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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1

CONFIRMATION NO. 8143

192641
Botos Churchill IP Law LLP - Malik
430 Mountain Avenue
Suite 401
New Providence, NJ 07974

POA ACCEPTANCE LETTER

OC000000073207561

Date Mailed: 05/30/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/24/2024.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/vostuart/

Vertiv Ex. 1003
Vertiv v. Valtrus

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1

CONFIRMATION NO. 8143

POWER OF ATTORNEY NOTICE

OC000000073207511

22879
HP Inc.
Tammy Parrish
11361 Chinden Blvd.
Building 7 Dock
Boise, ID 83714

Date Mailed: 05/30/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/24/2024.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/vostuart/

Vertiv Ex. 1003
Vertiv v. Valtrus

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: VALTRUS INNOVATIONS LIMITED

Application No./Patent No.: 10/123,403/6,718,277 Filed/Issue Date: April 17, 2002, April 6, 2004

Titled: ATMOSPHERIC CONTROL WITHIN A BUILDING

VALTRUS INNOVATIONS LIMITED, a a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Ratnesh Sharma To: HEWLETT-PACKARD COMPANY

   The document was recorded in the United States Patent and Trademark Office at

   Reel 013127, Frame 0865, or for which a copy thereof is attached.

2. From: HEWLETT-PACKARD COMPANY To: HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 013776, Frame 0928, or for which a copy thereof is attached.

This collectionof information is required by 37CFR 3.73(b). The informationis required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application.Confidentiality isgoverned by 35U.S.C. 122 and37 CFR 1.11and 1.14.This collection is estimated to take 12 minutes to complete, including gathering,preparing, and submitting the completed applicationform to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should besent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETEDFORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA22313-1450** .

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Vertiv Ex. 1003
Vertiv v. Valtrus

PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P. To: HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP

The document was recorded in the United States Patent and Trademark Office at
Reel 037079, Frame 0001, or for which a copy thereof is attached.

4. From: HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP and HEWLETT PACKARD ENTERPRISE COMPANY To: OT PATENT ESCROW, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 055269, Frame 0001, or for which a copy thereof is attached.

5. From: OT PATENT ESCROW, LLC To: VALTRUS INNOVATIONS LIMITED

The document was recorded in the United States Patent and Trademark Office at
Reel 056157, Frame 0492, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Richard J. Botos/	May 24, 2024
Signature	Date
Richard J. Botos	32,016
Printed or Typed Name	Title or Registration Number

Vertiv Ex. 1003
Vertiv v. Valtrus

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requiresthat you begiven certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirementsof the Act, please be advised that: (1)the general authority for the collectionof this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary;and (3) the principalpurpose for whichthe informationis used by the U.S. Patent and Trademark Office is to process and/or examine your submission related toa patent application or patent. If you do not furnishthe requested information, the U.S. Patent and Trademark Officemay not be able to process and/or examine yoursubmission, which may result in termination of proceedings orabandonment of the application or expiration of the patent.

Theinformation provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need forthe information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A recordrelated to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further,a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A recordfrom this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/80 (07-17)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 192641

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 192641

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: VALTRUS INNOVATIONS LIMITED THE GLASS HOUSES 92 GEORGES STREET LOWER, DUN LAOGHAIRE DUBLIN, IRELAND A96 VR66

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature /Angela Quinlan/	Date 5/22/2024
Name Angela Quinlan	Telephone +353 87 9171202
Title Managing Director	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	10/123,403
Filing Date	April 17, 2002
First Named Inventor	Ratnesh Sharma
Title	ATMOSPHERIC CONTROL WITHIN A BUILDING
Art Unit	2863
Examiner Name	JOHN H LE
Attorney Docket Number	10018557-1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Richard J. Botos/	Date (Optional)	5/24/2024
Name	Richard J. Botos	Registration Number	32,016
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
10/123,403	**05/24/2024 10:55:22 AM Z ET**	**10018557-1**

Title of Invention

ATMOSPHERIC CONTROL WITHIN A BUILDING

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	6718277
CONFIRMATION #	8143	FILED BY	Gaby Hecht
PATENT CENTER #	65660464	FILING DATE	04/17/2002
CUSTOMER #	22879	FIRST NAMED INVENTOR	Ratnesh Sharma
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Richard Botos

Documents

TOTAL DOCUMENTS: 4

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
6718277 POA Transmittal.pdf	1	Power of Attorney	153 KB
6718277_statement_373c.pdf	3	Assignee showing of ownership per 37 CFR 3.73	112 KB
6718277 Change of Correspondence Address Patent.pdf	2	Change of Address	266 KB
Valtrus Power of Attorney - Post AIA General.pdf	2	Power of Attorney	2368 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
6718277 POA Transmittal.pdf	1DED9F0C896CCED92F4631A19BFB4E2CECCBE9A4B021354CD4AC081F63E26005CED7BFA3CDC271114DE1FE220E1F9771E2E6AD2D7E2DD59994A32BC30542FAE1
6718277_statement_373c.pdf	E0B9D91210A87E0597FCA939AB0496B2B67D42EB6F5F098971F9E7BE54C6E49C46025344EE711594AE59225470A7C1353D78D965365540F72B2694AD7473CAA9
6718277 Change of Correspondence Address Patent.pdf	882B4BF14D2529F2DB3A881F3E1C899503614D9271CBB7C60A7A7B25DE035CEB63FAA5F6905A035967FB3ADC43BDE3CB3610FB83A5D6B33ABF5B422CE39ED809
Valtrus Power of Attorney - Post AIA General.pdf	193CAD07AFE8B9A537D40B3967A58851DCC29CEA84877CE15E6050E4B8A3F7D3F8672BD0A327006D203071F6F37D69B0FF5708A4EDAEBDB6463AD8EB5FE7EA64

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/123 (08-12)
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CHANGE OF CORRESPONDENCE ADDRESS
Patent

Address to:
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Number	6,718,277
Issue Date	04/06/2004
Application Number	10/123,403
Filing Date	04/17/2002
First Named Inventor	Ratnesh Sharma
Attorney Docket Number	10018557-1

Please change the Correspondence Address for the above-identified patent to:

☑ The address associated with Customer Number: 192641

OR

☐ **Firm *or* Individual Name**

Address

City | **State** | **ZIP**

Country

Telephone | **Email**

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).

This form will not affect any "fee address" provided for the above-identified patent. To change a "fee address" use the "Fee Address Indication Form" (PTO/SB/47).

I am the:

☐ Patentee.

☐ If the Patentee was not the applicant for patent (37 CFR 1.42), then a Statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is enclosed or was filed on _____. See 37 CFR 3.71.

☑ Attorney or agent of record. Registration Number 32,016.

☐ Patent practitioner acting in a representative capacity whose correspondence address is the correspondence address of record. Notice has been given to the patentee or owner. Registration Number 32,016.

Signature /Richard J. Botos/

Typed or Printed Name Richard J. Botos

Date May 24, 2024 | Telephone (908) 738-1770

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-00**. Public burden for this form is estimated to average ** hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **If filing this completed form by mail, send to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Vertiv Ex. 1003
Vertiv v. Valtrus

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Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6516770

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	PATENT ASSIGNMENT, SECURITY INTEREST, AND LIEN AGREEMENT

CONVEYING PARTY DATA

Name	Execution Date
HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP	01/15/2021
HEWLETT PACKARD ENTERPRISE COMPANY	01/15/2021

RECEIVING PARTY DATA

Name:	OT PATENT ESCROW, LLC
Street Address:	200 WEST MADISON - 37TH FLOOR
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60606

PROPERTY NUMBERS Total: 1328

Property Type	Number
Patent Number:	6880153
Patent Number:	7103639
Patent Number:	6832181
Patent Number:	6668294
Patent Number:	7043586
Patent Number:	6684381
Patent Number:	6757849
Patent Number:	7003559
Patent Number:	6684218
Patent Number:	6661748
Patent Number:	6663003
Patent Number:	7440360
Patent Number:	6539527
Patent Number:	6907603
Patent Number:	6738783
Patent Number:	7251780
Patent Number:	6853835
Patent Number:	6842754
Patent Number:	6889244

Property Type	Number
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Patent Number:	9411657
Patent Number:	8810780
Patent Number:	9408050
Patent Number:	9195727

CORRESPONDENCE DATA

Fax Number: (203)542-7220

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2035427219
Email: jlutzker@oceantomo.com
Correspondent Name: JOEL E LUTZKER
Address Line 1: 500 WEST PUTNAM AVE. #500
Address Line 4: GREENWICH, CONNECTICUT 06830

NAME OF SUBMITTER:	JOEL E. LUTZKER
SIGNATURE:	/Joel E. Lutzker/
DATE SIGNED:	01/26/2021
	This document serves as an Oath/Declaration (37 CFR 1.63).

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Patent Assignment, Security Interest, and Lien Agreement

This Patent Assignment, Security Interest, and Lien Agreement ("Agreement"), dated as of January 15, 2021 ("***Effective Date***"), is made by and among Hewlett Packard Enterprise Development LP, a Texas limited partnership having its principal place of business at 11445 Compaq Drive West, Houston, Texas 77070-1443 ("***HPED***"), and Hewlett Packard Enterprise Company, a Delaware corporation having its principal place of business at 6280 America Center Drive, San Jose, California 95002, U.S.A. ("***HPECO***") (HPED and HPECO are collectively referred to herein as "***Assignor***"); and OT Patent Escrow, LLC, aDelaware limited liability company having its principal place of business at 200 West Madison, 37th Floor, Chicago, IL 60606 ("***Assignee***").

WHEREAS, Assignor and Assignee, as well as Valtrus Innovations Limited, a company incorporated in Ireland under company number 669289 and having its principal place of business at The Glasshouses GH2, 92 Georges Street Lower, Dun Laoghaire, Dublin, Ireland A96 VR66 ("***Purchaser***") are parties to a Patent Escrow Agreement dated as of January 15, 2021, pursuant to which the Patents identified in the attached Exhibit A-2 (collectively, "***Assigned Patents***") are to be assigned to Assignee to hold in escrow for later assignment to Purchaser subject to the terms and conditions of the Patent Escrow Agreement;

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

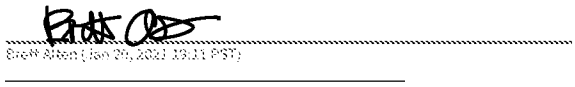
1. Assignment to Assignee. Assignor hereby grants and assigns to Assignee all of Assignor's right, title and interest in and to the Assigned Patents, to have and to hold the same, for Assignee's own use and enjoyment and for the use and enjoyment of its successors and assigns, and the right to sue for damages for infringement of such Assigned Patents accruing at any time prior to, on, and/or after the date hereof, for the full term or terms of all such Assigned Patents, subject to all rights granted under the Assigned Patents to any and all parties (including Assignor) prior to or concurrent with January 15, 2021.

2. Security Interest and Lien. Assignee hereby grants Assignor a security interest and lien in and to all of Assignee's right, title and interest in and to the Assigned Patents (the "Security Interest"). The Security Interest is granted by Assignee's to secure Assignee's performance of, and compliance with, its obligations under the Patent Escrow Agreement.

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IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date as set forth below:

Hewlett Packard Enterprise Company

By: 
Brett Alten (Jan 20, 2021 19:11 PST)

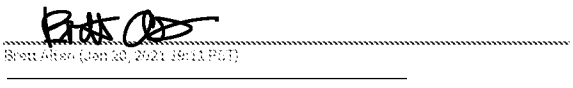
Name: Brett Alten

Title: SVP, DGC, Chief IP Counsel

Date: Jan 20, 2021

Hewlett Packard Enterprise Development LP

By: Enterprise DC Holdings LLC, its General Partner

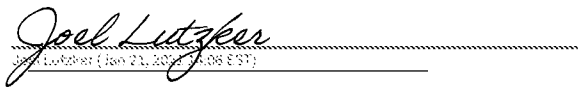
By: 
Brett Alten (Jan 20, 2021 19:11 PST)

Name: Brett Alten

Title: Chief Intellectual Property Counsel

Date: Jan 20, 2021

OT Patent Escrow, LLC

By: 
Joel Lutzker (Jan 21, 2021 08:06 EST)

Name: Joel Lutzker

Title: General Counsel

Date: 01/21/2021

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Exhibit A-2 – Escrow Patents

List of Escrow Patents:

Tranche 2:

Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81966449	F10001152	US	US6880153	Granted		21-Nov-2000	N/A	N/A	METHOD AND APPARATUS FOR VARYING THE LEVEL OF CORRECTNESS CHECKS EXECUTED WHEN PEFORMING CORRECTNESS CHECKS OPPORTUNISTICALLY USING SPARE INSTRUCTION SLOTS
81968165	F10001626	US	US7103639	Granted		5-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR PROCESSING UNIT SYNCHRONIZATION FOR SCALABLE PARALLEL PROCESSING

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81968168	F10001626	JP	JP3947381	Granted		19-Oct-2001	20-Apr-2021	934.20	METHOD FOR PROCESSING UNIT SYNCHRONIZATION FOR SCALABLE PARALLEL PROCESSING
81972728	F10003154	US	US6832181	Granted		3-Nov-2000	N/A	N/A	METHOD TO DISTINGUISH BETWEEN PHYSICAL HARDWARE AND SIMULATED HARDWARE
81973646	F10003436	US	US6668294	Granted		17-Mar-2001	N/A	N/A	DATA CORRUPTION AVOIDANCE ON A BACKPLANE BUS ADAPTED TO RECEIVE BUS CONTROLLER CARDS OF DIFFERENT TYPES

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81973649	F10003436	US	US7043586	Granted		19-Nov-2003	N/A	N/A	DATA CORRUPTION AVOIDANCE ON A BACKPLANE BUS ADAPTED TO RECEIVE BUS CONTROLLER CARDS OF DIFFERENT TYPES
81976343	F10004126	US	US6684381	Granted		29-Sep-2000	N/A	N/A	HARDWARE DESCRIPTION LANGUAGE-EMBEDDED REGULAR EXPRESSION SUPPORT FOR MODULE ITERATION AND INTERCONNECTIO N
81976415	F10004177	US	US6757849	Granted		3-Aug-2001	N/A	N/A	SYSTEM AND METHOD FOR DEVELOPING CUSTOMIZED INTEGRATION TESTS AND NETWORK PERIPHERAL DEVICE EVALUATIONS
81977366	F10004526	US	US7003559	Granted		23-Oct-2000	N/A	N/A	SYSTEM AND METHOD FOR DETERMINING PROBABLE NETWORK PATHS BETWEEN NODES IN A NETWORK TOPOLOGY
81977369	F10004526	GB	GB2370720	Granted		17-Oct-2001	17-Oct-2020	882.85	SYSTEM AND METHOD FOR DETERMINING PROBABLE NETWORK PATHS BETWEEN NODES IN A NETWORK TOPOLOGY
81977879	F10004727	US	US6684218	Granted		21-Nov-2000	N/A	N/A	STANDARD SPECIFIC URL

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81978845	F10004960	US	US6661748	Granted		5-Mar-2001	N/A	N/A	POSITION CONTROL FOR PLUNGE MECHANISM
81978959	F10004966	US	US6663003	Granted		22-Feb-2001	N/A	N/A	APPARATUS AND METHOD FOR RETRIEVING DATA RELATED TO A DATA CARTRIDGE IN A MEDIA STORAGE SYSTEM
81978968	F10004966	US	US7440360	Granted		13-Aug-2003	N/A	N/A	APPARATUS AND METHOD FOR RETRIEVING DATA RELATED TO A DATA CARTRIDGE IN A MEDIA STORAGE SYSTEM
81980636	F10005848	US	US6539527	Granted		19-Mar-2001	N/A	N/A	SYSTEM AND METHOD OF DETERMINING THE NOISE SENSITIVITY OF AN INTEGRATED CIRCUIT
81983471	F10006882	US	US6907603	Granted		29-Sep-2003	N/A	N/A	SOFTWARE UPDATE MANAGEMENT SYSTEM WITH UPDATE CHRONOLOGY GENERATOR
81984224	F10007224	US	US6738783	Granted		9-Feb-2001	N/A	N/A	DYNAMICALLY CONFIGURABLE GENERIC CONTAINER
81984374	F10007278	US	US7251780	Granted		1-Jun-2005	N/A	N/A	DYNAMIC WEB CONTENT UNFOLDING IN WIRELESS INFORMATION GATEWAYS

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81986504	F10007956	US	US6853835	Granted		13-Aug-2001	N/A	N/A	ASYMMETRIC WIRELESS COMMUNICATION SYSTEM USING TWO DIFFERENT RADIO TECHNOLOGIES
81986516	F10007956	DE	DE60202618.0	Granted		13-Aug-2002	13-Aug-2020	2,108.66	ASYMMETRIC WIRELESS CELLULAR COMMUNICATION SYSTEM USING A CARRIER WAVE DOWNLINK AND AN ULTRAWIDEBAND UPLINK
81986522	F10007956	GB	GB1417783	Granted		13-Aug-2002	13-Aug-2020	826.86	ASYMMETRIC WIRELESS CELLULAR COMMUNICATION SYSTEM USING A CARRIER WAVE DOWNLINK AND AN ULTRAWIDEBAND UPLINK
81987053	F10008127	US	US6842754	Granted		17-Apr-2001	N/A	N/A	LEASE ENFORCEMENT IN A DISTRIBUTED FILE SYSTEM
81987509	F10008316	US	US6889244	Granted		31-Oct-2000	N/A	N/A	METHOD AND APPARATUS FOR PASSING MESSAGES USING A FAULT TOLERANT STORAGE SYSTEM
82079381	F100110249	US	US6910271	Granted		29-Oct-2002	N/A	N/A	MECHANICAL HIGHLY COMPLIANT THERMAL INTERFACE PAD
82079387	F100110249	US	US7131199	Granted		1-Feb-2005	N/A	N/A	MECHANICAL HIGHLY COMPLIANT THERMAL INTERFACE PAD

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82081496	F100111334	US	US7246101	Granted		16-May-2002	N/A	N/A	KNOWLEDGE-BASED SYSTEM AND METHOD FOR RECONSTRUCTIN G CLIENT WEB PAGE ACCESSES FROM CAPTURED NETWORK PACKETS
82081724	F100111445	US	US6935419	Granted		20-Feb-2002	N/A	N/A	HEAT SINK APPARATUS WITH AIR DUCT
81991499	F10011625	US	US6832303	Granted		3-Jan-2002	N/A	N/A	METHOD AND SYSTEM FOR MANAGING AN ALLOCATION OF A PORTION OF A MEMORY
81992498	F10012052	US	US6665166	Granted		15-Mar-2001	N/A	N/A	SYSTEMS WITH ENHANCED ELECTROSTATIC DISCHARGE PROTECTION
81993035	F10012236	US	US6832927	Granted		3-Oct-2001	N/A	N/A	LOW PROFILE PCI HOT PLUG ACTUATOR ASSEMBLY
81993038	F10012236	GB	GB2385205	Granted		24-Sep-2002	24-Sep-2021	896.07	LOW PROFILE PCI HOT PLUG ACTUATOR ASSEMBLY
81995060	F10013088	US	US6848114	Granted		23-Aug-2001	N/A	N/A	BULK ACCESS SYSTEM FOR A DATA STORAGE SYSTEM
81995123	F10013110	US	US6961716	Granted		31-Jul-2001	N/A	N/A	NETWORK USAGE ANALYSIS SYSTEM AND METHOD FOR DETERMINING EXCESS USAGE
81998876	F10014427	US	US6952689	Granted		21-Feb-2003	N/A	N/A	AUTOMATING EXPERT KNOWLEDGE WITH ANALYZER HARNESS

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81998279	F10014777	US	US7002801	Granted		16-Oct-2003	N/A	N/A	METHOD OF COOLING SEMICONDUCTOR DIE USING MICROCHANNEL THERMOSYPHON
82186076	F10014777	US	US7120022	Granted		24-Mar-2004	N/A	N/A	LOOP THERMOSYPHON WITH WICKING STRUCTURE AND SEMICONDUCTOR DIE AS EVAPORATOR
81998489	F10015052	US	US6826675	Granted		9-Oct-2001	N/A	N/A	STACK UTILIZATION MANAGEMENT SYSTEM AND METHOD FOR A SINGLE-STACK ARRANGEMENT
81998492	F10015052	US	US6904513	Granted		2-Jul-2004	N/A	N/A	STACK UTILIZATION MANAGEMENT SYSTEM AND METHOD FOR A SINGLE-STACK ARRANGEMENT
82000850	F10016665	US	US6941489	Granted		27-Feb-2002	N/A	N/A	CHECKPOINTING OF REGISTER FILE
82000862	F10016668	US	US6832300	Granted		20-Mar-2002	N/A	N/A	METHODS AND APPARATUS FOR CONTROL OF ASYNCHRONOUS CACHE
82183202	F10018060	US	US6867976	Granted		21-Oct-2003	N/A	N/A	PIN RETENTION FOR THERMAL TRANSFER INTERFACES, AND ASSOCIATED METHODS
82006229	F10019555	US	US6882536	Granted		25-Apr-2002	N/A	N/A	WRAP- AROUND COOLING ARRANGEMENT FOR PRINTED CIRCUIT BOARD

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82006235	F10019555	GB	GB2387974	Granted		22-Apr-2003	22-Apr-2021	837.70	WRAP-AROUND COOLING ARRANGEMENT FOR PRINTED CIRCUIT BOARD
82006994	F10019865	US	US6874070	Granted		22-Feb-2002	N/A	N/A	SYSTEM AND METHOD FOR MEMORY INTERLEAVING USING CELL MAP WITH ENTRY GROUPING FOR HIGHER-WAY INTERLEAVING
82006997	F10019865	JP	JP4348093	Granted		21-Feb-2003	24-Jul-2021	753.97	METHOD OF ACCESSING MEMORY IN INTERLEAVED MANNER USING MAP TABLE
82084961	F100201063	US	US6816809	Granted		23-Jul-2002	N/A	N/A	HARDWARE BASED UTILIZATION METERING
82084970	F100201063	GB	GB2393292	Granted		17-Jul-2003	17-Jul-2021	781.44	HARDWARE BASED UTILIZATION METERING
82084973	F100201063	US	US8463578	Granted		16-Jul-2004	11-Dec-2020	3,606.00	HARDWARE BASED UTILIZATION METERING
82086311	F100201656	US	US7225118	Granted		31-Oct-2002	N/A	N/A	GLOBAL DATA PLACEMENT
82086503	F100201702	US	US6952358	Granted		5-May-2003	N/A	N/A	MOLECULAR WIRE CONTENT ADDRESSABLE MEMORY
82086653	F100201725	US	US6977927	Granted		18-Sep-2000	N/A	N/A	METHOD AND SYSTEM OF ALLOCATING STORAGE RESOURCES IN A STORAGE AREA NETWORK

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82087187	F100201874	US	US6873190	Granted		18-Mar-2003	N/A	N/A	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82087190	F100201874	JP	JP4059859	Granted		11-Mar-2004	28-Dec-2020	1,050.55	DEVICE FOR DETECTING PRESENCE OF INDUCTIVE LOAD DRIVEN BY PULSE-WIDTH MODULATED SIGNAL
82644401	F100201874	FR	FR1460440	Granted		9-Oct-2003	9-Oct-2021	946.25	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82644403	F100201874	DE	DE60335237.5	Granted		9-Oct-2003	9-Oct-2021	2,272.89	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82644405	F100201874	GB	GB1460440	Granted		9-Oct-2003	9-Oct-2021	837.70	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82092221	F100204926	US	US6862179	Granted		26-Nov-2002	N/A	N/A	PARTITION FOR VARYING THE SUPPLY OF COOLING FLUID

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82030946	F10971169	US	US6910122	Granted		18-Feb-2000	N/A	N/A	METHOD AND APPARATUS FOR PRESERVING PIPELINE DATA DURING A PIPELINE STALL AND FOR RECOVERING FROM THE PIPELINE STALL
82035506	F10972013	US	US6961768	Granted		13-Jul-2001	N/A	N/A	STATUS POLLING FAILOVER OF DEVICES IN A DISTRIBUTED NETWORK MANAGEMENT HIERARCHY
82050626	F10990826	US	US6766435	Granted		31-May-2000	N/A	N/A	ADDRESS TRANSLATION REGISTERS IN A PROCESSOR
82058069	F10992475	US	US6442552	Granted		30-Jun-2000	N/A	N/A	METHOD AND APPARATUS FOR IMPLEMENTING THREE TIER CLIENT ASYNCHRONOUS TRANSPARENCY
82578805	F12151	US	US6657868	Granted		21-Nov-2001	N/A	N/A	ELECTRONIC DEVICE MOUNT ASSEMBLY
82093034	F200205338	US	US6895489	Granted		7-Aug-2002	N/A	N/A	SYSTEM AND METHOD FOR OPERATING IN ENDIAN INDEPENDENT MODE
82098413	F200207885	US	US7474229	Granted		13-Sep-2006	6-Jul-2020	7,406.00	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098422	F200207885	JP	JP5011490	Granted		28-Aug-2007	15-Jun-2021	753.97	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE

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82098428	F200207885	GB	GB2455452	Granted		28-Aug-2007	28-Aug-2020	438.03	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098431	F200207885	DE	DE112007002130	Granted		28-Aug-2007	28-Aug-2020	1,093.17	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098434	F200207885	GB	GB2469953	Granted		28-Aug-2007	28-Aug-2020	438.03	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098761	F200207985	US	US6889169	Granted		31-Jan-2003	N/A	N/A	COLLECTION OF SESSION-RELATED INFORMATION USING AN EXTENDABLE SAMPLING PERIOD
82098764	F200207985	GB	GB2397913	Granted		12-Jan-2004	12-Jan-2021	753.48	COLLECTION OF SESSION-RELATED INFORMATION USING AN EXTENDABLE SAMPLING PERIOD
82101809	F200209078	US	US7075788	Granted		11-Jun-2003	N/A	N/A	COMPUTER COOLING SYSTEM AND METHOD
82102184	F200209214	US	US7543291	Granted		1-Aug-2003	N/A	N/A	PROCESSOR PURGING SYSTEM AND METHOD
82103258	F200209471	US	US7299331	Granted		21-Jan-2003	N/A	N/A	METHOD AND APPARATUS FOR ADDING MAIN MEMORY IN COMPUTER SYSTEMS OPERATING WITH MIRRORED MAIN MEMORY

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82105175	F200300007	US	US7149945	Granted		9-May-2003	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING ERROR CORRECTION CODE TESTING FUNCTIONALITY
82105178	F200300007	TW	TWI308760	Granted		25-Nov-2003	10-Apr-2021	686.40	SYSTEMS AND METHODS FOR PROVIDING ERROR CORRECTION CODE TESTING FUNCTIONALITY
82105817	F200300253	US	US7191380	Granted		10-Sep-2003	N/A	N/A	DEFECT-TOLERANT AND FAULT-TOLERANT CIRCUIT INTERCONNECTIONS
82195838	F200300253	US	US7350132	Granted		26-Apr-2005	N/A	N/A	NANOSCALE INTERCONNECTION INTERFACE
82195847	F200300253	JP	JP4685159	Granted		26-Apr-2006	18-Feb-2021	979.26	NANOSCALE INTERCONNECTION INTERFACE
82195850	F200300253	CN	CN200680022900.X	Granted		26-Apr-2006	26-Apr-2021	1,367.42	NANOSCALE INTERCONNECTION INTERFACE
82195853	F200300253	KR	KR1012242950000	Granted		26-Apr-2006	14-Jan-2021	463.28	NANOSCALE INTERCONNECTION INTERFACE
82195856	F200300253	IN	IN261309	Granted		26-Apr-2006	26-Apr-2021	644.00	NANOSCALE INTERCONNECTION INTERFACE
82195859	F200300253	US	US8112700	Granted		23-Jan-2008	7-Aug-2023	7,706.00	NANOSCALE INTERCONNECTION INTERFACE
90458834	F200300253	FR	FR1875352	Granted			26-Apr-2021	675.76	NANOSCALE INTERCONNECTION INTERFACE
90458836	F200300253	DE	DE602006053277.6	Granted			26-Apr-2021	1,590.25	NANOSCALE INTERCONNECTION INTERFACE

