers), while BBS does not say one way or the other which logical device number is given to the currently configured boot device once the user has made a selection. *Id.* at 23. Petitioner argues that a person of ordinary skill “would be motivated to swap logical device numbers because it is the least invasive way to reorder the priorities of the boot devices once a user specifies a new boot first device.” Pet. 23 (citing Righi Decl. ¶ 96).

Reordering priorities, as urged by Petitioner, expressly contradicts the disclosure in BBS that the user cannot change priority using the Boot Menu.

Ex. 1006, 42. BBS states:

[u]nlike in Setup, the Boot Menu doesn't allow you to edit the position of an IPL device in the IPL Priority. This menu simply allows you to select a Boot First device. A Boot First device attempts booting *first* before the regular IPL Priority is considered. You select a Boot First device from the Boot Menu by using the up/down keys to move the highlight bar to the desired device, and then by pressing <ENTER> the ordinal value from the IPL Priority for this selection is stored so that that later the INT 19h handler can boot from this device.

*Id.* Thus, BBS discloses that a user who exercises the <HOT KEY> option during POST may select a Boot First device by highlighting it on a pop-up menu. Upon making this selection, the identifier of the Boot First device is saved and that device is used to boot the O/S. The user does not have the option of changing IPL Priority. BBS explicitly states that the Boot Menu does not allow a user to change the position of an IPL device in the IPL Priority. Thus, the priority swapping described by Petitioner as suggested by BBS is not allowed using the BBS Boot Menu. In BBS a user must reenter Setup to change the priority. Prelim. Resp. 14. Based on this disclosure alone, we agree with Patent Owner that one of ordinary skill would not have been motivated to swap priorities or the device numbers corresponding to the priorities.

Patent Owner's argument that there are only a limited number of ways to swap priority (Pet. 21–22) also is not persuasive. As discussed above, BBS does not allow changing the priority of devices in the IPL Priority Table using the Boot Menu. A review of the pseudo code BBS discloses for processing that takes place before normal INT 19h processing demonstrates

an approach that does not swap or otherwise change priorities in the IPL Priority table. Ex. 1006, 42. In the pseudo code, the value of “currentIPL” specifies the boot device. *Id.* The user’s selection of a device from the Boot Menu merely replaces the value of “currentIPL” with that of the desired device. There is no need to change priorities in the IPL Priority Table because the “currentIPL” is set to the value of the device selected by the user and a call to the corresponding handler is made. BBS does not indicate any change to any of the priorities in the IPL Priority Table. In short, as Patent Owner argues, BBS preempts the IPL Priority list, but does not change it. Prelim. Resp. 12–13.

For this reason, Petitioner has not demonstrated that a person of ordinary skill would have been motivated to modify BBS to arrive at the subject matter recited in claim 1.

*Independent Claims 10 and 19*

Petitioner contends that the combination of BBS and the knowledge of one of ordinary skill renders independent claim 10 obvious for reasons similar to those discussed with respect to claim 1 (Pet. 26) and that claim 19 is a computer program product claim similar in scope to apparatus claim 1 (*id* at 29). For the same reasons as discussed with respect to claim 1, we are not persuaded by Petitioner’s arguments concerning claims 10 and 19.

*Dependent Claims 2–9, 11–18, and 20*

Petitioner argues that claims 2 and 11 recite industry standards for naming hard disk drives, that claims 3 and 12 recite industry standards for naming floppy drives and that BBS renders these claims obvious. Pet. 32–33.

Petitioner argues that claims 4–6 recite the added requirement of determining if the device is BIOS controlled and that claims 5 and 14 recite the further requirement of determining if data related to the device is located in a predetermined BIOS-controlled memory structure. Pet. 34–35.

Petitioner also argues that claims 6 and 15, which build on claims 5 and 13, respectively, further require changing the logical device number assigned to the device in memory structure to one of 80h and 00h. *Id.* at 35.

Petitioner argues that claims 7 and 16 narrow the change step (b.4) to be accomplished by copying as part of a conventional swap function and that BBS renders the concept of swapping obvious. Pet. 36.

Finally, as to claims 8, and 17, which add the requirement that if the device is not BIOS-controlled element (b.3) comprises calling a boot routine to change the logical device number to one of 80h and 00h, Petitioner argues that BBS teaches hooking into INT 13, which is how BBS sets the logical device number. *Id.* at 37. Petitioner makes a similar argument for claims 9 and 18. *Id.* at 37–38.

None of the arguments Petitioner presents concerning the dependent claims addresses the deficiencies in the art cited against independent claims 1, 10 and 19. Therefore, we are not persuaded that Petitioner has demonstrated that any of dependent claims 2–9, 11–18, and 20 would have been obvious to one of ordinary skill in the art based on the evidence presented in the Petition.

#### SUMMARY

Based on the evidence and arguments in the Petition, we determine that Petitioner has not demonstrated a reasonable likelihood that it will

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prevail with respect to any of the claims challenged in the Petition.  
Therefore we decline to institute *inter partes* review.

ORDER

In consideration of the foregoing, we do not institute *inter partes* review.

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