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90458838	F200300253	GB	GB1875352	Granted			26-Apr-2021	618.83	NANOSCALE INTERCONNECTION INTERFACE
82106237	F200300477	US	US7521264	Granted		5-Jan-2007	N/A	N/A	SPIN INJECTION CONTROL USING ELECTRIC CURRENT
82106732	F200300477	US	US6879013	Granted		30-Jul-2003	N/A	N/A	AMPLIFIERS USING SPIN INJECTION AND MAGNETIC CONTROL OF ELECTRON SPINS
82106567	F200300610	US	US7184933	Granted		28-Feb-2003	N/A	N/A	PERFORMANCE ESTIMATION TOOL FOR DATA STORAGE SYSTEMS
82117211	F200301682	US	US6980063	Granted		3-Aug-2004	N/A	N/A	TRANSMISSION LINE PARASITIC ELEMENT DISCONTINUITY CANCELLATION
82117688	F200301789	US	US7076597	Granted		14-Oct-2003	N/A	N/A	BROADCAST INVALIDATE SCHEME
82117877	F200301842	US	US6704817	Granted		31-Aug-2000	N/A	N/A	COMPUTER ARCHITECTURE AND SYSTEM FOR EFFICIENT MANAGEMENT OF BI-DIRECTIONAL BUS
82117880	F200301842	US	US6920512	Expired		17-Feb-2004	N/A	N/A	COMPUTER ARCHITECTURE AND SYSTEM FOR EFFICIENT MANAGEMENT OF BI-DIRECTIONAL BUS
82117904	F200301844	US	US6665763	Granted		31-Jul-2000	N/A	N/A	HOT-PLUG STORAGE DRIVE

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82117937	F200301852	US	US7079615	Granted		20-Nov-2001	N/A	N/A	EXPANDED COMPARATOR FOR CONTROL OF DIGITAL DELAY LINES IN A DELAY LOCKED LOOP OR PHASE LOCKED LOOP
82118069	F200301890	US	US6976184	Granted		27-Aug-2003	N/A	N/A	CLOCK FORWARD INITIALIZATION AND RESET SIGNALING TECHNIQUE
82118276	F200301945	US	US6895585	Granted		30-Mar-2001	N/A	N/A	METHOD OF MIXED WORKLOAD HIGH PERFORMANCE SCHEDULING
82119680	F200302135	US	US6978345	Granted		15-May-2001	N/A	N/A	SELF-MIRRORING HIGH PERFORMANCE DISK DRIVE
82119857	F200302179	US	US6823409	Granted		28-Sep-2001	N/A	N/A	COHERENCY CONTROL MODULE FOR MAINTAINING CACHE COHERENCY IN A MULTI-PROCESSOR-BUS SYSTEM
82119893	F200302186	US	US6884101	Granted		17-Oct-2001	N/A	N/A	INTERPOSER ONE-STEP LOAD AND SELF-LOCK SOCKET
82120106	F200302240	US	US6830394	Granted		4-Jun-2001	N/A	N/A	KEYBOARD HAVING A TRACK BALL MECHANISM AND A SCROLL MECHANISM
82120226	F200302273	US	US6667879	Granted		13-Dec-2001	N/A	N/A	SYSTEM FOR LATCHING AND EJECTING A MODULAR COMPONENT FROM AN ELECTRONIC DEVICE

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82120262	F200302284	US	US6650537	Granted		31-Oct-2001	N/A	N/A	LOW PROFILE DC DISTRIBUTION MODULE FOR A POWER SUPPLY UNIT
82120493	F200302342	US	US6657867	Granted		14-Dec-2001	N/A	N/A	HINGED DOOR FOR ACCESS TO ADD-IN CARDS
82120496	F200302343	US	US6669423	Granted		14-Dec-2001	N/A	N/A	TOOLLESS THUMB SCREW WITH ADJUSTABLE HEIGHT KNOB
82120499	F200302343	US	US6856514	Granted		27-Oct-2003	N/A	N/A	TOOLLESS THUMB SCREW WITH ADJUSTABLE HEIGHT KNOB
82121699	F200302536	US	US6898060	Granted		27-May-2003	N/A	N/A	GATED DIODE OVERVOLTAGE PROTECTION
82121840	F200302579	US	US7502895	Granted		13-Sep-2005	N/A	N/A	TECHNIQUES FOR REDUCING CASTOUTS IN A SNOOP FILTER
82133207	F200304304	US	US7076629	Granted		26-Dec-2001	N/A	N/A	METHOD FOR PROVIDING CONCURRENT NON-BLOCKING HEAP MEMORY MANAGEMENT FOR FIXED SIZED BLOCKS
82137005	F200305040	US	US6757330	Granted		1-Jun-2000	N/A	N/A	EFFICIENT IMPLEMENTATIO N OF HALF-PIXEL MOTION PREDICTION
82165532	F200308161	US	US7043516	Granted		13-Mar-1998	N/A	N/A	REDUCTION OF ADD-PIPE LOGIC BY OPERAND OFFSET SHIFT
82166030	F200308257	US	US6701387	Granted		31-Aug-2000	N/A	N/A	ADAPTIVE DATA FETCH PREDICTION ALGORITHM

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82166285	F200308323	US	US6609208	Granted		7-Jul-2000	N/A	N/A	ENERGY-BASED SAMPLING FOR PERFORMANCE MONITORING
82168928	F200309021	US	US7142647	Granted		3-Sep-2003	N/A	N/A	DATABASE FOR USE IN TELEPHONE COMMUNICATIONS
82168931	F200309021	US	US7483521	Granted		23-Oct-2006	N/A	N/A	DATABASE FOR USE IN TELEPHONE COMMUNICATIONS
82168994	F200309074	US	US7543113	Granted		2-Jul-2004	2-Dec-2020	7,406.00	CACHE MEMORY SYSTEM AND METHOD CAPABLE OF ADAPTIVELY ACCOMMODATING VARIOUS MEMORY LINE SIZES
82173998	F200311045	US	US7310681	Granted		23-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR MODELING THE MEMORY STATE OF A STREAMING MEDIA SERVER
82177961	F200312685	US	US7065697	Granted		29-Jul-2003	N/A	N/A	SYSTEMS AND METHODS OF PARTITIONING DATA TO FACILITATE ERROR CORRECTION
82177967	F200312685	US	US7051265	Granted		29-Jul-2003	N/A	N/A	SYSTEMS AND METHODS OF ROUTING DATA TO FACILITATE ERROR CORRECTION
82180217	F200313648	US	US7484237	Granted		13-May-2004	N/A	N/A	METHOD AND APPARATUS FOR ROLE-BASED SECURITY POLICY MANAGEMENT

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82184297	F200315344	US	US7269753	Granted		27-Aug-2004	N/A	N/A	MAPPING POWER SYSTEM COMPONENTS
82184303	F200315344	JP	JP4897685	Granted		18-Aug-2005	6-Jan-2021	1,006.29	MAPPING POWER SYSTEM COMPONETS
82184306	F200315344	CN	CN200580036905.3	Granted		18-Aug-2005	18-Aug-2020	1,304.37	MAPPING POWER SYSTEM COMPONETS
82206791	F200315640	US	US7330942	Granted		29-Dec-2004	N/A	N/A	METHOD FOR EFFICIENT VIRTUALIZATION OF PHYSICAL MEMORY IN A VIRTUAL-MACHINE MONITOR
82188452	F200400591	US	US7774457	Granted		25-Mar-2005	10-Feb-2022	7,406.00	RESOURCE EVALUATION FOR A BATCH JOB AND AN INTERACTIVE SESSION CONCURRENTLY EXECUTED IN A GRID COMPUTING ENVIRONMENT
82202708	F200400591	US	US7870256	Granted		12-Oct-2005	11-Jul-2022	7,706.00	REMOTE DESKTOP PERFORMANCE MODEL FOR ASSIGNING RESOURCES
82190660	F200401769	US	US7392172	Granted		28-Apr-2005	N/A	N/A	PROVIDING VIRTUAL DEVICE ACCESS VIA FIRMWARE
82190666	F200401769	TW	TWI421766	Granted		30-Mar-2006	31-Dec-2021	359.56	PROVIDING VIRTUAL DEVICE ACCESS VIA FIRMWARE
82191407	F200402006	US	US8374175	Granted		27-Apr-2005	12-Aug-2024	7,706.00	SYSTEM AND METHOD FOR REMOTE DIRECT MEMORY ACCESS OVER A NETWORK SWITCH FABRIC

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82191737	F200402148	US	US7376799	Granted		21-Jul-2005	N/A	N/A	SYSTEM FOR REDUCING THE LATENCY OF EXCLUSIVE READ REQUESTS IN A SYMMETRIC MULTI-PROCESSING SYSTEM
82192109	F200402377	US	US7262964	Granted		27-Apr-2005	N/A	N/A	AIRFLOW CONTROL BAFFLE
82194716	F200403261	US	US7650386	Granted		29-Jul-2004	19-Jul-2021	7,406.00	COMMUNICATION AMONG PARTITIONED DEVICES
82196147	F200403794	US	US7262495	Granted		7-Oct-2004	N/A	N/A	3D INTERCONNECT WITH PROTRUDING CONTACTS
82197314	F200404382	US	US7480836	Granted		25-Apr-2005	20-Jul-2020	7,406.00	MONITORING ERROR-HANDLER VECTOR IN ARCHITECTED MEMORY
82200530	F200405992	US	US7734622	Granted		25-Mar-2005	8-Dec-2021	7,706.00	MEDIA-DRIVEN BROWSING
82200926	F200406195	US	US7995339	Granted		1-Nov-2004	9-Feb-2023	7,706.00	CONTROL OF VENT TILLES CORRELATED WITH A RACK
82203158	F200406195	US	US7251547	Granted		8-Oct-2004	N/A	N/A	CORRELATION OF VENT TILE SETTINGS AND RACK TEMPERATURES
82202732	F200407050	US	US7533303	Granted		15-Apr-2005	12-Nov-2020	7,406.00	METHOD AND SYSTEM FOR PERFORMING SYSTEM-LEVEL CORRECTION OF MEMORY ERRORS
82204136	F200407697	US	US7433935	Granted		29-Apr-2005	N/A	N/A	SELF-ADAPTING PLUG-IN SERVICE

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82207985	F200501020	US	US7877803	Granted		27-Jun-2005	25-Jul-2022	7,406.00	AUTOMATED IMMUNE RESPONSE FOR A COMPUTER
82209869	F200502033	US	US7624234	Granted		31-Aug-2006	24-May-2021	7,706.00	DIRECTORY CACHES, AND METHODS FOR OPERATION THEREOF
82209872	F200502033	GB	GB2441435	Granted		29-Aug-2007	29-Aug-2021	531.28	DIRECTORY CACHES, AND METHODS FOR OPERATION THEREOF
82210976	F200502524	US	US7651871	Granted		30-Nov-2005	26-Jul-2021	7,706.00	DEVICE FOR FORMING MAGNETIC WELL FOR NANOPARTICLES
82211804	F200502942	US	US8205146	Granted		21-Jul-2005	19-Dec-2023	7,706.00	PERSISTENT ERROR DETECTION IN DIGITAL MEMORY
82218587	F200506782	US	US8370416	Granted		26-Apr-2006	5-Aug-2024	7,706.00	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218590	F200506782	GB	GB2437649	Granted		26-Apr-2007	26-Apr-2021	531.28	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218593	F200506782	JP	JP4726852	Granted		25-Apr-2007	22-Apr-2021	708.91	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218863	F200506953	CN	CN200710137000.6	Granted		26-Jul-2007	26-Jul-2020	985.42	MEMORY-MAPPED BUFFERS FOR NETWORK INTERFACE CONTROLLERS

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82218860	F200506953	US	US9137179	Granted		26-Jul-2006	15-Mar-2023	3,766.00	MEMORY-MAPPED BUFFERS FOR NETWORK INTERFACE CONTROLLERS
82219073	F200507081	US	US7592679	Granted		19-Oct-2006	22-Mar-2021	7,706.00	SENSOR AND METHOD FOR MAKING THE SAME
82227227	F200507081	US	US7582975	Granted		27-Apr-2007	1-Mar-2021	7,706.00	NANOWIRE DEVICE AND METHOD OF MAKING THE SAME
82219634	F200507364	US	US7930486	Granted		30-Apr-2007	19-Oct-2022	7,406.00	CACHE CHUNKED LIST CONCRETE DATA TYPE
82219664	F200507395	US	US7376805	Granted		21-Apr-2006	N/A	N/A	DISTRIBUTED STORAGE ARRAY
82219667	F200507395	US	US7487311	Granted		14-Mar-2008	3-Aug-2020	7,406.00	SYSTEM AND METHOD FOR ASYNCHRONOUS BACKUP OF VIRTUAL DISKS IN A DISTRIBUTED STORAGE ARRAY
82220339	F200600100	US	US8390086	Granted		19-Jul-2010	5-Sep-2024	7,706.00	A SOLAR CELL EMPLOYING A NANOWIRE
82225544	F200602330	US	US8045562	Granted		31-Oct-2006	25-Apr-2023	7,706.00	ESTIMATING LINK INTERFERENCE AND BANDWIDTH
82227581	F200603189	US	US8799547	Granted		7-Jul-2008	5-Feb-2022	3,766.00	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
82227584	F200603189	CN	CN200880016822.1	Granted		7-Jul-2008	7-Jul-2021	1,032.98	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR

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90037712	F200603189	FR	FR2176773	Granted		7-Jul-2008	7-Jul-2021	521.20	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
90037714	F200603189	DE	DE602008039979.6	Granted		7-Jul-2008	7-Jul-2021	1,178.09	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
90037716	F200603189	GB	GB2176773	Granted		7-Jul-2008	7-Jul-2021	443.74	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
82241552	F200703647	CN	CN200880128265.2	Granted		25-Mar-2008	25-Mar-2021	1,032.98	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82241564	F200703647	KR	KR10-1324844	Granted		25-Mar-2008	28-Oct-2021	732.64	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82241567	F200703647	US	US8386654	Granted		25-Mar-2008	26-Aug-2024	7,706.00	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
83240742	F200703647	DE	DE602008024431.8	Granted		25-Mar-2008	25-Mar-2021	1,178.09	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS

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83240744	F200703647	GB	GB2257880	Granted		25-Mar-2008	25-Mar-2021	443.74	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82242728	F200704017	GB	GB2458157	Granted		7-Mar-2008	7-Mar-2021	443.74	VIRTUAL MACHINE LIVENESS CHECK
82242731	F200704017	US	US8627313	Granted		9-Mar-2009	7-Jul-2021	3,766.00	VIRTUAL MACHINE LIVENESS CHECK
82243406	F200704228	GB	GB2459433	Granted		7-Mar-2008	7-Mar-2021	443.74	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
82243409	F200704228	US	US9178850	Granted		9-Mar-2009	3-May-2023	3,766.00	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
90046408	F200704228	US	US10165009	Granted		11-Sep-2015	25-Jun-2022	2,006.00	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
82249295	F200802685	US	US9031876	Granted		19-Jun-2009	12-Nov-2022	3,606.00	MANAGING KEYS FOR ENCRYPTED SHARED DOCUMENTS
82631729	F200802734	CN	CN200980139998.0	Granted		4-Aug-2009	4-Aug-2021	1,032.98	END-TO-END NETWORK ACCESS ANALYSIS
82631733	F200802734	US	US9253038	Granted		4-Aug-2009	2-Aug-2023	3,766.00	END-TO-END NETWORK ACCESS ANALYSIS
82249913	F200803253	US	US8417954	Granted		11-Feb-2009	9-Oct-2024	7,706.00	INSTALLATION IMAGE INCLUDING DIGITAL SIGNATURE

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82852246	F200803703	US	US9094317	Granted		18-Jun-2009	28-Jan-2023	3,766.00	PROCESSOR TOPOLOGY SWITCHES
82885912	F200803703	CN	CN200980159933.2	Granted		18-Jun-2009	18-Jun-2021	1,032.98	PROCESSOR TOPOLOGY SWITCHES
82844854	F200900015	US	US9098276	Granted		21-Sep-2011	4-Feb-2023	3,766.00	REDUNDANT POWER SUPPLY SYSTEMS AND METHODS
82252169	F200900607	US	US7302399	Granted		10-Nov-1999	N/A	N/A	METHOD AND SYSTEM FOR PROCESSING TRAVEL RESERVATION DATA
82253540	F200900812	US	US7100197	Granted		10-Dec-2001	N/A	N/A	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253546	F200900812	JP	JP4864289	Granted		6-Dec-2002	18-Nov-2020	2,068.54	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253558	F200900812	MX	MX250877	Granted		6-Dec-2002	N/A	N/A	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253561	F200900812	NZ	NZ533457	Granted		6-Dec-2002	6-Dec-2020	723.01	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82901625	F200900812	DE	DE60241169.6	Granted		6-Dec-2002	6-Dec-2020	2,257.04	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253696	F200900854	US	US6850866	Granted		12-Sep-2002	N/A	N/A	MANAGING PERFORMANCE METRICS DESCRIBING A RELATIONSHIP BETWEEN A PROVIDER AND A CLIENT

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82255841	F200901260	US	US7680590	Granted		2-Dec-2003	16-Sep-2021	7,706.00	BOUNDARY DETECTION ALGORITHM FOR EMBEDDED DEVICES
82256702	F200901260	US	US6983202	Granted		12-Apr-2004	N/A	N/A	IMPLEMENTING GEO-FENCING ON MOBILE DEVICES
82256420	F200901682	US	US8756682	Granted		20-Dec-2004	17-Dec-2021	3,766.00	METHOD AND SYSTEM FOR NETWORK INTRUSION PREVENTION
82257263	F200901908	US	US9191989	Granted		19-Dec-2006	17-May-2023	3,766.00	APPARATUS, AND ASSOCIATED METHOD, FOR CONTROLLING CONNECTIVITY OF A COMPUTER DEVICE WITH A COMPUTER NETWORK
90095936	F200901908	US	US9584519	Granted		27-Oct-2015	28-Aug-2024	3,766.00	APPARATUS, AND ASSOCIATED METHOD, FOR CONTROLLING CONNECTIVITY OF A COMPUTER DEVICE WITH A COMPUTER NETWORK
82257851	F200902190	US	US6839706	Granted		6-Aug-2001	N/A	N/A	BLOCK DATA STORAGE WITHIN A COMPUTER NETWORK
82895030	F200903397	CN	CN200980160899.0	Granted		11-Aug-2009	11-Aug-2020	666.46	ENCLOSURE AIRFLOW CONTROLLER
90064660	F200903397	FR	FR2465030	Granted		11-Aug-2009	11-Aug-2020	364.41	ENCLOSURE AIRFLOW CONTROLLER
90064662	F200903397	DE	DE602009034106.5	Granted		11-Aug-2009	11-Aug-2020	746.71	ENCLOSURE AIRFLOW CONTROLLER
90064664	F200903397	GB	GB2465030	Granted		11-Aug-2009	11-Aug-2020	322.82	ENCLOSURE AIRFLOW CONTROLLER

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82895034	F200903397	US	US9354678	Granted		11-Aug-2009	30-Nov-2023	3,766.00	ENCLOSURE AIRFLOW CONTROLLER
82938265	F200903900	CN	CN201080064762.8	Granted		26-Feb-2010	26-Feb-2021	698.53	RESTORING STABILITY TO AN UNSTABLE BUS
82938271	F200903900	US	US8799545	Granted		26-Feb-2010	5-Feb-2022	3,766.00	RESTORING STABILITY TO AN UNSTABLE BUS
82261814	F200904727	US	US8943328	Granted		29-Jan-2010	27-Jul-2022	3,606.00	KEY ROTATION FOR ENCRYPTED STORAGE MEDIA
82262789	F200904727	US	US8489893	Granted		9-Apr-2010	16-Jan-2021	3,606.00	ENCRYPTION KEY ROTATION MESSAGES WRITTEN AND OBSERVED BY STORAGE CONTROLLERS VIA STORAGE MEDIA
82261817	F200904730	US	US9032218	Granted		29-Jan-2010	12-Nov-2022	3,606.00	KEY ROTATION FOR ENCRYPTED STORAGE MEDIA USING A MIRRORED VOLUME REVIVE OPERATION
83137890	F201000198	GB	GB2503965	Granted		12-Jul-2010	12-Jul-2021	327.01	FLEXIBLE DATA CENTER AND METHODS FOR DEPLOYMENT
83137892	F201000198	US	US9310855	Granted		12-Jul-2010	12-Oct-2023	3,766.00	FLEXIBLE DATA CENTER AND METHODS FOR DEPLOYMENT
82263854	F201000919	US	US9184382	Granted		28-Oct-2010	10-May-2023	3,766.00	MEMRISTIVE DEVICES WITH LAYERED JUNCTIONS AND METHODS FOR FABRICATING THE SAME
83168702	F201001144	KR	KR10-1448412	Granted		30-Aug-2010	30-Sep-2020	500.23	MULTILAYER MEMORY ARRAY

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83168704	F201001144	US	US9293200	Granted		30-Aug-2010	22-Sep-2023	3,766.00	MULTILAYER MEMORY ARRAY
83168698	F201001144	CN	CN201080068814.9	Granted		30-Aug-2010	30-Aug-2020	666.46	MULTILAYER MEMORY ARRAY
83681482	F201001773	US	US9223821	Granted		21-Mar-2011	29-Jun-2023	3,766.00	DATA BACKUP PRIORITIZATION
90185183	F201001773	FR	FR2689329	Granted		21-Mar-2011	21-Mar-2021	340.88	DATA BACKUP PRIORITIZATION
90185185	F201001773	DE	DE602011021284.2	Granted		21-Mar-2011	21-Mar-2021	611.36	DATA BACKUP PRIORITIZATION
90185187	F201001773	GB	GB2689329	Granted		21-Mar-2011	21-Mar-2021	283.23	DATA BACKUP PRIORITIZATION
82267325	F201002266	GB	GB2054390	Granted		23-Feb-1996	N/A	N/A	ENCLOSURE FOR ELECTRONIC CIRCUITRY
82267331	F201002266	FR	FR964814	Granted		22-Aug-1996	N/A	N/A	ENCLOSURE FOR ELECTRONIC CIRCUITRY
82270946	F201002423	US	US7299301	Granted		8-Sep-2003	N/A	N/A	METHOD AND ARCHITECTURE FOR LOGICAL AGGREGATION OF MULTIPLE SERVERS
82269671	F201002872	US	US7453815	Granted		15-Dec-2003	N/A	N/A	METHOD AND SYSTEM FOR MONITORING AND MANAGEMENT OF THE PERFORMANCE OF REAL-TIME NETWORKS
82269695	F201002879	US	US7386119	Granted		13-May-2004	N/A	N/A	FILTERED TRANSMIT CANCELLATION IN A FULL-DUPLEX MODEM DATA ACCESS ARRANGEMENT (DAA)

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82270031	F201002986	US	US6771288	Granted		8-Mar-2001	N/A	N/A	METHODS AND APPARATUS FOR UPDATING INFORMATION IN A DISPLAY CONTAINING FIXED AND VARIABLE INFORMATION
82270109	F201003023	US	US6633277	Granted		30-May-2000	N/A	N/A	COMPACT 3-STATE DATA ENTRY DEVICE
82270580	F201003193	US	US6934740	Granted		19-Sep-2000	N/A	N/A	METHOD AND APPARATUS FOR SHARING COMMON DATA OBJECTS AMONG MULTIPLE APPLICATIONS IN A CLIENT DEVICE
82271003	F201003329	US	US6874047	Granted		9-Jun-2000	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING AN SMBUS/I2C INTERFACE ON A NETWORK INTERFACE CARD
82271342	F201003398	US	US6614350	Granted		8-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR EFFECTING A SECURITY SYSTEM UPON MULTIPLE PORTABLE INFORMATION DEVICES
82271756	F201003538	US	US6701140	Granted		14-Sep-2000	N/A	N/A	DIGITAL RECEIVE PHASE LOCK LOOP WITH CUMULATIVE PHASE ERROR CORRECTION AND DYNAMICALLY PROGRAMMABLE CORRECTION RATE
82272137	F201003672	US	US6882622	Granted		2-Aug-2000	N/A	N/A	FLOW CONTROL SYSTEM FOR NETWORK DEVICES

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82272302	F201003754	US	US7480939	Granted		6-Jul-2001	N/A	N/A	ENHANCEMENT TO AUTHENTICATIO N PROTOCOL THAT USES A KEY LEASE
82272299	F201003754	US	US6920559	Expired		28-Apr-2000	N/A	N/A	USING A KEY LEASE IN A SECONDARY AUTHENTICATIO N PROTOCOL AFTER A PRIMARY AUTHENTICATIO N PROTOCOL HAS BEEN PERFORMED
82272392	F201003777	US	US6662332	Granted		1-Nov-2000	N/A	N/A	INTERLEAVER FOR BURST ERROR CORRECTION
82272455	F201003805	US	US6766377	Granted		24-Aug-2000	N/A	N/A	MEDIA GATEWAY PROXY
82272458	F201003805	US	US7634577	Granted		19-Apr-2004	15-Jun-2021	7,706.00	MEDIA GATEWAY PROXY
82272611	F201003858	US	US6741586	Granted		31-May-2000	N/A	N/A	SYSTEM AND METHOD FOR SHARING COMPUTER SCREENS OVER A TELEPHONY NETWORK
82272650	F201003874	US	US6965577	Granted		24-Oct-2000	N/A	N/A	IDENTIFYING AN EDGE SWITCH AND PORT TO WHICH A NETWORK USER IS ATTACHED
82272728	F201003925	US	US6966003	Granted		12-Jan-2001	N/A	N/A	SYSTEM AND METHOD FOR SWITCHING SECURITY ASSOCIATIONS

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82272782	F201003944	US	US7039049	Granted		22-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR PPPOE BRIDGING IN A ROUTING CMTS
82272836	F201003967	US	US6763348	Granted		8-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR SEARCHING DATABASES EMPLOYING A TRIE SEARCH STRUCTURE
82272899	F201004011	US	US6577500	Granted		28-Feb-2001	N/A	N/A	WIRELESS PC CARD
82272926	F201004020	US	US6938079	Granted		19-Sep-2000	N/A	N/A	SYSTEM AND METHOD FOR AUTOMATICALLY CONFIGURING A CLIENT DEVICE
82273091	F201004100	US	US6842797	Granted		10-Oct-2000	N/A	N/A	USB ADAPTER FOR BURST MODE COMMUNICATIONS
82273283	F201004220	US	US6771745	Granted		22-May-2001	N/A	N/A	METHOD AND APPARATUS FOR TELEPHONE DIALLING USING A NETWORK DEVICE
82273484	F201004324	US	US7577857	Granted		29-Aug-2001	18-Feb-2021	7,706.00	HIGH SPEED NETWORK INTERFACE WITH AUTOMATIC POWER MANAGEMENT WITH AUTO-NEGOTIATION
82273487	F201004324	US	US8046614	Granted		20-Jul-2009	N/A	N/A	AN INTEGRATED CIRCUIT HAVING A NETWORKING INTERFACE MODULE SUPPORTING A PLURALITY OF PROTOCOLS

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82861414	F201004324	US	US8291246	Granted		20-Oct-2011	16-Apr-2024	7,400.00	HIGH SPEED NETWORK INTERFACE WITH AUTOMATIC POWER MANAGEMENT WITH AUTO-NEGOTIATION
82273562	F201004343	US	US6745333	Granted		31-Jan-2002	N/A	N/A	METHOD FOR DETECTING UNAUTHORIZED NETWORK ACCESS BY HAVING A NIC MONITOR FOR PACKETS PURPORTING TO BE FROM ITSELF
82273571	F201004345	US	US7194004	Granted		28-Jan-2002	N/A	N/A	METHOD FOR MANAGING NETWORK ACCESS
82273634	F201004373	US	US6996110	Granted		31-Aug-2001	N/A	N/A	DISTRIBUTED MPLS ARCHITECTURE
82273676	F201004392	US	US7085364	Granted		20-Aug-2001	N/A	N/A	ADVANCED CONFERENCE DROP
82273709	F201004409	US	US7350076	Granted		6-Dec-2001	N/A	N/A	SCHEME FOR DEVICE AND USER AUTHENTICATIO N WITH KEY DISTRIBUTION IN A WIRELESS NETWORK
82273712	F201004409	CN	CN02812705.6	Granted		16-May-2002	16-May-2021	1,367.42	AUTHENTICATIO N METHOD
90826600	F201004409	DE	DE602500656	Granted		16-May-2002	16-May-2021	2,504.74	AUTHENTICATIO N METHOD
90826603	F201004409	GB	GB1391077	Granted		16-May-2002	16-May-2021	896.07	AUTHENTICATIO N METHOD
82273889	F201004461	US	US6674652	Granted		29-Jan-2002	N/A	N/A	INTEGRATED SHIELD WRAP

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82273958	F201004494	US	US7624434	Granted		1-Mar-2002	24-May-2021	7,706.00	SYSTEM FOR PROVIDING FIREWALL CAPABILITIES TO A COMMUNICATION DEVICE
82274012	F201004514	US	US7298834	Granted		22-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR LARGE CAPACITY CONFERENCE CALLS
82274108	F201004540	US	US7603486	Granted		26-Nov-2002	13-Apr-2021	7,706.00	NETWORK MANAGEMENT SYSTEM PROVIDING LOGIC SIGNALS OVER COMMUNICATION LINES FOR DETECTING PERIPHERAL DEVICES
82274132	F201004549	US	US7130625	Granted		1-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274135	F201004549	CN	CN03815527.3	Granted		30-Jun-2003	30-Jun-2021	1,367.42	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274138	F201004549	DE	DE60332838.5	Granted		30-Jun-2003	30-Jun-2021	2,272.89	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274144	F201004549	FR	FR1527626	Granted		30-Jun-2003	30-Jun-2021	946.25	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY

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82274147	F201004549	GB	GB1527626	Granted		30-Jun-2003	30-Jun-2021	837.70	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274240	F201004570	DE	DE60317155.9	Granted		4-Jan-2003	4-Jan-2021	2,272.89	NETWORK UNITS FOR USE IN AND ORGANISATION OF CASCADE SYSTEMS
82274255	F201004570	US	US7522589	Granted		7-Jan-2003	N/A	N/A	NETWORK UNITS FOR USE IN AND ORGANISATION OF CASCADE SYSTEMS
82576655	F201004570	FR	FR1760968	Granted		4-Jan-2003	4-Jan-2021	946.25	NETWORK UNIT FOR USE IN A CASCADE SYSTEM
82576658	F201004570	DE	DE603347487	Granted		4-Jan-2003	4-Jan-2021	2,272.89	NETWORK UNIT FOR USE IN A CASCADE SYSTEM
82274504	F201004631	US	US7596614	Granted		29-Jul-2005	29-Mar-2021	7,706.00	NETWORK INCLUDING SNOOPING
82274507	F201004631	US	US7975048	Granted		18-Aug-2009	5-Jan-2023	7,706.00	NETWORK INCLUDING SNOOPING
82743829	F201004631	US	US8055768	Granted		27-May-2011	8-May-2023	7,706.00	NETWORK INCLUDING SNOOPING
82274573	F201004645	US	US7802094	Granted		22-Feb-2005	21-Mar-2022	7,706.00	REDUCTION OF FALSE POSITIVE DETECTION OF SIGNATURE MATCHES IN INTRUSION DETECTION SYSTEMS
82274591	F201004649	US	US7957390	Granted		18-May-2005	7-Dec-2022	7,706.00	DETECTION OF SIGNATURES IN DISORDERED MESSAGE SEGMENTS

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83693683	F201005236	US	US9292392	Granted		30-Jun-2011	22-Sep-2023	3,766.00	MEMORY MODULE THAT INCLUDES A MEMORY MODULE COPY ENGINE FOR COPYING DATA FROM AN ACTIVE MEMORY DIE TO A SPARE MEMORY DIE
82064201	F30010410	US	US7634656	Granted		12-Sep-2002	15-Jun-2021	7,706.00	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82064207	F30010410	DE	DE60207500.9	Granted		10-Sep-2002	10-Sep-2021	2,504.74	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82064213	F30010410	GB	GB1294157	Granted		10-Sep-2002	10-Sep-2021	896.07	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82070699	F50006065	US	US6951023	Granted		29-Oct-2001	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004398	F50006065	FR	FR1202176	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004404	F50006065	DE	DE60047121.7	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004410	F50006065	GB	GB1202176	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
82071116	F50012953	US	US6943683	Granted		21-Jan-2003	N/A	N/A	LOCATION DEVICE
83014991	F700209927	US	US8929236	Granted		30-Jul-2012	6-Jul-2022	3,766.00	NETWORK FLOW ANALYSIS
83098424	F700211111	US	US8929225	Granted		7-Dec-2012	6-Jul-2022	3,766.00	CUSTOMER EDGE DEVICE PROBLEM IDENTIFICATION

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90068832	F700213273	CN	CN201380076263.4	Granted		3-Apr-2013	3-Apr-2021	364.09	METHOD AND PRODUCT FOR MODIFYING A FLOW OF OPERATIONS TO BE EXECUTED IN PLURALITY OF EXECUTION ENVIRONMENTS
90068840	F700213273	US	US9846598	Granted		3-Apr-2013	19-Jun-2021	2,006.00	MODIFYING A FLOW OF OPERATIONS TO BE EXECUTED IN A PLURALITY OF EXECUTION ENVIRONMENTS
82578801	F9949	US	US6833634	Granted		4-Jan-2001	N/A	N/A	DISK ENCLOSURE WITH MULTIPLE POWER DOMAINS
82579241	FP007	US	US7650638	Granted		2-Dec-2002	19-Jul-2021	7,706.00	NETWORK SECURITY MONITORING SYSTEM EMPLOYING BI-DIRECTIONAL COMMUNICATION
90404678	FSGI00359	US	US9547882	Granted		10-Nov-2014	17-Jul-2024	3,766.00	SHARED MEMORY EIGENSOLVER
90404680	FSGI00359	US	US9262799	Granted		7-Nov-2014	16-Aug-2023	3,766.00	SHARED MEMORY EIGENSOLVER
90444833	FSGI00359	US	US9798594	Granted		17-Jan-2017	24-Apr-2021	2,006.00	SHARED MEMORY EIGENSOLVER

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81966803	F10001220	US	US7000151	Granted		18-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING RUN-TIME TYPE CHECKING
81967499	F10001459	US	US6950961	Granted		13-Feb-2001	N/A	N/A	HIGHLY AVAILABLE, MONOTONIC INCREASING SEQUENCE NUMBER GENERATION
81967625	F10001491	US	US6687872	Granted		14-Mar-2001	N/A	N/A	METHODS AND SYSTEMS OF USING RESULT BUFFERS IN PARITY OPERATIONS
81967634	F10001491	US	US7111227	Granted		4-Dec-2003	N/A	N/A	METHODS AND SYSTEMS OF USING RESULT BUFFERS IN PARITY OPERATIONS
82051124	F10002032	US	US6813705	Granted		5-Jan-2001	N/A	N/A	MEMORY DISAMBIGUATION SCHEME FOR PARTIALLY REDUNDANT LOAD REMOVAL
81970013	F10002170	US	US7263719	Granted		29-Nov-2000	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING NETWORK SECURITY POLICIES ON A COMMON NETWORK INFRASTRUCTURE
81970046	F10002170	US	US7376965	Granted		14-May-2001	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING A BUBBLE POLICY TO ACHIEVE HOST AND NETWORK SECURITY

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81970055	F10002170	US	US7400591	Granted		1-Jun-2005	N/A	N/A	METHOD OF CREATING AN ADDRESS AND A DISCONTIGUOUS MASK FOR A NETWORK SECURITY POLICY AREA
81971792	F10002673	US	US7376953	Granted		29-Oct-2001	N/A	N/A	APPARATUS AND METHOD FOR ROUTING A TRANSACTION TO A SERVER
81971828	F10002691	US	US6704687	Granted		31-Jan-2001	N/A	N/A	HISTORICAL RESULTS BASED METHOD FOR AUTOMATICALL Y IMPROVING COMPUTER SYSTEM PERFORMANCE
81971849	F10002695	US	US7607135	Granted		15-Jun-2001	20-Apr-2021	7,406.00	APPARATUS AND METHOD FOR ENHANCING PERFORMANCE OF A COMPUTER SYSTEM
81974126	F10003509	US	US6851074	Granted		30-Apr-2001	N/A	N/A	SYSTEM AND METHOD FOR RECOVERING FROM MEMORY FAILURES IN COMPUTER SYSTEMS
81976325	F10004121	US	US6889335	Granted		7-Apr-2001	N/A	N/A	MEMORY CONTROLLER RECEIVER CIRCUITRY WITH TRI-STATE NOISE IMMUNITY

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81977141	F10004392	US	US6944807	Granted		25-Mar-2002	N/A	N/A	METHOD AND APPARATUS FOR ACHIEVING HIGHER PRODUCT YIELDS BY USING FRACTIONAL PORTIONS OF IMBEDDED MEMORY ARRAYS
81977306	F10004466	US	US7076647	Granted		7-Jun-2001	N/A	N/A	DYNAMIC KERNEL TUNABLES
81977471	F10004560	US	US7216184	Granted		1-May-2001	N/A	N/A	SYSTEM AND METHOD FOR IDENTIFICATION OF DEVICES ASSOCIATED WITH INPUT/OUTPUT PATHS
81978071	F10004801	US	US8621480	Granted		16-Dec-2004	30-Jun-2021	3,606.00	LOAD BALANCER WITH STARVATION AVOIDANCE
81978998	F10004983	US	US7058860	Granted		29-Jun-2001	N/A	N/A	SYSTEM AND METHOD OF AUTOMATIC PARAMETER COLLECTION AND PROBLEM SOLUTION GENERATION FOR COMPUTER STORAGE DEVICES
81980063	F10005461	US	US6918110	Granted		11-Apr-2001	N/A	N/A	DYNAMIC INSTRUMENTATION OF AN EXECUTABLE PROGAM BY MEANS OF CAUSING A BREAKPOINT AT THE ENTRY POINT OF A FUNCTION AND PROVIDING INSTRUMENTATION CODE

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81980882	F10006054	US	US6915520	Granted		6-Apr-2001	N/A	N/A	JAVA C++ PROXY OBJECTS
81982520	F10006527	US	US7236939	Granted		31-Mar-2001	N/A	N/A	A PEER-TO-PEER INTER-ENTERPRISE COLLABORATIVE PROCESS MANAGEMENT METHOD AND SYSTEM
81982832	F10006625	US	US7307962	Granted		2-Mar-2001	N/A	N/A	SYSTEM FOR INFERENCE OF NETWORK INFRASTRUCTURE DEVICES
81982979	F10006728	US	US7120832	Granted		27-Sep-2001	N/A	N/A	STORAGE DEVICE PERFORMANCE MONITOR
81983012	F10006755	US	US6976270	Granted		8-May-2001	N/A	N/A	PROCESS AND COMPONENT FOR INQUIRING ABOUT SECURITY RELATIONSHIPS
81983804	F10007099	US	US6868481	Granted		31-Oct-2000	N/A	N/A	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81983807	F10007099	JP	JP4008224	Granted		15-Oct-2001	7-Sep-2021	1,159.50	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81983810	F10007099	US	US7373457	Granted		1-Feb-2005	N/A	N/A	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81984836	F10007479	US	US6823300	Granted		10-Nov-2000	N/A	N/A	MEMORY EFFICIENT OCCURRENCE MODEL DESIGN FOR VLSI CAD

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81986702	F10008027	US	US6525936	Granted		30-Apr-2001	N/A	N/A	AIR JET COOLING ARRANGEMENT FOR ELECTRONIC SYSTEMS
81998216	F10008027	US	US6904968	Granted		14-Sep-2001	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998219	F10008027	US	US6876549	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998222	F10008027	US	US7086459	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998225	F10008027	US	US7013968	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81988421	F10010310	US	US6963832	Granted		9-Oct-2001	N/A	N/A	MEANING TOKEN DICTIONARY FOR AUTOMATIC SPEECH RECOGNITION
81989063	F10010654	US	US6928580	Granted		9-Jul-2001	N/A	N/A	DISTRIBUTED DATA CENTER SYSTEM PROTOCOL FOR CONTINUITY OF SERVICE IN THE EVENT OF DISASTER FAILURES

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81989453	F10010857	US	US6931571	Granted		20-Nov-2001	N/A	N/A	METHOD AND APPARATUS FOR HANDLING TRANSIENT MEMORY ERRORS
82079021	F100110160	US	US7765299	Granted		16-Sep-2002	27-Jan-2022	7,406.00	DYNAMIC ADAPTIVE SERVER PROVISIONING FOR BLADE ARCHITECTURES
82079405	F100110262	US	US7236967	Granted		3-Jun-2002	N/A	N/A	METHODS AND SYSTEMS FOR MAINTANING TRANSACTION SEMANTICS IN A COMPUTER SYSTEM
82079738	F100110378	US	US7975043	Granted		25-Feb-2003	5-Jan-2023	7,706.00	METHOD AND APPARATUS FOR MONITORING A NETWORK
82082363	F100111655	US	US7051238	Granted		30-Jul-2002	N/A	N/A	METHOD AND SYSTEM FOR USING MACHINE-ARCHITECTURE SUPPORT TO DISTINGUISH FUNCTION AND ROUTINE RETURN VALUES
81990812	F10011331	US	US6990612	Granted		18-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR PREVENTING SOFTWARE ERRORS
81991082	F10011514	US	US6928536	Granted		29-Nov-2001	N/A	N/A	DYNAMIC EXECUTION LAYER INTERFACE FOR REPLACING INSTRUCTIONS REQUIRING UNAVAILABLE HARDWARE FUNCTIONALITY WITH PATCH CODE AND CACHING

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81991304	F10011596	US	US7478394	Granted		4-Jun-2001	13-Jul-2020	7,406.00	CONTEXT-CORRUPTING CONTEXT SWITCHING
81992945	F10012198	US	US7577998	Granted		16-Nov-2001	18-Feb-2021	7,406.00	METHOD OF DETECTING CRITICAL FILE CHANGES
81993740	F10012499	US	US7594233	Granted		28-Jun-2002	22-Mar-2021	7,406.00	PROCESSING THREAD LAUNCHING USING VOLUNTEER INFORMATION
81993752	F10012506	US	US7216226	Granted		1-Apr-2002	N/A	N/A	UNIQUE AND SECURE IDENTIFICATION OF A NETWORKED COMPUTING NODE
81994424	F10012767	US	US6851110	Granted		7-Jun-2001	N/A	N/A	OPTIMIZING AN EXECUTABLE COMPUTER PROGRAM HAVING ADDRESS-BRIDGING CODE SEGMENTS
81994538	F10012818	US	US6931632	Granted		8-Nov-2001	N/A	N/A	INSTRUMENTATION OF CODE HAVING PREDICATED BRANCH-CALL AND SHADOW INSTRUCTIONS
81994541	F10012819	US	US6934943	Granted		18-Oct-2001	N/A	N/A	OPTIMIZATION OF CONTROL TRANSFERS TO DYNAMICALLY LOADED MODULES

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81994997	F10013048	US	US7111282	Granted		12-Jun-2001	N/A	N/A	INSTRUMENTING A SOFTWARE PROGRAM AND COLLECTING DATA FROM THE INSTRUMENTED SOFTWARE PROGRAM BY TYPE
81996842	F10014072	US	US6836871	Granted		29-Oct-2002	N/A	N/A	PROCESS AND SYSTEM FOR DEVELOPING DYNAMIC CIRCUIT GUILDELINES
81996848	F10014074	US	US6862694	Granted		5-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR SETTING AND EXECUTING BREAKPOINTS
81997529	F10014420	US	US7249088	Granted		11-Jul-2001	N/A	N/A	JOINT ESTIMATION OF BIDDERS' RISK ATTITUDES AND PRIVATE INFORMATION
81997724	F10014531	US	US7243368	Granted		29-Mar-2002	N/A	N/A	ACCESS CONTROL SYSTEM AND METHOD FOR A NETWORKED COMPUTER SYSTEM
81998627	F10015123	US	US7200665	Granted		17-Oct-2001	N/A	N/A	ALLOWING REQUESTS OF A SESSION TO BE SERVICED BY DIFFERENT SERVERS IN A MULTI-SERVER DATA SERVICE SYSTEM
81998681	F10015152	US	US7134050	Granted		15-Aug-2003	N/A	N/A	METHOD AND SYSTEM FOR CONTAINING SOFTWARE FAULTS

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81998687	F10015153	US	US7058786	Granted		17-Jan-2002	N/A	N/A	OPERATING SYSTEM DATA COMMUNICATIO N METHOD AND SYSTEM
82000466	F10016439	US	US6944732	Granted		8-May-2002	N/A	N/A	MEHTHOD AND APPARATUS FOR SUPPORTING SNAPSHOTS WITH DIRECT I/O IN A STORAGE AREA NETWORK
82000691	F10016624	US	US6931489	Granted		12-Aug-2002	N/A	N/A	APPARATUS AND METHODS FOR SHARING CACHE AMONG PROCESSORS
82000931	F10016687	US	US7047437	Granted		12-Dec-2001	N/A	N/A	METHOD AND SYSTEM FOR DETECTING DROPPED MICRO-PACKETS
82001030	F10016717	US	US7058702	Granted		4-Jan-2002	N/A	N/A	EFFICIENT VALIDATION OF NETWORK CONFIGURATION CHANGE COMMANDS
82002167	F10017428	US	US7203317	Granted		31-Oct-2001	N/A	N/A	SYSTEM FOR ENABLING LAZY-REVOCATION THROUGH RECURSIVE KEY GENERATION
82002176	F10017432	US	US6848841	Granted		9-Sep-2002	N/A	N/A	OPTICAL COMPONENT CONNECTOR
82002206	F10017447	US	US6967350	Granted		2-Apr-2002	N/A	N/A	MEMORY STRUCTURES
82003364	F10017977	US	US6644481	Granted		11-Feb-2002	N/A	N/A	APPARATUS AND METHOD FOR RACKMOUNTING A CHASSIS

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82004360	F10018557	US	US6718277	Granted		17-Apr-2002	N/A	N/A	ATMOSPHERIC CONTROL WITHIN A BUILDING
82007003	F10019871	US	US6912616	Granted		12-Nov-2002	N/A	N/A	MAPPING ADDRESSES TO MEMORY BANKS BASED ON AT LEAST ONE MATHEMATICAL RELATIONSHIP
82007006	F10019871	JP	JP4771654	Granted		10-Nov-2003	1-Jul-2021	753.97	MAPPING ADDRESSES TO MEMORY BANKS BASED ON AT LEAST ONE MATHEMATICAL RELATIONSHIP
82007021	F10019879	US	US6677778	Granted		23-May-2002	N/A	N/A	DEVICE AND METHOD TO CAUSE A FALSE DATA VALUE TO BE CORRECTLY SEEN AS THE PROPER DATA VALUE
82007393	F10019988	US	US7451073	Granted		25-Jun-2002	N/A	N/A	SYSTEM AND METHOD FOR INCREASING PERFORMANCE IN MULTI-CPU SIMULATION
82082729	F100200080	US	US6868682	Granted		16-Jan-2003	N/A	N/A	AGENT BASED CONTROL METHOD AND SYSTEM FOR ENERGY MANAGEMENT
82083506	F100200402	US	US7249345	Granted		28-Feb-2002	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATICALLY GENERATING SOURCE CODE BASED ON A MARK-UP LANGUAGE MESSAGE DEFINITION

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82083737	F100200475	US	US7577964	Granted		28-Feb-2003	18-Feb-2021	7,706.00	SYSTEM AND METHODS FOR DEFINING A BINDING FOR WEB-SERVICES
82083740	F100200476	US	US7398307	Granted		30-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR MANAGING A NETWORK
82083773	F100200518	US	US7502803	Granted		28-May-2003	10-Sep-2020	7,406.00	SYSTEM AND METHOD FOR GENERATING ACPI MACHINE LANGUAGE TABLES
82084055	F100200646	US	US6876224	Granted		5-Nov-2002	N/A	N/A	METHOD AND APPARATUS FOR HIGH SPEED BUS HAVING ADJUSTABLE, SYMMETRICAL, EDGE-RATE CONTROLLED, WAVEFORMS
82084058	F100200646	DE	DE10338002.7	Granted		19-Aug-2003	19-Aug-2020	1,905.57	METHOD AND APPARATUS FOR HIGH SPEED BUS HAVING ADJUSTABLE, SYMMETRICAL, EDGE-RATE CONTROLLED, WAVEFORMS
82085771	F100201443	US	US7512066	Granted		30-Mar-2004	N/A	N/A	CONGESTION CONTROL SYSTEM
82088120	F100202262	US	US7310773	Granted		13-Jan-2003	N/A	N/A	REMOVAL OF EXTRANEOUS TEXT FROM ELECTRONIC DOCUMENTS
82089050	F100202807	US	US7577951	Granted		30-May-2002	18-Feb-2021	7,406.00	IMPROVED PERFORMANCE OF COMPUTER PROGRAMS WHILE THEY ARE RUNNING

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82040786	F10980964	US	US7596694	Granted		8-Mar-2004	29-Mar-2021	7,706.00	SYSTEM AND METHOD FOR SAFELY EXECUTING DOWNLOADED CODE ON A COMPUTER SYSTEM
82051859	F10991148	US	US8190554	Granted		1-Jul-2004	29-Nov-2023	7,706.00	OLAP-BASED CUSTOMER BEHAVIOR PROFILING METHOD AND SYSTEM
82093373	F200205659	US	US7512240	Granted		29-Oct-2003	N/A	N/A	MANAGEMENT OF SECURITY KEY DISTRIBUTION
82094570	F200206263	US	US7024583	Granted		31-Oct-2002	N/A	N/A	METHOD AND APPARATUS FOR DETECTING FILE SYSTEM CORRUPTION
82094615	F200206282	US	US6711021	Granted		15-Jan-2003	N/A	N/A	SYSTEMS AND METHODS THAT USE AT LEAST ONE COMPONENT TO REMOVE THE HEAT GENERATED BY AT LEAST ONE OTHER COMPONENT
82094618	F200206282	US	US6862185	Granted		10-Nov-2003	N/A	N/A	SYSTEMS AND METHODS THAT USE AT LEAST ONE COMPONENT TO REMOVE THE HEAT GENERATED BY AT LEAST ONE OTHER COMPONENT
82095152	F200206534	US	US7039736	Granted		15-Jan-2003	N/A	N/A	SYSTEMS AND METHODS FOR ACCESSING BUS-MASTERED SYSTEM RESOURCES

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82095581	F200206729	US	US6819272	Granted		6-Nov-2002	N/A	N/A	SYSTEM, METHOD AND COMPUTER READABLE MEDIUM FOR COMPRESSING A DATA SEQUENCE FOR PARTIAL DECOMPRESSIN G
82096235	F200207033	US	US6889167	Granted		27-Feb-2003	N/A	N/A	DIAGNOSTIC EXERCISER AND METHODS THEREFOR
82096241	F200207033	GB	GB2398897	Granted		6-Feb-2004	6-Feb-2021	764.74	IMPROVED DIAGNOSTIC EXERCISER AND METHODS THEREFOR
82097468	F200207492	US	US7307862	Granted		4-Sep-2003	N/A	N/A	CIRCUIT AND SYSTEM FOR ACCESSING MEMORY MODULES
82098101	F200207492	GB	GB2405715	Granted		27-Aug-2004	27-Aug-2020	682.85	CIRCUIT AND SYSTEM FOR ADDRESSING MEMORY MODULES
82098509	F200207905	US	US7948916	Granted		31-Jan-2003	24-Nov-2022	7,706.00	METHOD AND APPARATUS FOR DISCOVERING TOPOLOGY INFORMATION IN A NETWORK
82100471	F200208701	US	US6946877	Granted		12-Dec-2003	N/A	N/A	CIRCUIT AND ASSOCIATED METHODOLOGY
82100537	F200208728	US	US6954706	Granted		20-Aug-2003	N/A	N/A	METHOD FOR MEASURING INTEGRATED CIRCUIT PROCESSOR POWER DEMAND AND ASSOCIATED SYSTEM

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82101893	F200209117	US	US7088130	Granted		3-Oct-2005	N/A	N/A	PARTIAL TERMINATION VOLTAGE CURRENT SHUNTING
82102025	F200209163	US	US6857897	Granted		29-Apr-2003	N/A	N/A	REMOTE CABLE ASSIST
82103942	F200209743	US	US6940288	Granted		4-Jun-2003	N/A	N/A	APPARATUS AND METHOD FOR MONITORING AND PREDICTING FAILURES IN SYSTEM INTERCONNECT
82103948	F200209745	US	US6895353	Granted		4-Jun-2003	N/A	N/A	APPARATUS AND METHOD FOR MONITORING HIGH IMPEDANCE FAILURES IN CHIP INTERCONNECTS
82105226	F200300027	US	US7447205	Granted		9-May-2003	N/A	N/A	SYSTEMS AND METHODS TO INSERT BROADCAST TRANSACTIONS INTO A FAST DATA STREAM OF TRANSACTIONS
82106294	F200300506	US	US7577670	Granted		8-Mar-2004	18-Feb-2021	7,706.00	METHOD AND APPARATUS FOR INFERRING ADDRESS AND SUBNET RELATIONSHIPS
82106300	F200300512	US	US6837626	Granted		12-Nov-2003	N/A	N/A	ELECTRO-OPTICAL CONNECTOR
82106519	F200300601	US	US8560629	Granted		25-Apr-2003	15-Apr-2021	3,766.00	METHOD OF DELIVERING CONTENT IN A NETWORK

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82110878	F200301299	US	US7468982	Granted		7-Nov-2002	N/A	N/A	METHOD AND APPARATUS FOR CLUSTER INTERCONNECTION USING MULTI-PORT NODES AND MULTIPLE ROUTING FABRICS
82117541	F200301749	US	US6901467	Granted		23-Feb-2001	N/A	N/A	ENHANCING A PCI-X SPLIT COMPLETION TRANSACTION BY ALIGNING CACHELINES WITH AN ALLOWABLE DISCONNECT BOUNDARY'S ENDING ADDRESS
82118192	F200301923	US	US6920052	Granted		26-Sep-2003	N/A	N/A	DYNAMIC ISOLATING MOUNT FOR PROCESSOR PACKAGES
82118201	F200301926	US	US7120248	Granted		26-Mar-2001	N/A	N/A	MULTIPLE PRIME NUMBER GENERATION USING A PARALLEL PRIME NUMBER SEARCH ALGORITHM
82118339	F200301933	US	US6977908	Granted		31-Aug-2001	N/A	N/A	METHOD AND APPARATUS FOR DISCOVERING COMPUTER SYSTEMS IN A DISTRIBUTED MULTI-SYSTEM CLUSTER
82119854	F200302178	US	US6829665	Granted		28-Sep-2001	N/A	N/A	NEXT SNOOP PREDICTOR IN A HOST CONTROLLER

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82119896	F200302187	US	US6886048	Granted		15-Nov-2001	N/A	N/A	TECHNIQUES FOR PROCESSING OUT-OF -ORDER REQUESTS IN A PROCESSOR-BASED SYSTEM
82120022	F200302218	US	US7856420	Granted		7-Dec-2001	21-Jun-2022	7,406.00	ZERO LATENCY ENTERPRISE ENRICHED PUBLISH/SUBSCRIBE
82167797	F200308580	US	US7350109	Granted		14-Nov-2003	N/A	N/A	SYSTEM AND METHOD FOR TESTING A MEMORY USING DMA
82168469	F200308860	US	US7083089	Granted		20-Jan-2004	N/A	N/A	OFF-LINE PIN VERIFICATION USING IDENTITY-BASED SIGNATURES
82171451	F200310021	US	US7650040	Granted		21-Jul-2005	19-Jul-2021	7,406.00	METHOD, APPARATUS AND SYSTEM FOR DATA BLOCK REARRANGEMENT FOR LZ DATA COMPRESSION
82174313	F200310800	US	US6873530	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174316	F200310800	US	US6862186	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174319	F200310800	US	US6922340	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174322	F200310800	US	US6900987	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174325	F200310800	US	US6947286	Granted		6-Jan-2005	N/A	N/A	STACK UP ASSEMBLY

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82174070	F200311080	US	US7870188	Granted		30-Jul-2004	11-Jul-2022	7,706.00	SYSTEMS AND METHODS FOR EXPOSING WEB SERVICES
82176482	F200312027	US	US9213609	Granted		16-Dec-2003	15-Jun-2023	3,766.00	PERSISTENT MEMORY DEVICE FOR BACKUP PROCESS CHECKPOINT STATES
82178195	F200312794	US	US7502333	Granted		23-Mar-2004	N/A	N/A	PRE-CONFIGURED TOPOLOGY WITH CONNECTION MANAGEMENT
82178510	F200312917	US	US7228460	Granted		23-Jan-2004	N/A	N/A	MULTI-STATE STATUS REPORTING FOR HIGH-AVAILABILITY CLUSTER NODES
82180418	F200313751	US	US7240165	Granted		15-Jan-2004	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING PARALLEL DATA REQUESTS
82181174	F200314068	US	US7027309	Granted		20-Feb-2004	N/A	N/A	ENGAGING/DISENGAGING MECHANISM
82183112	F200314843	US	US7372820	Granted		29-Oct-2004	N/A	N/A	SYSTEM AND METHOD FOR STRIPING DELAY-SENSITIVE DATA OVER MULTIPLE BURSTY CHANNELS
82185950	F200316139	US	US7853825	Granted		26-Jul-2006	14-Jun-2022	7,406.00	METHODS AND APPARATUS FOR RECOVERING FROM FATAL ERRORS IN A SYSTEM

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82186757	F200316515	US	US7519822	Granted		10-Mar-2004	N/A	N/A	METHOD AND APPARATUS FOR PROCESSING DESCRIPTIVE STATEMENTS
82187813	F200400331	US	US7416128	Granted		22-Mar-2005	N/A	N/A	METHODS AND SYSTEMS FOR DETERMINING THE POSITION OF A HAND-HELD OBJECT FROM THE ACCELERATION OF THE HAND-HELD OBJECT
82188128	F200400468	US	US7792055	Granted		19-Mar-2007	7-Mar-2022	7,706.00	METHOD AND SYSTEM FOR DETERMINING THE TOPOLOGY OF A NETWORK
82188152	F200400478	US	US7607120	Granted		20-Apr-2004	20-Apr-2021	7,706.00	METHOD AND APPARATUS FOR CREATING DATA TRANSFORMATION ROUTINES FOR BINARY DATA
82188158	F200400479	US	US7594221	Granted		20-Apr-2004	22-Mar-2021	7,706.00	METHOD AND APPARATUS FOR TRANSLATING BINARY CODE
82189361	F200401050	US	US7876694	Granted		2-Jul-2004	25-Jul-2022	7,706.00	IDENTIFYING VPN FAULTS BASED ON VIRTUAL ROUTING ADDRESS AND EDGE INTERFACE RELATIONSHIP INFORMATION
82190645	F200401757	US	US7661095	Granted		14-Apr-2005	9-Aug-2021	7,406.00	SYSTEM AND METHOD TO BUILD A CALLGRAPH FOR FUNCTIONS WITH MULTIPLE ENTRY POINTS

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82190894	F200401857	US	US7499286	Granted		31-Aug-2006	3-Sep-2020	7,406.00	MOUNTING ADAPTER FOR ELECTRONIC MODULES
82192031	F200402033	US	US7607014	Granted		30-Jun-2005	20-Apr-2021	7,706.00	AUTHENTICATING MAINTENANCE ACCESS TO AN ELECTRONICS UNIT VIA WIRELESS COMMUNICATION
82192013	F200402351	US	US7298272	Granted		29-Apr-2005	N/A	N/A	REMOTE DETECTION EMPLOYING RFID
82192016	F200402351	GB	GB2425690	Granted		11-Apr-2006	11-Apr-2021	618.83	REMOTE DETECTION EMPLOYING RFID
82194659	F200403238	US	US7548421	Granted		25-Oct-2005	16-Dec-2020	7,406.00	IMPINGEMENT COOLING OF COMPONENTS IN AN ELECTRONIC SYSTEM
82194662	F200403238	GB	GB2431777	Granted		25-Sep-2006	25-Sep-2020	524.44	IMPINGEMENT COOLING OF COMPONENTS IN AN ELECTRONIC SYSTEM
82194665	F200403238	JP	JP4809184	Granted		25-Oct-2006	26-Aug-2020	857.79	IMPINGEMENT COOLING OF COMPONENTS IN ELECTRONIC SYSTEM
82195124	F200403386	US	US8713278	Granted		25-Apr-2005	29-Oct-2021	3,606.00	SYSTEM AND METHOD FOR STRANDED FILE OPENS DURING DISK COMPRESSION UTILITY REQUESTS

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82196951	F200404192	US	US7590885	Granted		26-Apr-2005	15-Mar-2021	7,406.00	METHOD AND SYSTEM OF COPYING MEMORY FROM A SOURCE PROCESSOR TO A TARGET PROCESSOR BY DUPLICATING MEMORY WRITES
82196960	F200404193	US	US7933966	Granted		26-Apr-2005	26-Oct-2022	7,406.00	METHOD AND SYSTEM OF COPYING A MEMORY AREA BETWEEN PROCESSOR ELEMENTS FOR LOCK-STEP EXECUTION
82197773	F200404626	US	US7941569	Granted		24-Feb-2005	10-Nov-2022	7,406.00	INPUT/OUTPUT TRACING IN A PROTOCOL OFFLOAD SYSTEM
82197851	F200404670	US	US7478265	Granted		14-Oct-2004	N/A	N/A	ERROR RECOVERY FOR INPUT/OUTPUT OPERATIONS
82198019	F200404742	US	US7840725	Granted		28-Sep-2004	23-May-2022	7,406.00	CAPTURE OF DATA IN A COMPUTER NETWORK
82198130	F200404811	US	US8713550	Granted		11-Mar-2005	29-Oct-2021	3,606.00	METHODS, DEVICES AND SOFTWARE APPLICATIONS FOR FACILITATING A DEVELOPMENT OF A COMPUTER PROGRAM
82199216	F200405267	US	US7936694	Granted		30-Mar-2007	3-Nov-2022	7,706.00	SNIFFING-BASED NETWORK MONITORING
82200005	F200405671	US	US7380723	Granted		1-Nov-2005	N/A	N/A	MONITORING OBJECT MOVEMENT

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82200353	F200405859	US	US7962789	Granted		28-Jun-2006	14-Dec-2022	7,406.00	METHOD AND APPARATUS FOR AUTOMATED TESTING OF A UTILITY COMPUTING SYSTEM
82200476	F200405943	US	US7818623	Granted		18-Oct-2006	19-Apr-2022	7,406.00	KERNEL DEBUGGING IN A CLUSTER COMPUTING SYSTEM
82201253	F200406358	US	US8836717	Granted		27-Oct-2005	16-Mar-2022	3,606.00	SYSTEM, METHOD AND UTILITY TO FORMAT IMAGES RETREIVED FROM A DEVICE
82204670	F200407921	US	US7724985	Granted		27-Oct-2005	25-Nov-2021	7,406.00	DEVICE STORING VECTOR IMAGE WITH EMBEDDED IMAGE STYLE IDENTIFIER, AND METHODS AND UTILITIES FOR FORMATTING A DEVICE IMAGE WITH IMAGE STYLE ATTRIBUTES
82205024	F200408082	US	US7640332	Granted		20-Dec-2007	29-Jun-2021	7,406.00	SYSTEM AND METHOD FOR HOT DEPLOYMENT/REDEPLOYMENT IN GRID COMPUTING ENVIRONMENT
82205459	F200408376	US	US8561050	Granted		18-Oct-2006	15-Apr-2021	3,606.00	METHOD AND SYSTEM FOR UPDATING AN APPLICATION
82207715	F200500894	US	US7693045	Granted		22-Dec-2005	6-Oct-2021	7,406.00	VERIFYING NETWORK CONNECTIVITY

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82208570	F200501261	US	US8145627	Granted		10-Jun-2005	27-Sep-2023	7,706.00	USE OF CONNECTIVITY ANALYSIS TO ASSIST RULE-BASED OPTIMIZERS
82208873	F200501448	US	US7904686	Granted		13-May-2008	8-Sep-2022	7,406.00	DATA SECURITY FOR USE WITH A FILE SYSTEM
82218614	F200506797	US	US9071506	Granted		29-Jun-2007	30-Dec-2022	3,766.00	ACCESSING WEB SERVICES USING NETWORK MANAGEMENT INFORMATION
82219511	F200507304	US	US7711657	Granted		26-Jun-2006	4-Nov-2021	7,706.00	RESOURCE-RESERVATION PRICING STRUCTURES BASED ON EXPECTED ABILITY TO DELIVER
82223162	F200601205	US	US7145881	Granted		4-Oct-2000	N/A	N/A	METHOD OF DETERMINING THE ROUTE OF PACKETS THROUGH A NETWORK OF COMMUNICATIN G OBJECTS
82227437	F200603085	US	US8526325	Granted		31-Jan-2007	3-Mar-2021	3,766.00	DETECTING AND IDENTIFYING CONNECTIVITY IN A NETWORK
82227602	F200603199	US	US8553573	Granted		4-Apr-2008	8-Apr-2021	3,766.00	APPARATUS AND METHODS FOR ADAPTIVE THROTTLING OF TRAFFIC ACROSS MULTIPLE NETWORK NODES
82227608	F200603199	CN	CN200880019398.6	Granted		4-Apr-2008	4-Apr-2021	1,032.98	APPARATUS AND METHODS FOR ADAPTIVE THROTTLING OF TRAFFIC ACROSS MULTIPLE NETWORK NODES

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82230062	F200700051	US	US7594047	Granted		9-Jul-2007	22-Mar-2021	7,706.00	BUFFER CIRCUIT
82231238	F200700480	US	US8543711	Granted		30-Apr-2007	24-Mar-2021	3,766.00	SYSTEM AND METHOD FOR EVALUATING A PATTERN OF RESOURCE DEMANDS OF A WORKLOAD
82241726	F200703705	US	US8620859	Granted		10-Jun-2008	30-Jun-2021	3,766.00	DATA PROCESSING SYSTEM AND METHOD OF EVALUATING EFFECTIVENESS OF USAGE OF A FILE SYSTEM (AS AMENDED)
82244171	F200704470	US	US8676931	Granted		6-Oct-2006	18-Sep-2021	3,766.00	METHODS FOR MANAGING MANUAL CHANGES TO NETWORK INFRASTRUCTURES THROUGH AUTOMATED SYSTEMS
82244195	F200704474	US	US8762507	Granted		22-Dec-2006	24-Dec-2021	3,766.00	METHOD AND SYSTEM FOR MANAGING AN INFORMATION TECHNOLOGY SYSTEM
82250867	F200900112	US	US8296253	Granted		15-Jun-2009	23-Apr-2024	7,706.00	MANAGING ONLINE CONTENT BASED ON ITS PREDICTED POPULARITY
82585290	F200900907	CN	CN200980140622.1	Granted		12-Oct-2009	12-Oct-2021	1,032.98	SYSTEMS AND PROCESSES FOR SECURING SENSITIVE INFORMATION
82254551	F200901230	US	US7472421	Granted		30-Sep-2002	30-Jun-2020	7,406.00	COMPUTER MODEL OF SECURITY RISKS

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82256600	F200901720	US	US8806061	Granted		14-Sep-2004	12-Feb-2022	3,766.00	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR AUTOMATED CATEGORIZATIO N OF DATA PROCESSING SERVICES AND COMPONENTS
82257182	F200901875	US	US7992002	Granted		7-Jul-2006	2-Feb-2023	7,706.00	DATA DEPOSITORY AND ASSOCIATED METHODOLOGY PROVIDING SECURE ACCESS PURSUANT TO COMPLIANCE STANDARD CONFORMITY
82257338	F200901933	US	US9043589	Granted		14-Nov-2007	26-Nov-2022	3,766.00	SYSTEM AND METHOD FOR SAFEGUARDING AND PROCESSING CONFIDENTIAL INFORMATION
82262333	F200905061	US	US9037843	Granted		10-Mar-2010	19-Nov-2022	3,766.00	MANAGING A TARGET COMPUTING DEVICE (AMENDED)
82262453	F201000006	US	US8532495	Granted		23-Jul-2010	10-Mar-2021	3,766.00	METHOD FOR ENERGY EFFICIENT PULSING OPERATION OF TRANSCEIVERS OF A NETWORKED DEVICE
82262639	F201000102	US	US8391717	Granted		24-May-2010	5-Sep-2024	7,706.00	FLOW-CONTROL METHODS AND SYSTEMS FOR MULTIBUS SYSTEMS

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82272218	F201003701	US	US6760372	Granted		10-Aug-2000	N/A	N/A	ADAPTIVE SIGNAL PROCESSOR USING AN EYE-DIAGRAM METRIC
82272668	F201003882	US	US6999453	Granted		9-Jul-2001	N/A	N/A	DISTRIBUTED SWITCH FABRIC ARBITRATION
82273010	F201004068	US	US7277517	Granted		15-Nov-2002	N/A	N/A	METHOD FOR ACHIEVING SYMBOL ALIGNMENT TO A PRE-EXISTING ADSL DATA EXCHANGE
82273151	F201004138	US	US7701941	Granted		28-Mar-2001	20-Oct-2021	7,706.00	NETWORK SWITCH WITH MUTUALLY COUPLED LOOK-UP ENGINE AND NETWORK PROCESSOR
82273154	F201004138	US	US8194672	Granted		2-Mar-2010	N/A	N/A	NETWORK SWITCH WITH MUTUALLY COUPLED LOOK-UP ENGINE AND NETWORK PROCESSOR
82273340	F201004234	US	US6766020	Granted		23-Feb-2001	N/A	N/A	SYSTEM AND METHOD FOR COMFORT NOISE GENERATION
82273772	F201004422	US	US7460533	Granted		15-Nov-2001	N/A	N/A	SYSTEM AND METHOD FOR MULTI-CASTING ANNOUNCEMENTS
82274021	F201004517	US	US6662119	Granted		2-Aug-2002	N/A	N/A	METHOD AND APPARATUS FOR MONITORING CONNECTOR DEGRADATION

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82274030	F201004520	US	US7522614	Granted		28-Feb-2003	N/A	N/A	MULTI-SERVICE ACCESS PLATFORM FOR TELECOMMUNICATIONS AND DATA NETWORKS
82274048	F201004523	US	US6833712	Granted		27-Sep-2002	N/A	N/A	DIFFERENTIATING BETWEEN BOARD-INSERTION POWER-ON AND CHASSIS POWER-ON
82274066	F201004527	US	US7283543	Granted		27-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR OPERATING ECHO CANCELLERS WITH NETWORKS HAVING INSUFFICIENT LEVELS OF ECHO RETURN LOSS
82274114	F201004542	US	US7463620	Granted		10-Sep-2002	N/A	N/A	ARCHITECTURE AND METHOD FOR CONTROLLING FEATURES AND SERVICES IN PACKET-BASED NETWORKS
82274168	F201004553	US	US7307998	Granted		27-Aug-2002	N/A	N/A	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING DYNAMICALLY OPTIMIZED RECEIVE BUFFER QUEUES
82651947	F201004683	US	US8422649	Granted		23-Feb-2011	16-Oct-2024	7,406.00	DIGITAL TELEPHONE DATA AND CONTROL SIGNAL TRANSMISSION SYSTEM

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82276151	F201005199	US	US8397302	Granted		29-Oct-2010	12-Sep-2024	7,706.00	SYSTEM AND METHOD FOR ANALYZING A PROCESS
82062713	F30004521	US	US7877799	Granted		1-Aug-2001	25-Jul-2022	7,706.00	PERFORMANCE OF A SERVICE ON A COMPUTING PLATFORM
82062719	F30004521	JP	JP4818542	Granted		9-Aug-2001	N/A	N/A	PERFORMANCE OF A SERVICE ON A COMPUTING PLATFORM
82062773	F30004640	US	US8166173	Granted		16-Oct-2001	24-Oct-2023	7,706.00	INVITING ASSISTANT ENTITY INTO A NETWORK COMMUNICATIO N SESSION
82062770	F30004640	GB	GB2368225	Expired		17-Oct-2000	N/A	N/A	INVITING ASSISTANT ENTITY INTO A NETWORK COMMUNICATIO N SESSION
82065599	F30014518	US	US6845431	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR INTERMEDIATIN G COMMUNICATIO N WITH A MOVEABLE MEDIA LIBRARY UTILIZING A PLURALITY OF PARTITIONS
82065602	F30014518	JP	JP4667707	Granted		24-Dec-2002	21-Jan-2021	784.98	METHOD FOR INTERMEDIATIN G COMMUNICATIO N WITH MOVABLE MEDIA LIBRARY UTILIZING A PLURALITY OF PARTITIONS

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82065905	F30016994	US	US7096409	Granted		30-Jul-2003	N/A	N/A	REED-SOLOMON DECODER AND DECODING METHOD FOR ERRORS AND ERASURES DECODING
82066025	F30017568	US	US7086052	Granted		3-Jan-2003	N/A	N/A	SOFTWARE INSTALLATION AND OPERATION WITH RANDOM SELECTION
82069286	F30990075	US	US8407092	Granted		30-Oct-2001	26-Sep-2024	7,706.00	METERING IN A DATA PROCESSING SYSTEM
83810416	F700206840	US	US9213842	Granted		17-Aug-2011	15-Jun-2023	3,766.00	TRACING DATA BLOCK OPERATIONS
83969756	F700208369	US	US9514290	Granted		30-Mar-2012	6-Jun-2024	3,766.00	AUTHORIZATION CACHE

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81966890	F10001274	US	US6665671	Granted		4-Apr-2001	N/A	N/A	SYSTEM AND METHOD FOR OPTIMIZATION OF SHARED DATA
81977510	F10004565	US	US6851024	Granted		17-Aug-2000	N/A	N/A	EXCLUSIVE CACHING IN COMPUTER SYSTEMS
81978710	F10004941	US	US7447761	Granted		5-Oct-2000	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978719	F10004941	DE	DE60131348.8	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978722	F10004941	FR	FR1195942	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978725	F10004941	GB	GB1195942	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978758	F10004950	US	US6741907	Granted		23-Mar-2001	N/A	N/A	INVENTORY CONTROL APPARATUS AND METHOD FOR A DATA STORAGE SYSTEM
81982898	F10006663	US	US7185109	Granted		20-Apr-2001	N/A	N/A	RECURSIVE DISCOVERY OF CDP TYPE OF NODES IN A NETWORK OF VARIOUS NODE TYPES
81988655	F10010480	US	US7035928	Granted		25-Apr-2001	N/A	N/A	ALLOCATING COMPUTER RESOURCES FOR EFFICIENT USE BY A PROGRAM

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81990341	F10011167	US	US7044362	Granted		10-Oct-2001	N/A	N/A	ELECTRONIC TICKETING SYSTEM AND METHOD
81994154	F10012695	US	US7051166	Granted		21-Apr-2003	N/A	N/A	DIRECTORY-BASED CACHE COHERENCY SCHEME FOR REDUCING MEMORY BANDWIDTH LOSS
82001048	F10016749	US	US6938259	Granted		2-Oct-2001	N/A	N/A	API TO ENFORCE INTERNATIONALIZATION
82001261	F10016875	US	US7877607	Granted		30-Aug-2002	25-Jul-2022	7,406.00	TAMPER-EVIDENT DATA MANAGEMENT
82001303	F10016885	DE	DE10306598.9	Granted		17-Feb-2003	17-Feb-2021	2,272.89	METHOD AND SYSTEM FOR ASSESSING AVAILABILITY OF COMPLEX ELECTRONIC SYSTEMS INCLUDING COMPUTER SYSTEMS
82001777	F10017266	US	US7191322	Granted		12-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR TUNING MULTIPLE INSTANCES OF KERNEL MODULES
82002368	F10017495	US	US7228527	Granted		15-Jul-2003	N/A	N/A	METHOD AND SYSTEM FOR STRUCTURING A PROCEDURE
82002491	F10017566	US	US6950962	Granted		12-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR KERNEL MODULE TESTING

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82003943	F10018224	US	US7051195	Granted		26-Oct-2001	N/A	N/A	METHOD OF OPTIMIZATION OF CPU AND CHIPSET PERFORMANCE BY SUPPORT OF OPTIONAL READS BY CPU AND CHIPSET
82003994	F10018269	US	US7133933	Granted		28-Aug-2002	N/A	N/A	CONTENT SYNCHRONIZATION FRAMEWORKS USING DYNAMIC ATTRIBUTES AND FILE BUNDLES FOR CONNECTED DEVICES
82004738	F10018772	US	US7028302	Granted		24-Apr-2002	N/A	N/A	SYSTEM AND METHOD FOR AUTOMATICALLY TUNING A MULTIPROCESSOR COMPUTER SYSTEM
82007378	F10019983	US	US6993750	Granted		13-Dec-2001	N/A	N/A	DYNAMIC REGISTRATION OF DYNAMICALLY GENERATED CODE AND CORRESPONDING UNWIND INFORMATION
82007381	F10019983	US	US6996810	Granted		13-Dec-2001	N/A	N/A	LAZY AND PRECISE UPDATE OF UNWIND INFORMATION FOR DYNAMICALLY GENERATED CODE
82085975	F100201501	US	US6820021	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY VARYING THE RESOLUTION THEREOF

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82085981	F100201506	US	US6847909	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY TRACKING THE EDGE OF THE PASSING REGION
82085999	F100201509	US	US6820027	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY AVOIDING TESTING IN FAILING REGIONS
82088162	F100202293	US	US7058838	Granted		17-Dec-2002	N/A	N/A	SYSTEM AND METHOD FOR SYNCHRONIZING A PLURALITY OF PROCESSORS IN A MULTIPROCESSOR COMPUTER PLATFORM EMPLOYING A GLOBAL CLOCK COUNTER
82089131	F100202851	US	US6944552	Granted		25-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR DETECTING POWER DEFICIENCIES IN A COMPUTER COMPONENT
82089614	F100203069	US	US6993639	Granted		1-Apr-2003	N/A	N/A	PROCESSING INSTRUCTION ADDRESSED BY RECEIVED REMOTE INSTRUCTION AND GENERATING REMOTE INSTRUCTION TO RESPECTIVE OUTPUT PORT FOR ANOTHER CELL

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82090145	F100203410	US	US7222121	Granted		21-Nov-2002	N/A	N/A	PLATFORM AND METHOD FOR MONITORING AND ANALYZING DATA
82091864	F100204840	US	US7055114	Granted		8-Oct-2003	N/A	N/A	SYSTEMS AND PROCESSES FOR ASYMMETRICALLY SHRINKING A VLSI LAYOUT
82092542	F100205126	US	US7254541	Granted		30-Oct-2002	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING USERS WITH INFORMATION IN AUDIBLE FORM
82092545	F100205127	US	US7136804	Granted		30-Oct-2002	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING USERS WITH INFORMATION IN AUDIBLE FORM
82093352	F200205639	US	US7360219	Granted		13-Dec-2002	N/A	N/A	SYSTEMS AND METHODS FOR FACILITATING FAIR AND EFFICIENT SCHEDULING OF PROCESSES AMONG MULTIPLE RESOURCES IN A COMPUTER SYSTEM
82093355	F200205639	JP	JP4387174	Granted		11-Dec-2003	9-Oct-2021	1,069.38	METHOD FOR DISTRIBUTING PROCESS ASSOCIATED WITH TWO OR MORE PRIORITY GROUPS AMONG TWO OR MORE RESOURCES

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82095062	F200206508	US	US6883150	Granted		14-Mar-2003	N/A	N/A	AUTOMATIC MANUFACTURING TEST CASE GENERATION METHOD AND SYSTEM
82095548	F200206688	US	US7356574	Granted		25-Feb-2003	N/A	N/A	APPARATUS AND METHOD FOR PROVIDING DYNAMIC AND AUTOMATED ASSIGNMENT OF DATA LOGICAL UNIT NUMBERS
82095560	F200206691	US	US6934711	Granted		1-Oct-2002	N/A	N/A	METHOD AND ARRANGEMENT FOR COMMUNICATING WITH SCSI DEVICES
82095911	F200206894	US	US8452945	Granted		17-Sep-2002	28-Nov-2020	3,606.00	INDIRECT INDEXING INSTRUCTIONS
82097501	F200207515	US	US6930886	Granted		30-Apr-2003	N/A	N/A	ELECTRONIC COMPONENT SECUREMENT SYSTEM
82097576	F200207606	US	US7076488	Granted		29-Jan-2003	N/A	N/A	XML-LDAP ADAPTERS AND METHODS THEREFOR
82097579	F200207608	US	US7818646	Granted		12-Nov-2003	19-Apr-2022	7,706.00	EXPECTATION BASED EVENT VERIFICATION
82097606	F200207619	US	US8862770	Granted		6-Nov-2003	14-Apr-2022	3,766.00	PROCESSOR ARCHITECTURE VERIFICATION
82098401	F200207878	US	US7103756	Granted		30-Sep-2002	N/A	N/A	DATA PROCESSOR WITH INDIVIDUALLY WRITABLE REGISTER SUBWORD LOCATIONS

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82099337	F200208211	US	US7509589	Granted		30-Sep-2003	24-Sep-2020	7,406.00	STORAGE DOMAIN GUI
82099406	F200208248	US	US7562229	Granted		23-Jan-2003	14-Jan-2021	7,406.00	CODEWORD-BASED AUDITING OF COMPUTER SYSTEMS AND METHODS THEREFOR
82099835	F200208458	US	US6861876	Granted		25-Mar-2003	N/A	N/A	PULSE EVALUATE LOGIC-LATCH
82099847	F200208463	US	US7574341	Granted		12-Nov-2003	11-Feb-2021	7,706.00	SPECULATIVE EXPECTATION BASED EVENT VERIFICATION
82101605	F200208674	GB	GB2399434	Granted		10-Mar-2004	10-Mar-2021	764.74	AN INTEGRATED CIRCUIT
82100681	F200208770	US	US6832168	Granted		4-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR VERIFYING NETWORK DEVICE POWER CABLING CONFIGURATION
82101617	F200209008	US	US6876207	Granted		1-Aug-2003	N/A	N/A	SYSTEM AND METHOD FOR TESTING DEVICES
82102124	F200209185	US	US7340630	Granted		8-Aug-2003	N/A	N/A	MULTIPROCESSOR SYSTEM WITH INTERACTIVE SYNCHRONIZATION OF LOCAL CLOCKS
82102127	F200209185	GB	GB2404761	Granted		5-Aug-2004	5-Aug-2021	764.74	MULTIPROCESSOR SYSTEM WITH INTERACTIVE SYNCHRONIZATION OF LOCAL CLOCKS
82102208	F200209233	US	US7581008	Granted		12-Nov-2003	25-Feb-2021	7,706.00	SYSTEM AND METHOD FOR ALLOCATING SERVER RESOURCES

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82205489	F200209233	US	US7886055	Granted		28-Apr-2005	8-Aug-2022	7,706.00	ALLOCATING RESOURCES IN A SYSTEM HAVING MULTIPLE TIERS
82212719	F200209233	US	US7594016	Granted		16-Jun-2005	22-Mar-2021	7,706.00	CALCULATING NUMBERS OF SERVERS FOR TIERS OF A MULTI-TIERED SYSTEM
82212722	F200209233	US	US9021094	Granted		28-Apr-2005	28-Oct-2022	3,766.00	ALLOCATION OF RESOURCES FOR TIERS OF MULTI-TIERED SYSTEM BASED ON SELECTING ITEMS FROM RESPECTIVE SETS
82103705	F200209646	US	US7523503	Granted		21-Jan-2003	N/A	N/A	METHOD FOR PROTECTING SECURITY OF NETWORK INTRUSION DETECTION SENSORS
82104731	F200210100	US	US7103785	Granted		30-May-2003	N/A	N/A	METHOD AND APPARATUS FOR POWER MANAGEMENT EVENT WAKE UP
82105928	F200300276	US	US7506085	Granted		20-Oct-2006	N/A	N/A	SYSTEM AND METHOD FOR SENDING DATA ACROSS A BUS CABLE HAVING IN-BAND AND SIDE-BAND SIGNAL CONDUCTORS
82106279	F200300497	US	US7849320	Granted		25-Nov-2003	7-Jun-2022	7,406.00	METHOD AND SYSTEM FOR ESTABLISHING A CONSISTENT PASSWORD POLICY

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82117301	F200301703	US	US6817009	Granted		30-Nov-2000	N/A	N/A	METHOD AND APPARATUS FOR VERIFYING DATA LOCAL TO A SINGLE THREAD
82117799	F200301824	US	US6859876	Granted		29-Dec-2000	N/A	N/A	SYSTEM AND METHOD FOR DETECTING AND USING A REPLACEMENT BOOT BLOCK DURING INITIALIZATION BY AN ORIGINAL BOOT BLOCK
82117943	F200301854	US	US6668335	Granted		31-Aug-2000	N/A	N/A	SYSTEM FOR RECOVERING DATA IN A MULITPROCESSOR SYSTEM COMPRISING A CONDUCTION PATH FOR EACH BIT BETWEEN PROCESSORS WHERE THE PATHS ARE GROUPLED INTO SEPARATE BUNDLES ANDROUTED ALONG DIFFERENT PATHS
82118243	F200301937	US	US6931626	Granted		17-Jan-2001	N/A	N/A	METHOD AND APPARATUS FOR VERSIONING STATICALLY BOUND FILES
82118408	F200301971	US	US6901512	Granted		12-Dec-2000	N/A	N/A	CENTRALIZED CRYPTOGRAPHIC KEY ADMINISTRATION SCHEME FOR ENABLING SECURE CONTEXT-FREE APPLICATION OPERATION

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82118465	F200301985	US	US6892259	Granted		29-Sep-2001	N/A	N/A	METHOD AND APPARATUS FOR ALLOCATING COMPUTER BUS DEVICE RESOURCES TO A PRIORITY REQUESTER AND RETRYING REQUESTS FROM NON-PRIORITY REQUESTERS
82119836	F200302174	US	US7055139	Granted		28-Mar-2002	N/A	N/A	MULTIPROCESS DEBUGGING USING MULTIPLE CONVENTIONAL DEBUGGERS
82120241	F200302277	US	US6963869	Granted		7-Jan-2002	N/A	N/A	SYSTEM AND METHOD FOR SEARCH, INDEX, PARSING DOCUMENT DATABASE INCLUDING SUBJECT DOCUMENT HAVING NESTED FIELDS ASSOCIATED START AND END META WORDS WHERE EACH META WORD IDENTIFY LOCATION AND NESTING LEVEL
82120643	F200302377	US	US7099879	Granted		26-Apr-2002	N/A	N/A	REAL-TIME MONITORING OF SERVICE PERFORMANCE THROUGH THE USE OF RELATIONAL DATABASE CALCULATION CLUSTERS

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82588205	F200302529	US	US8144716	Granted		17-Dec-2010	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING TELECOMMUNICATION SUBSCRIBER SERVICES WITHOUT PROVISIONING OR MAINTENANCE
82121753	F200302551	US	US7472283	Granted		30-May-2002	N/A	N/A	METHOD AND APPARATUS FOR SECURED DIGITAL VIDEO AND ACCESS TRACKING
82121762	F200302554	US	US7168001	Granted		6-Feb-2004	N/A	N/A	TRANSACTION PROCESSING APPARATUS AND METHOD
82121792	F200302564	US	US7143275	Granted		1-Aug-2002	N/A	N/A	SYSTEM FIRMWARE BACK-UP USING A BIOS-ACCESSIBLE PRE-BOOT PARTITION
82122008	F200302620	US	US7051175	Granted		17-Jan-2003	N/A	N/A	TECHNIQUES FOR IMPROVED TRANSACTION PROCESSING
82132268	F200304082	US	US6898740	Granted		25-Jan-2001	N/A	N/A	COMPUTER SYSTEM HAVING CONFIGURABLE CORE LOGIC CHIPSET FOR CONNECTION TO A FAULT-TOLERANT ACCELERATED GRAPHICS PORT BUS AND PERIPHERAL COMPONENT INTERCONNECT BUS

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82133216	F200304307	US	US6862646	Granted		28-Dec-2001	N/A	N/A	METHOD AND APPARATUS FOR ELIMINATING THE SOFTWARE GENERATED READY-SIGNAL TO HARDWARE DEVICES THAT ARE NOT PART OF THE MEMORY COHERENCY DOMAIN
82133327	F200304328	US	US6857040	Granted		5-Dec-2001	N/A	N/A	BI-DIRECTIONAL BUS BRIDGE IN WHICH MULTIPLE DEVICES CAN ASSERT BUS CONCURRENTLY
82168619	F200308902	US	US7181575	Granted		29-Sep-2004	N/A	N/A	INSTRUCTION CACHE USING SINGLE-PORTED MEMORIES
82168961	F200309043	US	US7165187	Granted		6-Jun-2003	N/A	N/A	BATCH BASED DISTRIBUTED DATA REDUNDANCY
82169747	F200309399	US	US7509657	Granted		28-Oct-2003	24-Sep-2020	7,406.00	APPLICATION PROGRAMMING INTERFACE FOR A VIRTUAL SWITCH
82169834	F200309444	US	US7120717	Granted		13-Feb-2004	N/A	N/A	METHOD AND APPARATUS FOR CONTROLLING INTERRUPT STORMS
82170167	F200309576	US	US7237084	Granted		27-Oct-2003	N/A	N/A	METHOD AND PROGRAM PRODUCT FOR AVOIDING CACHE CONGESTION BY OFFSETTING ADDRESSES WHILE ALLOCATING MEMORY

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82170170	F200309576	CN	CN200410087955.1	Granted		27-Oct-2004	27-Oct-2021	1,310.50	METHOD FOR AVOIDING CACHE CONGESTION BY OFFSETTING ADDRESSES WHILE ALLOCATING MEMORY
82170326	F200309643	US	US8442058	Granted		30-Apr-2003	14-Nov-2020	3,606.00	LOCATING STATIONS BETWEEN PROTOCOLS
82170329	F200309643	US	US7599379	Granted		30-Apr-2003	6-Apr-2021	7,706.00	REGISTERING STATIONS BETWEEN PROTOCOLS
82170812	F200309832	US	US7936738	Granted		6-Jul-2004	3-Nov-2022	7,706.00	FAULT TOLERANT SYSTEMS
82173188	F200310748	US	US7472398	Granted		17-Nov-2003	N/A	N/A	METHOD AND SYSTEM FOR HOSTING AN APPLICATION WITH A FACADE SERVER
82173518	F200310852	US	US7027950	Granted		19-Nov-2003	N/A	N/A	REGRESSION CLUSTERING AND CLASSIFICATION
82173665	F200310901	US	US7310751	Granted		20-Feb-2004	N/A	N/A	TIMEOUT EVENT TRIGGER GENERATION
82178666	F200312986	US	US7231543	Granted		14-Jan-2004	N/A	N/A	SYSTEMS AND METHODS FOR FAULT-TOLERANT PROCESSING WITH PROCESSOR REGROUPING BASED ON CONNECTIVITY CONDITIONS
82179887	F200313560	US	US7571163	Granted		13-Jul-2004	4-Feb-2021	7,706.00	METHOD FOR SORTING A DATA STRUCTURE

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82181510	F200314221	US	US7536684	Granted		29-Dec-2003	19-Nov-2020	7,406.00	SOFTWARE DOCUMENTATION GENERATION USING DIFFERENTIAL UPGRADE DOCUMENTATION
82182356	F200314535	US	US7650275	Granted		20-Jan-2005	19-Jul-2021	7,406.00	EXTERNAL EMULATION HARDWARE
82182986	F200314774	US	US7346802	Granted		30-Jan-2004	N/A	N/A	ROUTING COMMUNICATIONS TO A STORAGE AREA NETWORK
82183328	F200314943	US	US7149831	Granted		27-Sep-2004	N/A	N/A	BATCH PROCESSING OF INTERRUPTS
82185188	F200315753	US	US7839765	Granted		5-Oct-2004	23-May-2022	7,406.00	ADVERTISING PORT STATE CHANGES IN A NETWORK
82185371	F200315833	US	US7290176	Granted		31-Jul-2004	N/A	N/A	METHOD AND SYSTEM FOR GENERATING STACKED REGISTER DUMPS FROM BACKING-STORE MEMORY
82186622	F200316432	US	US7644146	Granted		2-Jun-2004	5-Jul-2021	7,406.00	SYSTEM AND METHOD FOR DISCOVERING COMMUNITIES IN NETWORKS
82186979	F200316677	US	US7562356	Granted		22-Sep-2004	14-Jan-2021	7,706.00	AUTOMATICALLY RESOLVING PATCH DEPENDENCIES FOR A PATCH BUNDLE
82188284	F200400507	US	US7631251	Granted		16-Feb-2005	8-Jun-2021	7,406.00	METHOD AND APPARATUS FOR CALCULATING CHECKSUMS

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82188425	F200400580	US	US7484221	Granted		20-Oct-2004	27-Jul-2020	7,406.00	METHOD AND APPARATUS FOR LOGGING THE EXECUTION HISTORY OF AN OPERATING SYSTEM KERNEL
82189055	F200400868	US	US7530057	Granted		21-Oct-2004	5-Nov-2020	7,406.00	PROGRAM CODE COVERAGE
82189262	F200401011	IN	IN262409	Granted		4-Jul-2005	4-Jul-2020	644.00	METHOD FOR LATENT ERROR DETECTION
82189256	F200401011	US	US7308605	Granted		20-Jul-2004	N/A	N/A	LATENT ERROR DETECTION
82191929	F200402293	US	US7516297	Granted		10-Nov-2005	N/A	N/A	MEMORY MANAGEMENT
82194287	F200403066	US	US7353375	Granted		7-Oct-2004	N/A	N/A	METHOD AND APPARATUS FOR MANAGING PROCESSOR AVAILABILITY USING A MICROCODE PATCH
82195928	F200403684	US	US7350007	Granted		5-Apr-2005	N/A	N/A	TIME-INTERVAL-BASED SYSTEM AND METHOD TO DETERMINE IF A DEVICE ERROR RATE EQUALS OR EXCEEDS A THRESHOLD ERROR RATE
82196375	F200403900	US	US7493620	Granted		18-Jun-2004	17-Aug-2020	7,406.00	TRANSFER OF WAITING INTERRUPTS
82197896	F200404691	US	US7925841	Granted		10-Sep-2004	12-Oct-2022	7,406.00	MANAGING SHARED MEMORY USAGE WITHIN A MEMORY RESOURCE GROUP INFRASTRUCTURE

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82199510	F200404975	US	US7307902	Granted		30-Aug-2005	N/A	N/A	MEMORY CORRECTION SYSTEM AND METHOD
82199516	F200404975	US	US7599235	Granted		2-Nov-2007	6-Apr-2021	7,706.00	MEMORY CORRECTION SYSTEM AND METHOD
82199375	F200405357	US	US7797505	Granted		25-Apr-2005	14-Mar-2022	7,406.00	PROGRAM STACK HANDLING
82200386	F200405879	US	US7530064	Granted		21-Sep-2004	5-Nov-2020	7,406.00	METHOD AND APPARATUS FOR AUTOMATED REGISTRY CLEAN-UP
82204667	F200406984	US	US7631269	Granted		27-Oct-2005	8-Jun-2021	7,406.00	UTILITY, METHOD AND DEVICE PROVIDING VECTOR IMAGES THAT MAY BE UPDATED TO REFLECT THE PHYSICAL STATES OF CONFIGURABLE COMPONENTS OF A DEVICE
82202693	F200407024	US	US7460470	Granted		18-Mar-2005	N/A	N/A	SYSTEMS AND METHODS OF PRIORITY FAILOVER DETERMINATION
82203044	F200407193	US	US7730350	Granted		3-Feb-2006	1-Dec-2021	7,406.00	METHOD AND SYSTEM OF DETERMINING THE EXECUTION POINT OF PROGRAMS EXECUTED IN LOCK STEP
82203605	F200407428	US	US7822857	Granted		7-Sep-2005	26-Apr-2022	7,406.00	METHODS AND SYSTEMS FOR SHARING REMOTE ACCESS

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82204757	F200407954	US	US7710428	Granted		27-Oct-2005	4-Nov-2021	7,406.00	METHOD AND APPARATUS FOR FILTERING THE DISPLAY OF VECTORS IN A VECTOR IMAGE
82206968	F200500574	US	US7590509	Granted		23-Jun-2005	15-Mar-2021	7,406.00	SYSTEM AND METHOD FOR TESTING A PROCESSOR
82208510	F200501223	US	US7512600	Granted		10-Jun-2005	30-Sep-2020	7,406.00	USE OF MULTI-JOIN OPERATOR AND RULES AS FRAMEWORK FOR JOIN TREE PROCESSING IN DATABASE SYSTEMS
82209035	F200501515	US	US7694123	Granted		28-Mar-2006	6-Oct-2021	7,406.00	STORING FILES FOR OPERATING SYSTEM RESTORATION
82210865	F200502475	US	US7966608	Granted		26-Jul-2006	21-Dec-2022	7,406.00	METHOD AND APPARATUS FOR PROVIDING A COMPILER INTERFACE
82213955	F200504167	US	US7549085	Granted		28-Apr-2006	N/A	N/A	METHOD AND APPARATUS TO INSERT SPECIAL INSTRUCTION
82214363	F200504463	US	US7770056	Granted		17-Oct-2007	3-Feb-2022	7,406.00	SYSTEM AND METHOD FOR DYNAMIC PAGE CLASSIFICATION FOR MEMORY DUMPING
82215125	F200504900	US	US7969969	Granted		5-Jul-2007	28-Dec-2022	7,706.00	SIGNALLING GATEWAY
82215128	F200504900	FR	FR1892907	Granted		31-Jul-2006	31-Jul-2021	675.76	SIGNALLING GATEWAY
82215134	F200504900	GB	GB1892907	Granted		31-Jul-2006	31-Jul-2021	577.38	SIGNALLING GATEWAY

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82215530	F200505157	US	US8190742	Granted		25-Apr-2006	29-Nov-2023	7,706.00	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83002048	F200505157	US	US8447864	Granted		8-May-2012	21-Nov-2020	3,606.00	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83721498	F200505157	DE	DE602007033669.4	Granted		25-Apr-2007	25-Apr-2021	1,371.29	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83721500	F200505157	GB	GB2011042	Granted		25-Apr-2007	25-Apr-2021	531.28	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
82215656	F200505212	US	US7734960	Granted		20-Jul-2007	8-Dec-2021	7,406.00	METHOD OF MANAGING NODES IN COMPUTER CLUSTER
82216964	F200505869	US	US8402172	Granted		10-Dec-2007	19-Sep-2024	7,706.00	PROCESSING AN INPUT/OUTPUT REQUEST ON A MULTIPROCESSOR SYSTEM

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82217411	F200506051	US	US9043465	Granted		10-Jul-2007	26-Nov-2022	3,766.00	METHOD OF PROVIDING SERVICES IN A NETWORK, NETWORK ELEMENT AND COMPUTER PROGRAM PRODUCT
82217687	F200506245	US	US8306911	Granted		31-Jan-2007	6-May-2024	7,706.00	PAYMENT OPTION ANALYZER BASED ON MEASURED UTILIZATION
82218665	F200506834	US	US8639904	Granted		22-Oct-2009	28-Jul-2021	3,606.00	METHOD AND SYSTEM FOR MANAGING HEAP ACROSS PROCESS REPLICATION
82219268	F200507174	US	US7516358	Granted		20-Dec-2005	N/A	N/A	TUNING CORE VOLTAGES OF PROCESSORS
82220312	F200600070	US	US8327389	Granted		10-Jul-2007	4-Jun-2024	7,706.00	INTERFACE MODULE
82220930	F200600397	US	US7606842	Granted		27-Sep-2006	20-Apr-2021	7,406.00	METHOD OF MERGING A CLONE FILE SYSTEM WITH AN ORIGINAL FILE SYSTEM
82224077	F200601602	US	US7610429	Granted		30-Jan-2007	27-Apr-2021	7,706.00	METHOD AND SYSTEM FOR DETERMINING DEVICE CRITICALITY IN A COMPUTER CONFIGURATION
82226375	F200602648	US	US7937565	Granted		21-Feb-2008	3-Nov-2022	7,406.00	METHOD AND SYSTEM FOR DATA SPECULATION ON MULTICORE SYSTEMS

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82227347	F200603027	US	US7929418	Granted		20-Mar-2008	19-Oct-2022	7,406.00	DATA PACKET COMMUNICATION PROTOCOL OFFLOAD METHOD AND SYSTEM
82227539	F200603142	US	US8156496	Granted		29-Jan-2008	10-Oct-2023	7,706.00	DATA PROCESSING SYSTEM AND METHOD
82227545	F200603144	US	US8566467	Granted		17-Jul-2008	22-Apr-2021	3,606.00	DATA PROCESSING SYSTEM AND METHOD
82229765	F200603986	US	US8504018	Granted		29-Jan-2008	6-Feb-2021	3,766.00	SERVICE ROUTING FOR COMMUNICATION SYSTEMS
82230662	F200700296	US	US9405921	Granted		31-Jul-2007	2-Feb-2024	3,766.00	COMPUTER-IMPLEMENTED METHOD FOR ROLE DISCOVERY IN ACCESS CONTROL SYSTEMS
82247039	F200700296	US	US9405922	Granted		5-Jan-2009	2-Feb-2024	3,766.00	COMPUTER-IMPLEMENTED METHOD FOR ROLE DISCOVERY AND SIMPLIFICATION IN ACCESS CONTROL SYSTEMS
82232756	F200701002	US	US7730218	Granted		31-Jul-2007	1-Dec-2021	7,706.00	METHOD AND SYSTEM FOR CONFIGURATION AND MANAGEMENT OF CLIENT ACCESS TO NETWORK-ATTACHED-STORAGE
82233953	F200701315	US	US8359467	Granted		7-Jul-2007	22-Jul-2024	7,706.00	ACCESS CONTROL SYSTEM AND METHOD

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82235369	F200701680	US	US8782655	Granted		1-Jul-2008	15-Jan-2022	3,606.00	CONTROLLING COMPUTING RESOURCE CONSUMPTION
82236776	F200702071	US	US8046529	Granted		25-Sep-2008	25-Apr-2023	7,706.00	UPDATING CONTROL INFORMATION IN NON-VOLATILE MEMORY TO CONTROL SELECTION OF CONTENT
82236902	F200702110	US	US8712035	Granted		31-Jan-2008	29-Oct-2021	3,606.00	ONLINE DATA CONVERSION TECHNIQUE USING A SLIDING WINDOW
82237886	F200702398	US	US8719830	Granted		21-Aug-2008	6-Nov-2021	3,606.00	SYSTEM AND METHOD FOR ALLOWING EXECUTING APPLICATION IN COMPARTMENT THAT ALLOW ACCESS TO RESOURCES
82237922	F200702406	US	US7111197	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR JOURNAL RECOVERY FOR MULTINODE ENVIRONMENTS
82237925	F200702406	US	US7467330	Granted		4-Aug-2006	N/A	N/A	SYSTEM AND METHOD FOR JOURNAL RECOVERY FOR MULTINODE ENVIRONMENTS
82237988	F200702406	US	US7240057	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING JOURNALING IN A MULTI-NODE ENVIRONMENT

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82237991	F200702406	CA	CA2460833	Granted		20-Sep-2002	20-Sep-2020	355.98	SYSTEM AND METHOD FOR IMPLEMENTINGJ OURNALING IN A MULTI-NODE ENVIRONMENT
82237994	F200702406	CN	CN02823231.3	Granted		20-Sep-2002	20-Sep-2020	1,304.37	SYSTEM AND METHOD FOR IMPLEMENTING JOURNALING IN A MULTI-NODE ENVIRONMENT
82238009	F200702406	US	US7437386	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82238015	F200702406	CN	CN02823098.1	Granted		20-Sep-2002	20-Sep-2020	1,304.37	SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82238021	F200702406	JP	JP4249622	Granted		20-Sep-2002	23-Jan-2021	1,404.63	A SYSTEM AND METHOD FOR EFFICIENT LOCK RECOVERY
82238033	F200702406	US	US7266722	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR EFFICIENT LOCK RECOVERY
83057023	F200702406	FR	FR1428149	Granted		20-Sep-2002	20-Sep-2020	878.13	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
83057026	F200702406	DE	DE60244008.4	Granted		20-Sep-2002	20-Sep-2020	2,108.66	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE

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83057029	F200702406	GB	GB1428149	Granted		20-Sep-2002	20-Sep-2020	826.86	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82237979	F200702406	US	US7496646	Granted		20-Sep-2002	24-Aug-2020	7,406.00	SYSTEM AND METHOD FOR MANAGEMENT OF A STORAGE AREA NETWORK
82238303	F200702507	US	US8712597	Granted		11-Jun-2008	29-Oct-2021	3,606.00	METHOD OF OPTIMIZING AIR MOVER PERFORMANCE CHARACTERISTICS TO MINIMIZE TEMPERATURE VARIATIONS IN A COMPUTING SYSTEM ENCLOSURE
82238624	F200702591	US	US8495662	Granted		23-Sep-2008	23-Jan-2021	3,606.00	SYSTEM AND METHOD FOR IMPROVING RUN-TIME PERFORMANCE OF APPLICATIONS WITH MULTITHREADED AND SINGLE THREADED ROUTINES
82244252	F200704490	US	US7539769	Granted		30-Apr-2001	26-Nov-2020	7,406.00	AUTOMATED DEPLOYMENT AND MANAGEMENT OF NETWORK DEVICES
82244267	F200704493	US	US7496645	Granted		18-Oct-2001	N/A	N/A	DEPLOYMENT OF BUSINESS LOGIC SOFTWARE AND DATA CONTENT ONTO NETWORK SERVERS

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82246889	F200800989	US	US8875142	Granted		23-Oct-2009	28-Apr-2022	3,606.00	JOB SCHEDULING ON A MULTIPROCESSING SYSTEM BASED ON RELIABILITY AND PERFORMANCE RANKINGS OF PROCESSORS AND WEIGHTED EFFECT OF DETECTED ERRORS (AS AMENDED)
82247372	F200801308	US	US8826138	Granted		28-Jan-2009	2-Mar-2022	3,606.00	VIRTUAL CONNECT DOMAIN GROUPS
82247375	F200801309	US	US8208616	Granted		29-Jan-2009	26-Dec-2023	7,706.00	CONFERENCE-CALL SYSTEM AND CONFERENCE-SPECIFIC ACCESS CODES
82247738	F200801487	US	US8489753	Granted		7-Sep-2009	16-Jan-2021	3,766.00	APPARATUS AND COMPUTER-IMPLEMENTED METHOD FOR CONTROLLING MIGRATION OF A VIRTUAL MACHINE
82248062	F200801728	US	US8615641	Granted		24-Jun-2009	24-Jun-2021	3,606.00	SYSTEM AND METHOD FOR DIFFERENTIAL BACKUP
82249157	F200802553	US	US9032240	Granted		23-Apr-2009	12-Nov-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING HIGH AVAILABILITY SCTP APPLICATIONS
82249511	F200802897	US	US8650396	Granted		1-Dec-2009	11-Aug-2021	3,606.00	PERMISSION-BASED DYNAMICALLY TUNABLE OPERATING SYSTEM KERNEL

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82249712	F200803029	US	US8484621	Granted		24-Jun-2009	9-Jan-2021	3,606.00	METHOD AND SYSTEM FOR DATA CENTRIC HEAP PROFILING
82250969	F200900211	US	US8769546	Granted		7-Jan-2010	1-Jan-2022	3,606.00	BUSY-WAIT TIME FOR THREADS
82251287	F200900397	US	US7769050	Granted		25-Apr-2008	3-Feb-2022	7,706.00	SYSTEM AND METHOD FOR INTERFERENCE MITIGATION FOR WIRELESS COMMUNICATIO N
82254797	F200901268	US	US7219236	Granted		26-Feb-2003	N/A	N/A	ADMINISTERING A SECURITY SYSTEM
82853154	F200902893	US	US9032517	Granted		31-Oct-2009	12-Nov-2022	3,766.00	MALICIOUS CODE DETECTION
82931336	F200902893	CN	CN200980162264. 4	Granted		31-Oct-2009	31-Oct-2021	990.04	MALICIOUS CODE DETECTION
82259072	F200902994	US	US8694819	Granted		24-Aug-2009	8-Oct-2021	3,606.00	SYSTEM AND METHOD FOR GRADUALLY ADJUSTING A VIRTUAL INTERVAL TIMER COUNTER VALUE TO COMPENSATE THE DIVERGENCE OF A PHYSICAL INTERVAL TIMER COUNTER VALUE AND THE VIRTUAL INTERVAL TIMER COUNTER VALUE
82852274	F200904049	US	US8838765	Granted		14-Dec-2009	16-Mar-2022	3,766.00	MODIFYING COMPUTER MANAGEMENT REQUEST

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82261616	F200904613	US	US7430570	Granted		28-Apr-2004	N/A	N/A	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261604	F200904613	US	US7890529	Granted		16-Feb-2007	15-Aug-2022	7,706.00	DELEGATIONS AND CACHING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261619	F200904613	US	US8316066	Granted		20-Aug-2007	20-May-2024	7,400.00	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261622	F200904613	US	US8131782	Granted		29-Sep-2008	6-Sep-2023	7,706.00	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261628	F200904613	US	US7546319	Granted		28-Apr-2004	9-Dec-2020	7,406.00	FILE SYSTEM CONSISTENCY CHECKING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261631	F200904613	US	US8103639	Granted		5-May-2009	24-Jul-2023	7,706.00	FILE SYSTEM CONSISTENCY CHECKING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261808	F200904724	US	US8997084	Granted		20-Apr-2011	30-Sep-2022	3,606.00	METHOD AND APPARATUS FOR DETERMINING COMPATIBLE VERSIONS OF DEPENDENT ENTITIES IN A COMPUTER SYSTEM

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83200410	F201000810	US	US9166893	Granted		23-Sep-2010	20-Apr-2023	3,766.00	METHODS, APPARATUS AND SYSTEMS FOR MONITORING LOCATIONS OF DATA WITHIN A NETWORK SERVICE
83422495	F201000959	US	US9148430	Granted		17-Aug-2011	29-Mar-2023	3,766.00	METHOD OF MANAGING USAGE RIGHTS IN A SHARE GROUP OF SERVERS
82272038	F201002554	US	US6996621	Granted		6-Dec-2000	N/A	N/A	METHOD FOR SUPPORTING SECONDARY ADDRESS DELIVERY ON REMOTE ACCESS SERVERS
82271006	F201003330	US	US6681244	Granted		9-Jun-2000	N/A	N/A	SYSTEM AND METHOD FOR OPERATING A NETWORK ADAPTER WHEN AN ASSOCIATED NETWORK COMPUTING SYSTEM IS IN A LOW-POWER STATE
82271648	F201003502	US	US7107326	Granted		27-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR INTEGRATING IP ADDRESS RESERVATIONS WITH POLICY PROVISIONING
82271834	F201003567	US	US7222255	Granted		28-Feb-2001	N/A	N/A	SYSTEM AND METHOD FOR NETWORK PERFORMANCE TESTING

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82272068	F201003648	US	US6597151	Granted		2-Oct-2000	N/A	N/A	PORTABLE AUXILIARY BATTERY PACK FOR EXTENDED USE AND RECHARGING OF PERSONAL DIGITAL ASSISTANTS
82274162	F201004551	US	US7724740	Granted		27-Aug-2002	25-Nov-2021	7,706.00	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
82274165	F201004551	US	US8358655	Granted		9-Apr-2010	N/A	N/A	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
83137192	F201004551	US	US9348789	Granted		14-Dec-2012	24-Nov-2023	3,766.00	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
82274399	F201004602	US	US7657926	Granted		19-Mar-2004	2-Aug-2021	7,706.00	ENABLING NETWORK COMMUNICATIO N FROM ROLE BASED AUTHENTICATIO N
82274402	F201004602	US	US8176543	Granted		17-Dec-2009	8-Nov-2023	7,706.00	ENABLING NETWORK COMMUNICATIO N FROM ROLE BASED AUTHENTICATIO N

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82274444	F201004615	US	US8943241	Granted		9-Sep-2004	27-Jul-2022	3,766.00	COMMUNICATION DEVICE INGRESS INFORMATION MANAGEMENT SYSTEM AND METHOD
84088366	F201004615	US	US9229683	Granted		15-Dec-2014	5-Jul-2023	3,766.00	COMMUNICATION DEVICE INGRESS INFORMATION MANAGEMENT SYSTEM AND METHOD
82756375	F201004987	US	US9355145	Granted		22-Sep-2011	30-Nov-2023	3,766.00	USER DEFINED FUNCTION CLASSIFICATION IN ANALYTICAL DATA PROCESSING SYSTEMS
82756415	F201004987	US	US8856151	Granted		30-Sep-2011	7-Apr-2022	3,766.00	OUTPUT FIELD MAPPING OF USER DEFINED FUNCTIONS IN DATABASES
82756427	F201004987	US	US9229984	Granted		13-Oct-2011	5-Jul-2023	3,766.00	PARAMETER EXPRESSIONS FOR MODELING USER DEFINED FUNCTION EXECUTION IN ANALYTICAL DATA PROCESSING SYSTEMS
82850182	F201004987	US	US8538954	Granted		25-Jan-2011	17-Mar-2021	3,766.00	AGGREGATE FUNCTION PARTITIONS FOR DISTRIBUTED PROCESSING
82671992	F201005823	US	US8515916	Granted		28-Sep-2011	20-Feb-2021	3,766.00	DATA ARCHIVING METHODS AND DATA ARCHIVING APPARATUS

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82062791	F30004647	US	US6996605	Granted		16-Oct-2001	N/A	N/A	OVERVIEW SUBSYSTEM FOR INFORMATION PAGE SERVER
82062788	F30004647	GB	GB2368246	Expired		17-Oct-2000	N/A	N/A	OVERVIEW SUBSYSTEM FOR INFORMATION PAGE SERVER
82062872	F30004693	US	US7113911	Granted		21-Nov-2001	N/A	N/A	VOICE COMMUNICATIO N CONCERNING A LOCAL ENTITY
82065566	F30014515	US	US7000085	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82065569	F30014515	JP	JP4579492	Granted		24-Dec-2002	3-Sep-2021	1,024.32	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82065575	F30014515	US	US7472245	Granted		30-Dec-2005	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82070522	F50002136	US	US7150023	Granted		27-Jul-2001	N/A	N/A	DYNAMIC RESOURCE CONTROL IN A PROCESSING SYSTEM
82281425	F700203771	US	US7840850	Granted		11-Apr-2005	23-May-2022	7,406.00	DATA PROCESSING SYSTEM FOR LOGGING MEMORY ACCESS DATA

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82863311	F700205556	US	US8923837	Granted		13-Oct-2011	30-Jun-2022	3,766.00	PROVISIONING A TELEPHONY NETWORK IN RESPONSE TO AN ELECTRONIC DEVICE ATTACHING TO THE NETWORK
82670355	F700205632	US	US9069470	Granted		1-Apr-2011	30-Dec-2022	3,606.00	ZONE GROUP REASSIGNMENT USING STORAGE DEVICE SIGNATURES
83998863	F700207271	KR	KR10-1660611	Granted		30-Jan-2012	21-Sep-2021	383.94	WORD SHIFT STATIC RANDOM ACCESS MEMORY (WS-SRAM)
83998868	F700207271	US	US9589623	Granted		30-Jan-2012	7-Sep-2024	3,766.00	WORD SHIFT STATIC RANDOM ACCESS MEMORY (WS-SRAM)
83998911	F700207271	KR	KR10-1564524	Granted		30-Jan-2012	23-Oct-2021	631.63	DYNAMIC/STATIC RANDOM ACCESS MEMORY (D/SRAM)
83998916	F700207271	US	US9466352	Granted		30-Jan-2012	11-Apr-2024	3,766.00	DYNAMIC/STATIC RANDOM ACCESS MEMORY (D/SRAM)
84077872	F700207271	CN	CN201280072828.7	Granted		10-Jul-2012	10-Jul-2021	698.53	LIST SORT STATIC RANDOM ACCESS MEMORY
84077882	F700207271	US	US9384824	Granted		10-Jul-2012	5-Jan-2024	3,766.00	LIST SORT STATIC RANDOM ACCESS MEMORY
83096196	F700210418	US	US8789139	Granted		11-Jan-2013	22-Jan-2022	3,766.00	AUTOMATED TEST TO TELL COMPUTERS AND HUMANS APART

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83213710	F700213039	US	US9235639	Granted		10-May-2013	12-Jul-2023	3,766.00	FILTER REGULAR EXPRESSION
84299324	FCTXM0006	US	US9344369	Granted		12-Mar-2013	17-Nov-2023	3,766.00	SYSTEM AND METHODS FOR DISTRIBUTED QUALITY OF SERVICE ENFORCEMENT

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81986348	F10007858	US	US7240324	Granted		28-Feb-2001	N/A	N/A	EVENT-BASED SCHEDULING METHOD AND SYSTEM FOR WORKFLOW ACTIVITIES
81989396	F10010812	US	US7831731	Granted		12-Jun-2001	9-May-2022	7,706.00	METHOD AND SYSTEM FOR A MODULAR TRANSMISSION CONTROL PROTOCOL (TCP) RARE-HANDOFF DESIGN IN A STREAMS BASED TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL (TCP/IP) IMPLEMENTATION
82079603	F100110346	US	US6910057	Granted		17-Oct-2001	N/A	N/A	TRUTH TABLE CANDIDATE REDUCTION FOR CELLULAR AUTOMATA BASED RANDOM NUMBER GENERATORS
81992846	F10012172	US	US7099866	Granted		16-Nov-2001	N/A	N/A	METHOD OF GENERATING AND PRESENTING KERNEL DATA
81998501	F10015055	US	US7466668	Granted		24-Aug-2001	N/A	N/A	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82723764	F10015055	FR	FR1303100	Granted		13-Aug-2002	13-Aug-2021	1,036.41	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES

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82723766	F10015055	DE	DE60240383.9	Granted		13-Aug-2002	13-Aug-2021	2,504.74	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82723768	F10015055	GB	GB1303100	Granted		13-Aug-2002	13-Aug-2021	896.07	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82000952	F10016691	US	US7028167	Granted		4-Mar-2002	N/A	N/A	CORE PARALLEL EXECUTION WITH DIFFERENT OPTIMIZATION CHARACTERISTICS TO DECREASE DYNAMIC EXECUTION PATH
82000964	F10016693	US	US6871264	Granted		6-Mar-2002	N/A	N/A	SYSTEM AND METHOD FOR DYNAMIC PROCESSOR CORE AND CACHE PARTITIONING ON LARGE-SCALE MULTITHREADED, MULTIPROCESSOR INTEGRATED CIRCUITS
82003742	F10018138	US	US7523455	Granted		3-May-2002	21-Oct-2020	7,406.00	METHOD AND SYSTEM FOR APPLICATION MANAGED CONTEXT SWITCHING
82003964	F10018228	US	US6781858	Granted		29-Aug-2003	N/A	N/A	CUBIC MEMORY ARRAY
82087979	F100202161	US	US6889295	Granted		5-Mar-2002	N/A	N/A	RE-ORDERING REQUESTS FOR SHARED RESOURCES

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82089101	F100202822	US	US8463940	Granted		31-Jan-2003	11-Dec-2020	3,606.00	METHOD OF INDICATING A PATH IN A COMPUTER NETWORK
82090349	F100203592	US	US7325170	Granted		19-Mar-2004	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING INFORMATION FOR REMOTE DEVICE SUPPORT
82058708	F10992668	US	US7069434	Granted		13-Jun-2000	N/A	N/A	SECURE DATA TRANSFER METHOD AND SYSTEM
82098827	F200208006	US	US7003591	Granted		20-Aug-2003	N/A	N/A	CONFIGURABLE MAPPING OF DEVICES TO BUS FUNCTIONS
82100006	F200208555	US	US7081684	Granted		6-Oct-2003	N/A	N/A	CONVERTING HEAT GENERATED BY A COMPONENT TO ELECTRICAL ENERGY
82100675	F200208766	US	US7533285	Granted		22-Apr-2004	12-Nov-2020	7,406.00	SYNCHRONIZING LINK DELAY MEASUREMENT OVER SERIAL LINKS
82106108	F200300376	US	US7890999	Granted		7-Aug-2003	15-Aug-2022	7,406.00	RPC PORT MAPPER INTEGRITY CHECKER TO IMPROVE SECURITY OF A PROVISIONABLE NETWORK
82110842	F200301290	US	US6765922	Granted		27-Sep-2000	N/A	N/A	SPECULATIVE TRANSMIT FOR SYSTEM AREA NETWORK LATENCY REDUCTION

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82110845	F200301290	US	US6882656	Expired		13-Apr-2004	N/A	N/A	SPECULATIVE TRANSMIT FOR SYSTEM AREA NETWORK LATENCY REDUCTION
82118663	F200302043	US	US7240186	Granted		16-Jul-2001	N/A	N/A	SYSTEM AND METHOD TO AVOID RESOURCE CONTENTION IN THE PRESENCE OF EXCEPTIONS
82119764	F200302153	US	US7167987	Granted		29-Aug-2001	N/A	N/A	USE OF BIOMETRICS TO PROVIDE PHYSICAL AND LOGIC ACCESS TO COMPUTER DEVICES
82120697	F200302391	US	US7111084	Granted		28-Dec-2001	N/A	N/A	DATA STORAGE NETWORK WITH HOST TRANSPARENT FAILOVER CONTROLLED BY HOST BUS ADAPTER
82121852	F200302581	US	US7739485	Granted		11-Oct-2002	15-Dec-2021	7,706.00	CACHED FIELD REPLACEABLE UNIT EEPROM DATA
82121996	F200302618	US	US7092258	Granted		15-Sep-2003	N/A	N/A	CABLE MANAGEMENT SYSTEM AND METHOD OF INSTALLATION AND OPERATION THEREOF
82133435	F200304361	US	US6886109	Granted		18-May-2001	N/A	N/A	METHOD AND APPARATUS FOR EXPEDITING SYSTEM INITIALIZATION
82169255	F200309194	US	US7580814	Granted		23-Mar-2004	25-Feb-2021	7,706.00	SEQUENCE SIMULATOR

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82169261	F200309196	US	US7570591	Granted		3-Aug-2004	4-Feb-2021	7,706.00	METHOD AND APPARATUS FOR NEGOTIATING LINK SPEED AND CONFIGURATION
82171562	F200310064	US	US7519996	Granted		25-Aug-2003	N/A	N/A	SECURITY INTRUSION MITIGATION SYSTEM AND METHOD
82171565	F200310064	GB	GB2405563	Granted		13-Aug-2004	13-Aug-2021	764.74	A SECURITY INTRUSION MITIGATION SYSTEM AND METHOD
82173791	F200310966	US	US7954086	Granted		19-May-2003	30-Nov-2022	7,406.00	SELF-DESCRIBING KERNEL MODULES
82175876	F200311794	US	US8000322	Granted		14-Mar-2005	16-Feb-2023	7,706.00	CROSSBAR SWITCH DEBUGGING
82175879	F200311794	CN	CN200510088233.2	Granted		29-Jul-2005	29-Jul-2021	1,367.42	CROSSBAR SWITCH DEBUGGING
82176536	F200312054	US	US7447971	Granted		14-May-2004	N/A	N/A	DATA RECOVERY SYSTEMS AND METHODS
82176917	F200312197	US	US7765550	Granted		26-May-2005	27-Jan-2022	7,406.00	SYSTEM FOR CONTROLLING CONTEXT SWITCH OF DEFERRED REQUESTS USING COUNTER AND FLAG SETTING OF THREAD ACCESSING SHARED RESOURCE OR ENTERING CODE REGION
82176923	F200312200	US	US7577945	Granted		26-May-2005	18-Feb-2021	7,406.00	MEMORY MAPPED LAZY SIGNAL BLOCKING

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82178690	F200313003	US	US7996825	Granted		31-Oct-2003	9-Feb-2023	7,706.00	CROSS-FILE INLINING BY USING SUMMARIES AND GOLBAL WORKLIST
82178723	F200313024	US	US7814467	Granted		15-Jan-2004	12-Apr-2022	7,406.00	PROGRAM OPTIMIZATION USING OBJECT FILE SUMMARY INFORMATION
82180442	F200313758	US	US7739536	Granted		25-Feb-2005	15-Dec-2021	7,706.00	INTELLIGENT FREQUENCY AND VOLTAGE MARGINING
82180508	F200313774	US	US7454514	Granted		12-Jan-2004	N/A	N/A	PROCESSING DATA WITH UNCERTAIN ARRIVAL TIME
82180757	F200313907	US	US7487255	Granted		14-Aug-2003	3-Aug-2020	7,406.00	ROUTING CACHE MANAGEMENT WITH ROUTE FRAGMENTATIO N
82180943	F200313973	US	US7600023	Granted		5-Nov-2004	6-Apr-2021	7,706.00	SYSTEMS AND METHODS OF BALANCING CROSSBAR BANDWIDTH
82181105	F200314048	US	US7672929	Granted		22-Dec-2004	2-Sep-2021	7,706.00	DATABASE MODIFICATION HISTORY
82181606	F200314251	US	US7809991	Granted		11-Jan-2005	5-Apr-2022	7,706.00	SYSTEM AND METHOD TO QUALIFY DATA CAPTURE
82181612	F200314251	US	US7228472	Granted		11-Jan-2005	N/A	N/A	SYSTEM AND METHOD TO CONTROL DATA CAPTURE
82182284	F200314251	US	US7752016	Granted		11-Jan-2005	6-Jan-2022	7,706.00	SYSTEM AND METHOD FOR DATA ANALYSIS

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82182992	F200314776	US	US7474793	Granted		2-Sep-2004	6-Jul-2020	7,406.00	METHODS FOR COMPRESSION USING A DENOISER
82182998	F200314778	US	US7624009	Granted		2-Sep-2004	24-May-2021	7,406.00	METHOD AND SYSTEM FOR PRODUCING VARIABLE LENGTH CONTEXT MODELS
82184231	F200315313	US	US7624319	Granted		23-Dec-2004	24-May-2021	7,706.00	PERFORMANCE MONITORING SYSTEM
82186253	F200316232	US	US7876689	Granted		29-Jun-2005	25-Jul-2022	7,406.00	METHOD AND APPARATUS FOR LOAD BALANCING NETWORK INTERFACE ADAPTERS BASED ON NETWORK INFORMATION
82186562	F200316383	US	US7552238	Granted		30-Sep-2004	23-Dec-2020	7,406.00	METHOD AND APPARATUS FOR MAINTAINING NETWORK DEVICE CONFIGURATIONS
82187447	F200400179	US	US7143389	Granted		28-Jul-2004	N/A	N/A	SYSTEMS AND METHODS FOR GENERATING NODE LEVEL BYPASS CAPACITOR MODELS
82187564	F200400224	US	US7743383	Granted		1-Nov-2004	22-Dec-2021	7,406.00	ADAPTIVE COOPERATIVE SCHEDULING
82189400	F200401067	US	US7752623	Granted		16-Sep-2004	6-Jan-2022	7,406.00	SYSTEM AND METHOD FOR ALLOCATING RESOURCES BY EXAMINING A SYSTEM CHARACTERISTIC

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82189718	F200401204	US	US7339490	Granted		29-Jun-2004	N/A	N/A	MODULAR SENSOR ASSEMBLY
82189787	F200401266	US	US7643434	Granted		30-Sep-2004	5-Jul-2021	7,706.00	METHOD AND SYSTEM FOR MANAGING NETWORK NODES WHICH COMMUNICATE VIA CONNECTIVITY SERVICES OF A SERVICE PROVIDER
82190012	F200401406	US	US7057509	Granted		29-Jun-2004	N/A	N/A	MONITORING AN OBJECT WITH IDENTIFICATION DATA AND TRACKING DATA
82190207	F200401511	US	US8443171	Granted		30-Jul-2004	14-Nov-2020	3,606.00	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82190210	F200401511	CN	CN200510088159 4	Granted		29-Jul-2005	29-Jul-2021	1,367.42	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82190213	F200401511	GB	GB2416885	Granted		12-Jul-2005	12-Jul-2021	691.79	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82191920	F200402290	US	US8977651	Granted		14-Apr-2004	10-Sep-2022	3,606.00	METHOD AND APPARATUS FOR MULTI-PROCESS ACCESS TO A LINKED-LIST
82193288	F200402795	US	US7660937	Granted		28-Jun-2006	9-Aug-2021	7,706.00	EMULATING A USB HOST CONTROLLER
82196321	F200403866	US	US7383471	Granted		28-Dec-2004	N/A	N/A	DIAGNOSTIC MEMORY DUMPING

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82197110	F200404278	US	US7500056	Granted		21-Jul-2004	3-Sep-2020	7,406.00	SYSTEM AND METHOD TO FACILITATE RESET IN A COMPUTER SYSTEM
82197320	F200404388	US	US8930400	Granted		22-Nov-2004	6-Jul-2022	3,766.00	A SYSTEM AND METHOD FOR DISCOVERING KNOWLEDGE COMMUNITIES
82197740	F200404591	US	US7743380	Granted		21-Jan-2005	22-Dec-2021	7,406.00	MONITORING CLUSTERED SOFTWARE APPLICATIONS
82198079	F200404777	US	US7539931	Granted		8-Apr-2005	26-Nov-2020	7,406.00	STORAGE ELEMENT FOR MITIGATING SOFT ERRORS IN LOGIC
82199306	F200405310	US	US7877740	Granted		13-Jun-2005	25-Jul-2022	7,406.00	HANDLING CAUGHT EXCEPTIONS
82199318	F200405319	US	US7634773	Granted		24-Nov-2004	15-Jun-2021	7,406.00	METHOD AND APPARATUS FOR THREAD SCHEDULING ON MULTIPLE PROCESSORS
82201661	F200406544	US	US8799466	Granted		31-Jan-2005	5-Feb-2022	3,606.00	METHOD AND APPARATUS FOR AUTOMATIC VERIFICATION OF A NETWORK ACCESS CONTROL CONSTRUCT FOR A NETWORK SWITCH
82203017	F200407176	US	US7853934	Granted		23-Jun-2005	14-Jun-2022	7,406.00	HOT-SWAPPING A DYNAMIC CODE GENERATOR

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82203827	F200407611	US	US7123172	Granted		29-Jul-2005	N/A	N/A	METHOD AND SYSTEM FOR DETERMINING AN OPTIMAL OR NEAR OPTIMAL SET OF CONTEXTS BY CONSTRUCTING A MULTI-DIRECTIONAL CONTEXT TREE
82203830	F200407611	US	US8085888	Granted		13-Oct-2006	27-Jun-2023	7,706.00	METHOD AND SYSTEM FOR DETERMINING AN OPTIMAL OR NEAR OPTIMAL SET OF CONTEXTS BY CONSTRUCTING A MULTI-DIRECTIONAL CONTEXT TREE
82204691	F200407938	US	US8997102	Granted		3-Jun-2005	30-Sep-2022	3,606.00	PRIORITIZATION OF PROCESSES FOR DEACTIVATING PROCESSES TO REDUCE MEMORY PRESSURE CONDITION
82204928	F200408027	US	US7941804	Granted		31-Oct-2005	10-Nov-2022	7,406.00	ALLOCATING RESOURCES AMONG TIERED PARTITIONS OF DIFFERENT TYPES
82206494	F200500286	US	US7673305	Granted		23-Oct-2006	2-Sep-2021	7,406.00	SYSTEM AND METHOD OF EXPEDITING CERTAIN JOBS IN A COMPUTER PROCESSING SYSTEM
82206599	F200500344	US	US7373565	Granted		23-Aug-2005	N/A	N/A	START/STOP CIRCUIT FOR PERFORMANCE COUNTER

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82206602	F200500344	GB	GB2429552	Granted		2-Aug-2006	2-Aug-2021	618.83	START/STOP CIRCUIT FOR PERFORMANCE COUNTER
82206632	F200500349	US	US7711914	Granted		28-Jun-2005	4-Nov-2021	7,406.00	DEBUGGING USING VIRTUAL WATCHPOINTS
82206881	F200500508	US	US7323920	Granted		13-Jun-2005	N/A	N/A	SOFT-ERROR RATE IMPROVEMENT IN A LATCH USING LOW-PASS FILTERING
82207067	F200500606	US	US8990547	Granted		23-Aug-2005	24-Sep-2022	3,606.00	SYSTEMS AND METHODS FOR RE-ORDERING INSTRUCTIONS
82207133	F200500634	US	US8346740	Granted		22-Jul-2005	1-Jul-2020	3,606.00	FILE CACHE MANAGEMENT SYSTEM
82208279	F200501135	US	US7738681	Granted		1-Nov-2005	15-Dec-2021	7,706.00	FINGERPRINT AND PHYSICAL ATTRIBUTE DETECTION
82208402	F200501180	US	US8739288	Granted		31-Jul-2007	27-Nov-2021	3,606.00	AUTOMATIC DETECTION OF VULNERABILITY EXPLOITS
82208507	F200501222	US	US7765528	Granted		21-Sep-2005	27-Jan-2022	7,406.00	IDENTIFYING SOURCES OF MEMORY RETENTION
82208855	F200501422	US	US7903556	Granted		3-Nov-2005	8-Sep-2022	7,706.00	METHOD OF CONTROLLING DATA TRANSFERS BETWEEN NODES IN A COMPUTER SYSTEM
82209365	F200501734	US	US7816975	Granted		20-Sep-2005	19-Apr-2022	7,706.00	CIRCUIT AND METHOD FOR BIAS VOLTAGE GENERATION

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82209767	F200501965	US	US8650296	Granted		31-Oct-2006	11-Aug-2021	3,606.00	WORKLOAD REALLOCATION INVOLVING INTER-SERVER TRANSFERS OF SOFTWARE LICENSE RIGHTS AND INTRA-SERVER TRANSFER OF HARDWARE RESOURCES
82209998	F200502087	US	US8949404	Granted		24-May-2005	3-Aug-2022	3,766.00	ACQUIRING GRAPHICAL OPERATING SYSTEM POST-FAILURE SCREEN
82210232	F200502177	US	US7636643	Granted		29-Jun-2006	22-Jun-2021	7,406.00	GAUGE HAVING A DYNAMICALLY UPDATED INDICIA OF A VALUE'S NORMAL RANGE, AND METHODS AND MEANS TO FACILITATE THE DISPLAY AND UPDATE OF SAME
82210268	F200502188	US	US7594223	Granted		27-Jun-2005	22-Mar-2021	7,406.00	STRAIGHT-LINE POST-INCREMENT OPTIMIZATION FOR MEMORY ACCESS INSTRUCTIONS
82210868	F200502476	US	US8595612	Granted		26-Oct-2006	26-May-2021	3,606.00	DISPLAY OF WEB PAGE WITH AVAILABLE DATA
82211354	F200502764	US	US8391432	Granted		8-Aug-2005	5-Sep-2024	7,706.00	DATA SERIALIZER
82212575	F200503321	US	US8924590	Granted		14-Feb-2006	30-Jun-2022	3,606.00	SYSTEM AND METHOD FOR COMMUNICATIN G IN A NETWORKED SYSTEM

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82212875	F200503479	US	US8688890	Granted		5-Dec-2006	1-Oct-2021	3,766.00	BIT ORDERING FOR COMMUNICATING AN ADDRESS ON A SERIAL FABRIC
82213166	F200503643	US	US7610468	Granted		26-Oct-2006	27-Apr-2021	7,706.00	MODIFIED BUDDY SYSTEM MEMORY ALLOCATION
82213211	F200503688	US	US8738346	Granted		26-Oct-2006	27-Nov-2021	3,606.00	METHOD AND APPARATUS FOR CONTROLLING MULTIPLE SIMULATIONS
82214159	F200504348	US	US7672923	Granted		31-Oct-2006	2-Sep-2021	7,406.00	GRID NETWORK MANAGEMENT VIA AUTOMATIC TREND ANALYSIS OF A SERVICE LEVEL AGREEMENT.
82214258	F200504419	US	US8521652	Granted		19-May-2006	27-Feb-2021	3,606.00	DISCOVERING LICENSES IN SOFTWARE FILES
82215572	F200505182	US	US7970143	Granted		5-Aug-2005	28-Dec-2022	7,706.00	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM

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82815953	F200505182	DE	DE602005030748.6	Granted		5-Aug-2005	5-Aug-2021	1,822.09	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM
82815955	F200505182	GB	GB1913509	Granted		5-Aug-2005	5-Aug-2021	691.79	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM
82215986	F200505367	US	US7895409	Granted		30-Jul-2007	22-Aug-2022	7,406.00	APPLICATION INSPECTION TOOL FOR DETERMINING A SECURITY PARTITION
82216013	F200505381	US	US7657776	Granted		20-Sep-2006	2-Aug-2021	7,406.00	CONTAINING MACHINE CHECK EVENTS IN A VIRTUAL PARTITION
82216367	F200505552	US	US9038051	Granted		31-Oct-2006	19-Nov-2022	3,606.00	SELECTING PATCH SOLUTIONS BASED ON AVAILABILITY OF INFORMATION REGARDING PATCHES PREVIOUSLY INSTALLED ON USER SYSTEM

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82216469	F200505597	US	US7698545	Granted		24-Apr-2006	13-Oct-2021	7,406.00	COMPUTER CONFIGURATION CHRONOLOGY GENERATOR
82216655	F200505721	US	US7872965	Granted		22-Aug-2005	18-Jul-2022	7,406.00	NETWORK RESOURCE TEAMING PROVIDING RESOURCE REDUNDANCY AND TRANSMIT/RECEIVE LOAD-BALANCING THROUGH A PLURALITY OF REDUNDANT PORT TRUNKS
82217171	F200505962	US	US7971193	Granted		14-Jul-2006	28-Dec-2022	7,406.00	METHODS FOR PERFORMINING CROSS MODULE CONTEXT-SENSITIVE SECURITY ANALYSIS
82217174	F200505968	US	US7644204	Granted		31-Oct-2006	5-Jul-2021	7,406.00	SCSI I/O COORDINATOR
82217573	F200506169	US	US8516218	Granted		30-Oct-2006	20-Feb-2021	3,606.00	PATTERN-BASED MAPPING FOR STORAGE SPACE MANAGEMENT
82217705	F200506280	US	US8522042	Granted		31-Oct-2006	27-Feb-2021	3,766.00	METHOD AND APPARATUS FOR ENFORCEMENT OF SOFTWARE LICENSE PROTECTION
82217870	F200506400	US	US7721133	Granted		27-Apr-2006	18-Nov-2021	7,706.00	SYSTEMS AND METHODS OF SYNCHRONIZING REFERENCE FREQUENCIES
82218650	F200506827	US	US7953996	Granted		18-Dec-2006	30-Nov-2022	7,406.00	ACPI TO FIRMWARE INTERFACE

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82218854	F200506945	US	US9298668	Granted		6-Jul-2010	29-Sep-2023	3,766.00	BIT ERROR RATE REDUCTION BUFFER, METHOD AND APPARATUS
82218926	F200506982	US	US8402463	Granted		30-Oct-2006	19-Sep-2024	7,706.00	HARDWARE THREADS PROCESSOR CORE UTILIZATION
82219271	F200507176	US	US7861042	Granted		23-Oct-2006	28-Jun-2022	7,406.00	PROCESSOR ACQUISITION OF OWNERSHIP OF ACCESS COORDINATOR FOR SHARED RESOURCE
82219313	F200507184	US	US7855957	Granted		30-Aug-2006	21-Jun-2022	7,406.00	METHOD AND SYSTEM OF TRANSMIT LOAD BALANCING ACROSS MULTIPLE PHYSICAL PORTS
82219409	F200507258	US	US7502888	Granted		7-Feb-2006	N/A	N/A	SYMMETRIC MULTIPROCESSOR SYSTEM
82219514	F200507306	US	US8739162	Granted		27-Apr-2007	27-Nov-2021	3,606.00	ACCURATE MEASUREMENT OF MULTITHREADED PROCESSOR CORE UTILIZATION AND LOGICAL PROCESSOR UTILIZATION
82219718	F200507426	US	US7743244	Granted		31-Oct-2006	22-Dec-2021	7,406.00	COMPUTER SYSTEM MODEL GENERATION WITH TRACKING OF ACTUAL COMPUTER SYSTEM CONFIGURATION

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82241207	F200507596	US	US8650579	Granted		29-Oct-2007	11-Aug-2021	3,606.00	CONTAINMENT FOR COMPUTER-SOFTWARE UPDATE INSTALLATION PROCESSES
82220024	F200507702	US	US10198709	Granted		27-Mar-2006	5-Aug-2022	2,006.00	MANAGING ASSETS USING AT LEAST ONE POLICY AND ASSET LOCATIONS
82220027	F200507704	US	US8510450	Granted		22-Apr-2006	13-Feb-2021	3,606.00	RECONCILIATIO N OF WEB SERVER SESSION STATES WITH CLIENT BROWSER STATES
82220048	F200507714	US	US7710862	Granted		30-Aug-2006	4-Nov-2021	7,406.00	METHOD AND SYSTEM OF ASSIGNING MEDIA ACCESS CONTROL (MAC) ADDRESSES ACROSS TEAMED COMMUNICATIO N PORTS
82220135	F200507803	US	US7788477	Granted		31-Jan-2007	28-Feb-2022	7,406.00	METHODS, APPARATUS AND ARTICLES OF MANUFACTURE TO CONTROL OPERATING SYSTEM IMAGES FOR DISKLESS SERVERS
82220549	F200600217	US	US8799591	Granted		30-Jan-2007	5-Feb-2022	3,606.00	READ-WRITE SPINLOCK WITH NO MUTUAL EXCLUSION AMONG READERS
82220579	F200600243	US	US7774652	Granted		19-Sep-2006	10-Feb-2022	7,706.00	CIRCUITRY AND METHOD TO DETECT CONDITIONS OF DATA

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82220864	F200600374	US	US6871300	Granted		4-May-2001	N/A	N/A	EMBEDDED SERVER CHASSIS HARDWARE MASTER SYSTEM AND METHOD
82220945	F200600412	US	US7515428	Granted		31-Oct-2006	N/A	N/A	DESIGN FOR AUTOMATIC POSITIONING OF POWER SUPPLY MODULE HANDLE
82222385	F200600835	US	US7941812	Granted		30-Jan-2007	10-Nov-2022	7,406.00	INPUT/OUTPUT VIRTUALIZATIO N THROUGH OFFLOAD TECHNIQUES
82223009	F200601155	US	US7729368	Granted		19-Jan-2007	1-Dec-2021	7,406.00	NETWORK BUFFER CACHING
82224527	F200601902	US	US8739143	Granted		31-Jan-2007	27-Nov-2021	3,606.00	PROFILING METRICS FOR COMPUTER PROGRAMS
82224551	F200601915	US	US8504943	Granted		24-Oct-2006	6-Feb-2021	3,606.00	DISPLAYING GROUP ICONS REPRESENTING RESPECTIVE GROUPS OF NODES
82224686	F200601982	US	US7895581	Granted		26-Jan-2007	22-Aug-2022	7,406.00	PROFILING COLLECTOR FOR COMPUTER SYSTEM
82225349	F200602280	US	US8782779	Granted		26-Sep-2007	15-Jan-2022	3,766.00	SYSTEM AND METHOD FOR ACHIEVING PROTECTED REGION WITHIN COMPUTER SYSTEM
82226180	F200602579	US	US7730365	Granted		30-Apr-2007	1-Dec-2021	7,406.00	WORKLOAD MANAGEMENT FOR MAINTAINING REDUNDANCY OF NON-DATA COMPUTER COMPONENTS

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82228010	F200603372	US	US8966474	Granted		30-Apr-2007	24-Aug-2022	3,606.00	MANAGING VIRTUAL MACHINES USING SHARED IMAGE
82229636	F200603919	US	US8768978	Granted		30-Jul-2007	1-Jan-2022	3,606.00	SINGLE-OPERATION ON-LINE SCHEMA EVOLUTION
82231193	F200700459	US	US7765242	Granted		10-May-2007	27-Jan-2022	7,406.00	METHODS AND APPARATUS FOR STRUCTURE LAYOUT OPTIMIZATION FOR MULTI-THREADED PROGRAMS
82231262	F200700495	US	US8584138	Granted		30-Jul-2007	12-May-2021	3,606.00	DIRECT SWITCHING OF SOFTWARE THREADS BY SELECTIVELY BYPASSING RUN QUEUE BASED ON SELECTION CRITERIA
82232414	F200700918	US	US8352957	Granted		31-Jan-2008	8-Jul-2020	3,606.00	APPARATUS AND METHOD FOR PASSING METADATA IN STREAMS MODULES
82233344	F200701141	US	US9081627	Granted		31-Jul-2007	14-Jan-2023	3,766.00	WORKLOAD MANAGEMENT WITH RESOURCE TRANSFER SEQUENCE PLANNED AS A FUNCTION OF RANKING OF RESOURCE ALLOCATIONS
82233425	F200701161	US	US7671634	Granted		30-Jul-2007	2-Sep-2021	7,706.00	REDUNDANT CLOCK SWITCH CIRCUIT

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82233830	F200701258	US	US7827266	Granted		31-Jul-2007	2-May-2022	7,406.00	SYSTEM AND METHOD OF CONTROLLING MULTIPLE COMPUTER PLATFORMS
82235330	F200701661	US	US8505019	Granted		31-Oct-2008	6-Feb-2021	3,606.00	SYSTEM AND METHOD FOR INSTANT CAPACITY/WORKLOAD MANAGEMENT INTEGRATION
82235378	F200701686	US	US7783823	Granted		31-Jul-2007	24-Feb-2022	7,706.00	HARDWARE DEVICE DATA BUFFER
82235381	F200701686	GB	GB2451549	Granted		7-Jul-2008	7-Jul-2021	443.74	HARDWARD DEVICE DATA BUFFER
82237277	F200702190	US	US8621470	Granted		24-Jan-2008	30-Jun-2021	3,606.00	WAKEUP-ATTRIBUTE-BASED ALLOCATION OF THREADS TO PROCESSORS
82237688	F200702350	US	US7551039	Granted		19-Oct-2007	23-Dec-2020	7,406.00	PHASE ADJUSTMENT IN PHASE-LOCKED LOOPS USING MULTIPLE OSCILLATOR SIGNALS
82238465	F200702551	US	US7929919	Granted		25-Sep-2008	19-Oct-2022	7,706.00	SYSTEMS AND METHODS FOR A PLL-ADJUSTED REFERENCE CLOCK
82238810	F200702649	US	US9389921	Granted		15-Dec-2008	12-Jan-2024	3,766.00	SYSTEM AND METHOD FOR FLEXIBLE DEVICE DRIVER RESOURCE ALLOCATION
82240934	F200703378	US	US7518418	Granted		25-Sep-2007	N/A	N/A	RATIO GRANULARITY CLOCK DIVIDER CIRCUIT AND METHOD

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82240937	F200703378	TW	TWI435538	Granted		25-Aug-2008	20-Apr-2021	359.56	RATIO GRANULARITY CLOCK DIVIDER CIRCUIT AND METHOD
82240940	F200703379	US	US7521972	Granted		25-Sep-2007	N/A	N/A	FIFTY PERCENT DUTY CYCLE CLOCK DIVIDER CIRCUIT AND METHOD
82240943	F200703379	CN	CN200810149759.0	Granted		25-Sep-2008	25-Sep-2021	1,032.98	FIFTY PERCENT DUTY CYCLE CLOCK DIVIDER CIRCUIT AND METHOD
82240946	F200703380	US	US7567097	Granted		29-Sep-2007	28-Jan-2021	7,406.00	PRE-DRIVER CIRCUIT AND APPARATUS USING SAME
82562920	F200801253	US	US9015454	Granted		2-May-2008	21-Oct-2022	3,766.00	BINDING DATA TO COMPUTERS USING CRYPTOGRAPHIC CO-PROCESSOR AND MACHINE-SPECIFIC AND PLATFORM-SPECIFIC KEYS
82247759	F200801497	US	US8392928	Granted		28-Oct-2008	5-Sep-2020	3,606.00	AUTOMATED WORKLOAD PLACEMENT RECOMMENDATIONS FOR A DATA CENTER
82247768	F200801502	US	US9367197	Granted		28-Jan-2009	14-Dec-2023	3,766.00	DISPLAYING COMPUTER RESOURCE HIERARCHY
82247912	F200801603	US	US8527988	Granted		31-Jul-2009	3-Mar-2021	3,606.00	PROXIMITY MAPPING OF VIRTUAL-MACHINE THREADS TO PROCESSORS

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82931281	F200801779	CN	CN200980160839.9	Granted		9-Aug-2009	9-Aug-2020	666.46	ILLUMINABLE INDICATOR OF ELECTRONIC DEVICE BEING ENABLED BASED AT LEAST ON USER PRESENCE
82852934	F200801779	US	US8692683	Granted		9-Aug-2009	8-Oct-2021	3,766.00	ILLUMINABLE INDICATOR OF ELECTRONIC DEVICE BEING ENABLED BASED AT LEAST ON USER PRESENCE
82248920	F200802382	US	US8392736	Granted		31-Jul-2009	5-Sep-2020	3,606.00	MANAGING MEMORY POWER USAGE
82250024	F200803342	US	US8694974	Granted		29-Apr-2009	8-Oct-2021	3,606.00	LOAD-CHECKING ATOMIC SECTION
82250579	F200803737	US	US8607245	Granted		15-May-2009	10-Jun-2021	3,606.00	DYNAMIC PROCESSOR-SET MANAGEMENT
82251356	F200900425	US	US7797530	Granted		9-Apr-2001	14-Mar-2022	7,706.00	AUTHENTICATION AND ENCRYPTION METHOD AND APPARATUS FOR A WIRELESS LOCAL ACCESS NETWORK
82258727	F200902756	US	US8713139	Granted		29-Oct-2009	29-Oct-2021	3,606.00	AUTOMATIC FIXUP OF NETWORK CONFIGURATION ON SYSTEM IMAGE MOVE
82260449	F200903890	US	US8688838	Granted		14-Dec-2009	1-Oct-2021	3,606.00	PROFILE MANAGEMENT SYSTEMS
82260881	F200904195	US	US8401925	Granted		26-Jan-2010	19-Sep-2020	3,606.00	MULTI-PRODUCT SOFTWARE LICENSE SELECTION

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82261280	F200904423	US	US8452717	Granted		27-Apr-2010	28-Nov-2020	3,606.00	PRESENTING AN INTERACTIVE GUIDANCE STRUCTURE IN A COLLABORATIV E ENVIRONMENT
82934011	F200904474	US	US9425902	Granted		11-Jan-2010	23-Feb-2024	3,766.00	SYSTEM INCLUDING DRIVER CIRCUIT FOR ELECTRICAL SIGNALING AND OPTICAL SIGNALING
82261919	F200904777	US	US8356198	Granted		30-Mar-2010	15-Jul-2020	3,606.00	PERFORMING POWER MANAGEMENT BASED ON INFORMATION REGARDING ZONES OF DEVICES IN A SYSTEM
82263782	F201000860	US	US8353489	Granted		21-Sep-2010	15-Jan-2021	$4,260.0 0	MOUNTING KIT
82264178	F201001112	US	US8356141	Granted		28-Jun-2010	15-Jan-2021	$4,260.0 0	IDENTIFYING REPLACEMENT MEMORY PAGES FROM THREE PAGE RECORD LISTS
82595313	F201001837	US	US9049034	Granted		2-Feb-2011	2-Dec-2022	3,766.00	MULTICAST FLOW MONITORING
82271222	F201003322	US	US6898210	Granted		31-May-2000	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING A LOCAL AREA NETWORK UTILIZING REMOTE TRANSCEIVERS
82271810	F201003559	US	US7133446	Granted		19-Oct-2000	N/A	N/A	PERFORMANCE INDICATOR FOR WIRELESS DIGITAL SIGNAL RECEPTION

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82272365	F201003769	US	US6763001	Granted		17-Aug-2000	N/A	N/A	DISCOVERING NON MANAGED DEVICES IN A NETWORK SUCH AS A LAN USING TELNET
82272374	F201003772	US	US6775243	Granted		15-Sep-2000	N/A	N/A	GRAPHICALLY DISTINGUISHING A PATH BETWEEN TWO POINTS ON A NETWORK
82272485	F201003815	US	US7194534	Granted		4-Apr-2001	N/A	N/A	DISPLAY OF PHONES ON A MAP OF A NETWORK
82272548	F201003843	US	US6954785	Granted		17-Aug-2000	N/A	N/A	A SYSTEM FOR IDENTIFYING DEVICES THAT HAVE THE HIGHEST TOTAL VOLUME DATA TRANSFER AND COMMUNICATE WITH AT LEAST A THRESHOLD NUMBER OF CLIENT DEVICES
82274099	F201004538	US	US7702726	Granted		10-Apr-2002	20-Oct-2021	7,706.00	SYSTEM AND METHODS FOR PROVIDING PRESENCE SERVICES IN IP NETWORK
82274312	F201004586	US	US7155622	Granted		15-May-2003	N/A	N/A	SYSTEM AND METHOD FOR THE MANAGEMENT OF POWER SUPPLIED OVER DATA LINES
82274948	F201004727	US	US8416766	Granted		2-Jun-2009	9-Oct-2024	7,706.00	METHOD FOR IMPLEMENTING DISTRIBUTED VOICE FUNCTIONS INTO SOFTWARE APPLICATIONS

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82274954	F201004727	CN	CN200910146274.0	Granted		26-Jun-2009	26-Jun-2021	1,032.98	METHOD FOR IMPLEMENTING DISTRIBUTED VOICE FUNCTIONS INTO SOFTWARE APPLICATIONS
82275887	F201005039	US	US8725781	Granted		30-Jan-2011	13-Nov-2021	3,766.00	SENTIMENT CUBE
82275890	F201005041	US	US8949211	Granted		31-Jan-2011	3-Aug-2022	3,766.00	OBJECTIVE-FUNCTION BASED SENTIMENT
82586665	F201005286	US	US8966210	Granted		4-Apr-2011	24-Aug-2022	3,606.00	ZONE GROUP CONNECTIVITY INDICATOR
82581296	F201005340	US	US8713183	Granted		27-Mar-2011	29-Oct-2021	3,766.00	RESOURCE COMPATABILITY FOR DATA CENTERS
82677110	F201005997	US	US8719478	Granted		11-Aug-2011	6-Nov-2021	3,606.00	DEADLOCK PREVENTION
82277090	F300202276	US	US7143316	Granted		8-Apr-2003	N/A	N/A	FAULT DIAGNOSIS IN A NETWORK
82069802	F30990155	US	US7096204	Granted		6-Oct-2000	N/A	N/A	ELECTRONIC COMMERCE SYSTEM
82072100	F50980009	US	US6891863	Granted		6-Oct-2000	N/A	N/A	DEVICE AND METHODS FOR PROCESSING CHANNELS IN A DATA STREAM
82664931	F700205294	US	US8478900	Granted		18-May-2011	2-Jan-2021	3,766.00	DETERMINING MISCONNECTION OF AN ELECTRONIC DEVICE TO A NETWORK DEVICE USING ZONE INFORMATION

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82774491	F700205856	US	US8578023	Granted		29-Jul-2011	5-May-2021	3,606.00	COMPUTER RESOURCE UTILIZATION MODELING FOR MULTIPLEWORK LOADS

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81967265	F10001399	US	US7032074	Expired		1-Apr-2004	N/A	N/A	METHOD AND MECHANISM TO USE A CACHE TO TRANSLATE FROM A VIRTUAL BUS TO A PHYSICAL BUS
81967427	F10001428	US	US7209248	Granted		8-Dec-2000	N/A	N/A	MANAGING THE LIFETIME OF DISTRIBUTED RESOURCE DATA USING TEMPORAL SCOPES
81969518	F10002098	US	US6557005	Granted		12-Sep-2000	N/A	N/A	METHOD AND SYSTEM FOR DYNAMICALLY GENERATING WEB FORMS IN A VARIETY OF LANGUAGES
81969818	F10002141	US	US6875930	Granted		18-Apr-2002	N/A	N/A	OPTIMIZED CONDUCTOR ROUTING FOR MULTIPLE COMPONENTS ON A PRINTED CIRCUIT BOARD
81969821	F10002141	TW	TWI255678	Granted		11-Dec-2002	20-May-2021	686.40	OPTIMIZED CONDUCTOR ROUTING FOR MULTIPLE COMPONENTS ON A PRINTED CIRCUIT BOARD
81982970	F10006721	US	US8392586	Granted		15-May-2001	5-Sep-2020	3,606.00	METHOD AND APPARATUS TO MANAGE TRANSACTIONS AT A NETWORK STORAGE DEVICE
81988511	F10010394	US	US6859892	Granted		25-Apr-2001	N/A	N/A	SYNCHRONOUS BREAKPOINT SYSTEM AND METHOD

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81989456	F10010858	US	US7020800	Granted		24-Jan-2002	N/A	N/A	SYSTEM AND METHOD FOR MEMORY FAILURE RECOVERY USING LOCKSTEP PROCESSES
82079957	F100110432	JP	JP4309215	Granted		9-Sep-2003	15-May-2021	1,069.38	CIRCUIT COOLING APPARATUS
82079963	F100110432	US	US7019973	Granted		9-Jun-2004	N/A	N/A	CIRCUIT COOLING APPARATUS
82079960	F100110432	GB	GB2393330	Granted		28-Aug-2003	28-Aug-2020	754.86	CIRCUIT COOLING APPARATUS
82080047	F100110473	US	US7218917	Granted		15-Jan-2002	N/A	N/A	METHOD FOR SEARCHING NODES FOR INFORMATION
82080056	F100110473	JP	JP4002890	Granted		15-Jan-2003	24-Aug-2021	1,655.14	A METHOD FOR SEARCHING NODES FOR INFORMATION
82080059	F100110473	DE	DE60308144.4	Granted		15-Jan-2003	15-Jan-2021	2,257.04	A METHOD FOR SEARCHING NODES FOR INFORMATION
82081022	F100111090	US	US6886353	Granted		31-Oct-2003	N/A	N/A	COOLING SYSTEM
82081025	F100111090	US	US6854287	Granted		31-Oct-2003	N/A	N/A	COOLING SYSTEM
82097813	F100111090	US	US6938433	Granted		4-Dec-2002	N/A	N/A	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097822	F100111090	JP	JP4927335	Granted		21-Nov-2003	17-Feb-2021	663.85	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES

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82097831	F100111090	GB	GB1466234	Granted		21-Nov-2003	21-Nov-2020	753.48	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097834	F100111090	DE	DE60305436.6	Granted		21-Nov-2003	21-Nov-2020	2,039.61	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097837	F100111090	FR	FR1466234	Granted		21-Nov-2003	21-Nov-2020	837.35	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82082273	F100111613	US	US6957353	Granted		31-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING MINIMAL POWER-CONSUMING REDUNDANT COMPUTING HARDWARE FOR DISTRIBUTED SERVICES
81990701	F10011295	US	US8036983	Granted		18-Jan-2002	11-Apr-2023	7,706.00	SYSTEM FOR AND METHOD OF WEB BASED NON-WAGE COMPENSATION
81998180	F10014757	US	US7020145	Granted		24-Sep-2001	N/A	N/A	NETWORK TOPOLOGY MANAGER
82001252	F10016873	US	US7571143	Granted		15-Jan-2002	4-Feb-2021	7,706.00	SOFTWARE PAY-PER-USE PRICING
82006175	F10019538	US	US6912607	Granted		6-Feb-2002	N/A	N/A	METHOD AND APPARATUS FOR ASCERTAINING THE STATUS OF MULTIPLE DEVICES SIMULTANEOUS LY OVER A DATA BUS

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82006970	F10019860	US	US6832270	Granted		8-Mar-2002	N/A	N/A	VIRTUALIZATION OF COMPUTER SYSTEM INTERCONNECTS
82082900	F100200127	US	US7085884	Granted		30-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR STORING OPERATIONAL DATA OF A STORAGE AUTOMATION DEVICE TO A REMOVABLE NONVOLATILE MEMORY COMPONENT
82082906	F100200127	US	US8370574	Granted		13-Jun-2006	5-Aug-2020	3,606.00	SYSTEM AND METHOD FOR STORING CONFIGURATION DATA OF A STORAGE AUTOMATION DEVICE
82083239	F100200246	US	US7266598	Granted		22-Oct-2002	N/A	N/A	PROGRAMMABLE DATA CENTER
82085048	F100201076	US	US6822878	Granted		9-Oct-2002	N/A	N/A	CIRCUIT BOARD SUPPORT ARRANGEMENT, METHOD, AND METHOD FOR USING THE SAME
82085051	F100201076	GB	GB2394121	Granted		23-Sep-2003	23-Sep-2020	754.86	CIRCUIT BOARD SUPPORT ARRANGEMENT, METHOD, AND METHOD FOR USING THE SAME
82085873	F100201476	US	US7519800	Granted		27-Mar-2003	N/A	N/A	APPARATUS AND METHOD FOR ENFORCING HOMOGENEITY WITHIN PARTITIONS OF HETEROGENEOUS COMPUTER SYSTEMS

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82086638	F100201724	US	US6854284	Granted		31-Oct-2003	N/A	N/A	COOLING OF DATA CENTERS
82086647	F100201724	US	US6868683	Granted		31-Oct-2003	N/A	N/A	COOLING OF DATA CENTERS
82086650	F100201724	US	US6945058	Granted		14-May-2004	N/A	N/A	COOLING OF DATA CENTERS
82086680	F100201734	US	US6812719	Granted		28-May-2003	N/A	N/A	ELECTRONIC PROBE WITH A TIP THAT IS SECURABLE TO AN ELECTRONIC DEVICE
82087196	F100201875	US	US6924777	Granted		17-Mar-2003	N/A	N/A	ENHANCED ANTENNA USING FLEXIBLE CIRCUITRY
82087199	F100201875	JP	JP4421333	Granted		2-Mar-2004	11-Dec-2020	917.77	ANTENNA WITH ENHANCED PERFORMANCE USING FLEXIBLE CIRCUIT ELEMENT
82087886	F100202130	US	US7229050	Granted		27-Nov-2002	N/A	N/A	RACEWAY SYSTEM
82088003	F100202179	US	US7513779	Granted		4-Jun-2003	N/A	N/A	CONNECTOR HAVING A BYPASS CAPACITOR AND METHOD FOR REDUCING THE IMPEDANCE AND LENGTH OF A RETURN-SIGNAL PATH
82088006	F100202179	GB	GB2402813	Granted		19-May-2004	19-May-2021	764.74	CONNECTOR HAVING A BYPASS CAPACITOR AND METHOD FOR REDUCING THE IMPEDANCE AND LENGTH OF A RETURN-SIGNAL PATH

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82088642	F100202606	US	US7058828	Granted		12-Aug-2002	N/A	N/A	SYSTEM, METHOD AND APPARATUS FOR THE FREQUENCY MANAGEMENT OF BLADES IN A BLADED ARCHITECTURE BASED ON PERFORMANCE REQUIREMENTS
82088648	F100202606	GB	GB2393540	Granted		25-Jul-2003	25-Jul-2021	837.70	SYSTEM, METHOD AND APPARATUS FOR THE FREQUENCY MANAGEMENT OF BLADES IN A BLADED ARCHITECTURE BASED ON PERFORMANCE REQUIREMENTS
82088660	F100202606	US	US7076671	Granted		12-Aug-2002	N/A	N/A	MANAGING AN OPERATING FREQUENCY OF PROCESSORS IN A MULTI-PROCESSOR COMPUTER SYSTEM
82088894	F100202721	US	US6925409	Granted		3-Oct-2002	N/A	N/A	SYSTEM AND METHOD FOR PROTECTION OF ACTIVE FILES DURING EXTREME CONDITIONS
82089791	F100203149	US	US6854092	Granted		12-Aug-2002	N/A	N/A	REDUCING VARIATION IN RANDOMIZED NANOSCALE CIRCUIT CONNECTIONS
82090853	F100204043	US	US7360295	Granted		15-Mar-2005	N/A	N/A	SYSTEM AND METHOD FOR SECURELY POSITIONING APPARATUS WITHIN A HOUSING

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82091672	F100204699	US	US6867362	Granted		7-Mar-2003	N/A	N/A	CABLE EXTENSION FOR REDUCING EMI EMISSIONS
82093010	F200205329	US	US6856518	Granted		14-Jul-2003	N/A	N/A	ASSEMBLY FOR SUPPORTING A SHORT PRINTED CIRCUIT CARD
82093061	F200205355	US	US7673125	Granted		26-Jun-2003	2-Sep-2021	7,406.00	RESETTING MULTIPLE CELLS WITHIN A PARTITION OF A MULTIPLE PARTITION COMPUTER SYSTEM
82093649	F200205884	US	US7049796	Granted		17-Jan-2003	N/A	N/A	HOT SWAP POWER DELIVERY CIRCUIT
82093655	F200205884	GB	GB2397447	Granted		30-Dec-2003	30-Dec-2020	753.48	HOT SWAP POWER DELIVERY CIRCUIT
82093763	F200205935	US	US6877926	Granted		10-Sep-2002	N/A	N/A	SLIDE MEMBER POSITIVE COUPLING ALIGNMENT ASSEMBLY
82093766	F200205938	US	US7025430	Granted		10-Sep-2002	N/A	N/A	BALL RETAINER FORWARD LOCKING ASSEMBLY
82094612	F200206279	US	US7047471	Granted		3-Mar-2003	N/A	N/A	VOLTAGE MARGIN TESTING OF BLADED SERVERS
82095557	F200206690	US	US7039734	Granted		24-Sep-2002	N/A	N/A	SYSTEM AND METHOD OF MASTERING A SERIAL BUS

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82100279	F200208659	US	US7483142	Granted		3-May-2006	27-Jul-2020	7,406.00	SECURITY SYSTEMS AND MONITORING METHODS USING QUANTUM STATES
82100504	F200208714	US	US7068498	Granted		20-May-2003	N/A	N/A	COMPUTER SYSTEM WITH SLIDABLE MOTHERBOARD
82100846	F200208792	US	US6866540	Granted		18-Apr-2003	N/A	N/A	INDICIA-EQUIPPED ACTUATOR ASSEMBLY
82101308	F200208936	US	US7140801	Granted		22-Aug-2003	N/A	N/A	PRE-LOADING LATCH
82101962	F200209130	US	US7453701	Granted		17-Aug-2005	N/A	N/A	COMPUTER SYSTEM WITH MOVABLE CARD GUIDE
82103468	F200209593	US	US8533828	Granted		21-Jan-2003	10-Mar-2021	3,606.00	A SYSTEM FOR PROTECTING SECURITY OF A PROVISIONABLE NETWORK
82103564	F200209624	GB	GB2410846	Granted		2-Feb-2005	2-Feb-2021	691.79	REDUNDANT INPUT POWER SYSTEM
82217681	F200210205	US	US7092850	Granted		29-Sep-2005	N/A	N/A	SENSOR SIGNAL DEBOUNCING
82106249	F200300486	US	US7324685	Granted		20-Oct-2003	N/A	N/A	INSPECTION SYSTEMS AND METHODS

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82120604	F200302365	US	US7152174	Granted		6-Mar-2003	N/A	N/A	METHOD AND APPARATUS FOR OPERATING A SERVER SYSTEM INCLUDING DETERMINING THE POWER SUPPLIED BY ONE OF A PLURALITY OF POWER SUPPLIES BY MEASURING VOLTAGE ON A LOAD SHARE SIGNAL LINE
82121690	F200302533	US	US7015682	Granted		30-Jan-2003	N/A	N/A	CONTROL OF A POWER FACTOR CORRECTED SWITCHING POWER SUPPLY
82121813	F200302570	US	US6858792	Granted		19-Dec-2002	N/A	N/A	TOOL-LESS COUPLING ASSEMBLY
82167731	F200308561	US	US7539027	Granted		29-Oct-2007	26-Nov-2020	7,406.00	FORCE DISTRIBUTING SPRING ELEMENT
82167908	F200308604	US	US7035096	Granted		31-Oct-2003	N/A	N/A	LOCKING MECHANISM FOR REMOVABLE COMPONENTS
82169174	F200309140	US	US6989523	Granted		11-Apr-2003	N/A	N/A	PHOTON NUMBER RESOLVING SYSTEMS AND METHODS
82180925	F200309140	US	US7002133	Granted		3-Oct-2003	N/A	N/A	DETECTING ONE OR MORE PHOTONS FROM THEIR INTERACTIONS WITH PROBE PHOTONS IN A MATTER SYSTEM

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82169510	F200309294	US	US7578733	Granted		27-Jul-2004	25-Feb-2021	7,706.00	ENCLOSURES WITH REDUNDANT FANS IN DOORS WITH INTERLOCKS
82169516	F200309297	US	US7447043	Granted		22-Dec-2003	N/A	N/A	POWER CABLING ASSEMBLY
82170770	F200309815	US	US7608194	Granted		6-Jul-2007	27-Apr-2021	7,706.00	PHOTONIC STRUCTURES, DEVICES, AND METHODS
82171055	F200309900	US	US8825902	Granted		27-Oct-2003	2-Mar-2022	3,606.00	CONFIGURATION VALIDATION CHECKER
82173314	F200310798	US	US7275068	Granted		19-Dec-2003	N/A	N/A	DISCOVERING COMMUNITIES-OF-PRACTICE
82174166	F200311115	US	US7222246	Granted		26-Sep-2003	N/A	N/A	METHOD FOR DETERMINING NUMBER OF DYNAMICALLY TEMPERATURE-ADJUSTED POWER SUPPLY UNITS NEEDED TO SUPPLY POWER ACCORDING TO MEASURE OPERATING TEMPERATURE OF POWER SUPPLY UNITS
82178384	F200312862	US	US7496740	Granted		26-Jul-2004	24-Aug-2020	7,406.00	ACCESSING INFORMATION ASSOCIATED WITH AN ADVANCED CONFIGURATION AND POWER INTERFACE ENVIRONMENT

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82179812	F200313515	US	US7502699	Granted		29-Jul-2005	10-Sep-2020	7,406.00	SYSTEM AND METHOD FOR MONITORING POWER IN A FRONT END RECTIFIER POWER SYSTEM
82180610	F200313804	US	US7277292	Granted		28-Apr-2004	N/A	N/A	EXPANDABLE BRACING APPARATUS AND METHOD
82181489	F200314217	US	US7133173	Granted		26-Jul-2004	N/A	N/A	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82181498	F200314217	JP	JP4684294	Granted		28-Jun-2005	18-Feb-2021	1,249.62	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82181501	F200314217	CN	CN200580024861.2	Granted		28-Jun-2005	28-Jun-2021	1,367.42	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82184933	F200315657	US	US7512825	Granted		27-Sep-2004	30-Sep-2020	7,406.00	RESPONDING TO DC POWER DEGRADATION
82184936	F200315657	GB	GB2418502	Granted		13-Sep-2005	13-Sep-2020	610.84	RESPONDING TO DC POWER DEGRADATION
82185953	F200316140	US	US7380146	Granted		22-Apr-2005	N/A	N/A	POWER MANAGEMENT SYSTEM
82191062	F200401898	US	US7330119	Granted		29-Apr-2005	N/A	N/A	REMOTE MEASUREMENT EMPLOYING RFID
82191953	F200401898	JP	JP5022417	Granted		11-Sep-2009	22-Jun-2021	844.09	REMOTE MEASUREMENT OF MOTION EMPLOYING RFID

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82193378	F200402827	US	US7031870	Granted		28-May-2004	N/A	N/A	DATA CENTER EVALUATION USING AN AIR RE-CIRCULATION INDEX
82193786	F200402979	US	US7643458	Granted		25-May-2005	5-Jul-2021	7,406.00	COMMUNICATING BETWEEN WIRELESS COMMUNITIES
82199909	F200405637	US	US7514816	Granted		19-May-2005	N/A	N/A	OUTPUT CURRENT THRESHOLD ADJUSTMENT FOR A POWER SUPPLY
82201862	F200406613	US	US7492803	Granted		10-Jun-2005	17-Aug-2020	7,406.00	FIBER-COUPLED SINGLE PHOTON SOURCE
82201871	F200406613	JP	JP5068256	Granted		9-Jun-2006	24-Aug-2020	307.99	FIBER-COUPLED SINGLE PHOTON SOURCE
82201952	F200406639	US	US7289690	Granted		15-Apr-2005	N/A	N/A	PHOTONIC CRYSTAL DEVICE FOR FLUID SENSING
82202276	F200406843	US	US7544072	Granted		29-Oct-2007	9-Dec-2020	7,406.00	RETRACTABLE PROTECTION APPARATUS FOR ELECTRONIC DEVICE PINS
82208555	F200501254	US	US7742310	Granted		29-Sep-2006	22-Dec-2021	7,706.00	SEQUENCER
82208558	F200501254	GB	GB2442308	Granted		12-Sep-2007	12-Sep-2020	438.03	SEQUENCER
82208633	F200501301	US	US7186150	Granted		27-Oct-2005	N/A	N/A	SPLIT KEY IN A PRESS-FIT CONNECTOR
82210004	F200502098	US	US8000462	Granted		12-Aug-2005	16-Feb-2023	7,706.00	SCREENING OF CALLS IN A PACKET-BASED NETWORK

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82210010	F200502098	CN	CN200680038219.4	Granted		7-Aug-2006	7-Aug-2020	985.42	SCREENING OF CALLS IN A PACKET-BASED NETWORK
82210016	F200502098	IN	IN280291	Granted		7-Aug-2006	7-Aug-2020	416.00	SCREENING OF CALLS IN A PACKET-BASED NETWORK
83881516	F200502098	DE	DE602006041022.0	Granted		7-Aug-2006	7-Aug-2020	1,272.38	SCREENING OF CALLS IN A PACKET-BASED NETWORK
83881518	F200502098	GB	GB1920586	Granted		7-Aug-2006	7-Aug-2020	524.44	SCREENING OF CALLS IN A PACKET-BASED NETWORK
82213148	F200503639	US	US7474810	Granted		15-May-2007	6-Jul-2020	7,406.00	METHOD AND APPARATUS FOR CONTROLLING LIGHT FLUX WITH SUB-MICRON PLASMON WAVEGUIDES
82214672	F200504645	US	US7924413	Granted		29-Feb-2008	12-Oct-2022	7,706.00	NANOWIRE-BASED PHOTONIC DEVICES
82214693	F200504645	US	US7465954	Granted		28-Apr-2006	N/A	N/A	NANOWIRE DEVICES AND SYSTEMS, LIGHT-EMITTING NANOWIRES, AND METHODS OF PRECISELY POSITIONING NANOPARTICLES
82214696	F200504645	US	US7910915	Granted		23-Oct-2008	22-Sep-2022	7,706.00	NANOWIRE DEVICES AND SYSTEMS, LIGHT-EMITTING NANOWIRES, AND METHODS OF PRECISELY POSITIONING NANOPARTICLES

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82216058	F200505397	US	US9015308	Granted		17-Jan-2007	21-Oct-2022	3,766.00	MULTILAYER DISTRIBUTED PROCESSING SYSTEM
82216061	F200505397	GB	GB2449037	Granted		17-Jan-2007	17-Jan-2021	531.28	MULTILAYER DISTRIBUTED PROCESSING SYSTEM
82217819	F200506362	US	US7540746	Granted		6-Apr-2006	N/A	N/A	ELECTRICAL ENCODING OF CABLE TYPES AND CONFIGURATIONS
82219115	F200507109	CN	CN200780028366.8	Granted		11-Jul-2007	11-Jul-2020	985.42	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087119	F200507109	FR	FR2047319	Granted		11-Jul-2007	11-Jul-2020	483.88	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087121	F200507109	DE	DE602007026575.4	Granted		11-Jul-2007	11-Jul-2020	1,093.17	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087123	F200507109	GB	GB2047319	Granted		11-Jul-2007	11-Jul-2020	438.03	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
82219103	F200507109	US	US7639953	Granted		27-Jul-2006	29-Jun-2021	7,706.00	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS

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82219112	F200507109	JP	JP4842378	Granted		11-Jul-2007	14-Oct-2021	1,069.38	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
82219238	F200507162	CN	CN200780035137.9	Granted		11-Jul-2007	11-Jul-2020	985.42	COMPACT, SINGLE-CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82219226	F200507162	US	US7373059	Granted		22-Sep-2006	N/A	N/A	COMPACT, SINGLE CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82219235	F200507162	JP	JP4864143	Granted		11-Jul-2007	18-Nov-2020	1,006.29	COMPACT, SINGLE-CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82222280	F200600747	US	US7519245	Granted		31-Oct-2006	N/A	N/A	MODULAR ARRAY COMPUTER WITH OPTICAL INTERCELL COMMUNICATIONS PATHWAYS

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82222283	F200600749	US	US9052916	Granted		21-Sep-2006	9-Dec-2022	3,766.00	SYSTEM ROM WITH AN EMBEDDED DISK IMAGE
82222934	F200601104	US	US8387053	Granted		25-Jan-2007	26-Aug-2020	3,606.00	METHOD AND SYSTEM FOR ENHANCING COMPUTER PROCESSING PERFORMANCE
83019366	F200601661	US	US8357926	Granted		1-Jun-2012	22-Jul-2020	3,606.00	GAIN-CLAMPED SEMICONDUCTOR OPTICAL AMPLIFIERS
82224152	F200601661	US	US8212235	Granted		25-Apr-2007	3-Jan-2024	7,706.00	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82224158	F200601661	CN	CN200880013724 2	Granted		25-Apr-2008	25-Apr-2021	1,032.98	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82224167	F200601661	KR	KR101455706	Granted		25-Apr-2008	22-Oct-2021	463.28	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82225475	F200602319	US	US8612973	Granted		26-Sep-2007	17-Jun-2021	3,766.00	METHOD AND SYSTEM FOR HANDLING INTERRUPTS WITHIN COMPUTER SYSTEM DURING HARDWARE RESOURCE MIGRATION
82226066	F200602534	US	US7498524	Granted		23-Apr-2007	3-Sep-2020	7,406.00	ENCLOSURE AND GASKET ASSEMBLY FOR REDUCING EMI
82227224	F200603002	US	US7466410	Granted		26-Jan-2007	N/A	N/A	PHOTONIC-BASED SENSORS AND METHODS FOR DETECTING ANALYTES

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82227767	F200603277	US	US7805041	Granted		21-Mar-2007	28-Mar-2022	7,706.00	ELECTROMAGNETIC RADIATION AMPLIFICATION SYSTEMS BASED ON PHOTONIC GRATINGS
82227773	F200603277	CN	CN200880009047.7	Granted		21-Mar-2008	21-Mar-2021	1,032.98	ELECTROMAGNETIC RADIATION AMPLIFICATION SYSTEMS BASED ON PHOTONIC GRATINGS
82232504	F200700946	CN	CN200880109804.8	Granted		30-Jul-2008	30-Jul-2020	985.42	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82232498	F200700946	US	US7499615	Granted		1-Aug-2007	3-Sep-2020	7,406.00	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82232513	F200700946	KR	KR10-1508619	Granted		30-Jul-2008	30-Mar-2021	486.67	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82405250	F200700946	US	US8811778	Granted		6-May-2008	19-Feb-2022	3,766.00	SYSTEMS AND METHODS FOR ROUTING OPTICAL SIGNALS
82234532	F200701455	US	US7929865	Granted		27-Jul-2007	19-Oct-2022	7,706.00	FREE SPACE WDM SIGNAL DETECTOR
82234544	F200701455	JP	JP5133414	Granted		16-Jul-2008	16-Nov-2020	390.76	FREE SPACE WDM SIGNAL DETECTOR
82234658	F200701481	US	US7477441	Granted		24-Jul-2007	13-Jul-2020	7,406.00	MEMS DEVICE WITH NANOWIRE STANDOFF LAYER
82235153	F200701619	US	US8351204	Granted		31-Jan-2008	8-Jul-2020	3,606.00	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS

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82235141	F200701619	CN	CN200880128462.4	Granted		31-Jan-2008	31-Jan-2021	1,032.98	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS
82235150	F200701619	KR	KR10-1434239	Granted		31-Jan-2008	20-Aug-2021	415.63	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS
82235552	F200701730	US	US8738658	Granted		23-Apr-2008	27-Nov-2021	3,766.00	METHOD FOR USING PATHS IN A DIRECTORY FOR LOCATING OBJECTS
82237004	F200702142	US	US9032397	Granted		28-May-2008	12-Nov-2022	3,766.00	VIRTUAL MACHINE MIGRATION WITH DIRECT PHYSICAL ACCESS CONTROL
82239494	F200702925	CN	CN200880128457.3	Granted		31-Jan-2008	31-Jan-2021	990.04	FREE SPACE OPTICAL INTERCONNECT
82239500	F200702925	JP	JP5205473	Granted		31-Jan-2008	22-Feb-2021	366.26	FREE SPACE OPTICAL INTERCONNECT
82239503	F200702925	KR	KR10-1395169	Granted		31-Jan-2008	8-May-2021	451.15	FREE SPACE OPTICAL INTERCONNECT
82245326	F200702925	JP	JP5155444	Granted		7-May-2008	14-Dec-2020	406.20	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION
82245329	F200702925	KR	KR10-1453946	Granted		7-May-2008	16-Oct-2021	530.62	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION
82405286	F200702925	US	US8611758	Granted		7-May-2008	17-Jun-2021	3,766.00	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION

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82240844	F200703347	US	US8355251	Granted		21-Aug-2008	15-Jul-2020	3,606.00	REMOTE EXHAUST FOR RACK SYSTEMS
82241627	F200703656	US	US8108645	Granted		26-Jun-2008	31-Jul-2023	7,706.00	OPTIMIZED MEMORY ALLOCATION VIA FEATURE EXTRACTION
82595701	F200800383	CN	CN200880130639.4	Granted		31-Jul-2008	31-Jul-2020	985.42	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595703	F200800383	DE	DE112008003958	Granted		31-Jul-2008	31-Jul-2020	913.97	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595705	F200800383	JP	JP5474065	Granted		31-Jul-2008	14-Feb-2021	397.69	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595707	F200800383	KR	KR10-1510356	Granted		31-Jul-2008	1-Apr-2021	593.23	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595709	F200800383	US	US8873893	Granted		31-Jul-2008	28-Apr-2022	3,766.00	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS

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82247651	F200801450	US	US8127124	Granted		19-Mar-2009	28-Aug-2023	7,706.00	REMOTE CONFIGURATION OF COMPUTING PLATFORMS
82934043	F200801450	US	US8370610	Granted		24-Feb-2012	5-Aug-2024	7,706.00	REMOTE CONFIGURATION OF COMPUTING PLATFORMS
82654452	F200802164	CN	CN200880130978.2	Granted		4-Sep-2008	4-Sep-2020	985.42	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654456	F200802164	JP	JP5376544	Granted		4-Sep-2008	4-Oct-2021	397.69	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654458	F200802164	KR	KR10-1515870	Granted		4-Sep-2008	22-Apr-2021	664.27	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654460	F200802164	US	US8655124	Granted		4-Sep-2008	18-Aug-2021	3,766.00	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82249022	F200802452	US	US8363654	Granted		7-Nov-2008	29-Jul-2020	3,606.00	PREDICTIVE PACKET FORWARDING FOR A NETWORK SWITCH
82250468	F200803661	US	US8477045	Granted		29-Oct-2009	2-Jan-2021	3,606.00	CONFIGURATION INFORMATION PROVIDED TO CONFIGURABLE ELECTRONIC DEVICE RESIDING IN A SHIPPING BOX
82938863	F200803670	US	US8780908	Granted		28-Oct-2009	15-Jan-2022	3,606.00	METHOD AND APPARATUS FOR TRACING A MULTICAST FLOW

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82259093	F200903003	US	US8521940	Granted		27-Oct-2009	27-Feb-2021	3,766.00	PAIRED NODE CONTROLLERS
82259711	F200903377	US	US8537859	Granted		26-Feb-2010	17-Mar-2021	3,766.00	REASSEMBLY OF MINI-PACKETS IN A BUFFER
82263698	F201000775	US	US8424826	Granted		12-Oct-2010	23-Oct-2024	7,406.00	ATTACHMENT APPARATUS FOR AN EXTERNAL POWER SUPPLY
83161099	F201001120	CN	CN201080068233.5	Granted		26-Jul-2010	26-Jul-2020	666.46	MITIGATION OF DETECTED PATTERNS IN A NETWORK DEVICE
83733017	F201001270	CN	CN201180071455.7	Granted		8-Aug-2011	8-Aug-2021	698.53	FABRIC CHIP HAVING TRUNKED LINKS
83733023	F201001270	US	US9369296	Granted		8-Aug-2011	14-Dec-2023	3,766.00	FABRIC CHIP HAVING TRUNKED LINKS
82264643	F201001462	US	US8353718	Granted		17-Dec-2010	15-Jan-2021	$4,260.00	HANDLE ASSEMBLY FOR ELECTRICAL CONNECTION WITH A GROUNDING MECHANISM
82271798	F201003557	US	US6829314	Granted		10-Aug-2000	N/A	N/A	ADAPTER FOR NEAR END CROSSTALK AND ECHO CANCELLER FOR BI-DIRECTIONAL DIGITAL COMMUNICATIONS
82271858	F201003574	US	US6882661	Granted		14-Sep-2000	N/A	N/A	SYSTEM FOR DETECTION OF ASYNCHRONOUS PACKET RATES AND MAINTENANCE OF MAXIMUM THEORETICAL PACKET RATE

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82271987	F201003620	US	US6694388	Granted		31-May-2000	N/A	N/A	DYNAMIC QUEUING SYSTEM INCORPORATING MULTIPLE QUEUES SHARING A SINGLE MEMORY
82272107	F201003667	US	US7286652	Granted		31-May-2000	N/A	N/A	FOUR CHANNEL AUDIO RECORDING IN A PACKET BASED NETWORK
82272131	F201003671	US	US6762995	Granted		14-Jun-2000	N/A	N/A	NETWORK SWITCH INCLUDING HYSTERESIS IN SIGNALLING FULLNESS OF TRANSMIT QUEUES
82272152	F201003677	US	US6807175	Granted		25-Aug-2000	N/A	N/A	DISTRIBUTED MULTICAST ROUTING IN PACKET-BASED COMMUNICATIO N NETWORK DEVICES
82272170	F201003682	US	US9112768	Granted		15-Sep-2000	18-Feb-2023	3,766.00	DISCOVERING NON MANAGED DEVICES IN A NETWORK SUCH AS A LAN USING HTTP
82272197	F201003693	US	US7512685	Granted		30-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR IMPLEMENTING WIRELESS DATA TRANSFERS BETWEEN A SELECTED GROUP OF MOBILE COMPUTING DEVICES

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82272332	F201003764	US	US7233601	Granted		14-Sep-2000	N/A	N/A	CASCADE ARCHITECTURE AND OPERATION FOR PACKET-BASED COMMUNICATIO N SYSTEMS
82272380	F201003773	US	US6928059	Granted		15-Sep-2000	N/A	N/A	EFFICIENT METHOD OF DEDUCING NETWORK TOPOLOGY INCLUDING ENDSTATIONS
82272401	F201003780	US	US6574414	Granted		8-Jan-2001	N/A	N/A	LIGHT TRANSMISSION APPARATUS AND METHOD
82272431	F201003795	US	US6856683	Granted		28-Feb-2001	N/A	N/A	METHOD FOR REDUCING NOISE FROM A NON-LINEAR DEVICE THAT SHARES A CUSTOMER LOOP WITH AN ASYMMETRIC DIGITAL SUBSCRIBER LINE MODEM
82272446	F201003802	US	US6801950	Granted		25-Sep-2000	N/A	N/A	STACKABLE NETWORK UNIT INCLUDING REGISTER FOR IDENTIFYING TRUNK CONNECTION STATUS OF STACKED UNITS
82272479	F201003814	US	US6912206	Granted		15-Sep-2000	N/A	N/A	DISCOVERY OF PHONES ON A NETWORK, SUCH AS A LAN

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82272509	F201003831	US	US6857027	Granted		14-Nov-2000	N/A	N/A	INTELLIGENT NETWORK TOPOLOGY AND CONFIGURATION VERIFICATION USING A METHOD OF LOOP DETECTION
82272587	F201003853	US	US7673034	Granted		9-Aug-2000	2-Sep-2021	7,706.00	SELF SERVICE DATA INTERFACE
82272593	F201003853	US	US7463732	Granted		9-Aug-2000	N/A	N/A	FLEXIBLE DATA OUTLET
82272701	F201003916	US	US6847635	Granted		20-Jun-2000	N/A	N/A	METHOD TO TRANSMIT SILENCE COMPRESSED VOICE OVER IP EFFICIENTLY IN DOCSIS CABLE NETWORKS
82272746	F201003933	US	US6865223	Granted		5-Feb-2001	N/A	N/A	EQUALIZER ADAPTER FOR A PULSE AMPLITUDE MODULATION RECEIVER
82272749	F201003934	US	US6996062	Granted		28-Feb-2001	N/A	N/A	POLICY-BASED WEIGHTED RANDOM EARLY DETECTION METHOD FOR AVOIDING CONGESTION IN INTERNET TRAFFIC
82272767	F201003939	US	US6694360	Granted		9-Jun-2000	N/A	N/A	MULTI-MODE NETWORK INTERFACE HAVING LOADABLE SOFTWARE IMAGES

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82272824	F201003964	US	US7062569	Granted		19-Jan-2001	N/A	N/A	CASCADE CONTROL ARCHITECTURE AND OPERATION FOR PACKET-BASED COMMUNICATIO N SYSTEMS
82272863	F201003994	US	US6829309	Granted		5-Feb-2001	N/A	N/A	PHASE DETECTOR FOR BAUD RATE-SAMPLED MULTI-STATE SIGNAL RECEIVER
82272998	F201004060	US	US7366168	Granted		3-Apr-2001	N/A	N/A	TCP CONTROL PACKET DIFFERENTIAL SERVICE
82273007	F201004067	US	US6914952	Granted		19-Jan-2001	N/A	N/A	SUPERFRAME ALIGNMENT TO A PRE-EXISTING ADSL DATA EXCHANGE
82273139	F201004136	US	US6920172	Granted		2-Jan-2001	N/A	N/A	DUAL PURPOSE SPREAD SPECTRUM RADIO RECEIVERS WITH CONTROLLED FREQUENCY REJECTION
82273160	F201004139	US	US6839360	Granted		20-Feb-2001	N/A	N/A	FIFO STORAGE INCLUDING POINTER MISALIGNMENT DETECTION
82273172	F201004141	US	US6819680	Granted		26-Mar-2001	N/A	N/A	LINK AGGREGATION CONTROL FOR NETWORK DEVICES
82273190	F201004170	US	US6973513	Granted		9-Apr-2001	N/A	N/A	METHOD FOR EFFICIENT USE OF A TRANSMIT ENGINE

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82273208	F201004177	US	US6854015	Granted		28-Feb-2001	N/A	N/A	SYSTEM FOR ISOLATING ETHERNET NETWORK TRAFFIC
82273253	F201004202	US	US6963921	Granted		16-Feb-2001	N/A	N/A	METHOD AND APPARATUS FOR HARDWARE ASSISTED TCP PACKET RE-ASSEMBLY
82273268	F201004211	US	US6963541	Granted		27-Feb-2001	N/A	N/A	UPSTREAM TRANSMISSION PROFILES FOR A DOCSIS OR DOCSIS-LIKE SYSTEM
82273295	F201004225	US	US6873701	Granted		29-Mar-2001	N/A	N/A	SYSTEM AND METHOD FOR DTMF DETECTION USING LIKELIHOOD RATIOS
82273307	F201004227	US	US6868088	Granted		26-Apr-2001	N/A	N/A	AUTOMATIC DETECTOR OF MEDIA INTERFACE PROTOCOL TYPE
82273313	F201004228	US	US7340515	Granted		10-Jul-2001	N/A	N/A	OPTIMISATION OF NETWORK CONFIGURATION
82273319	F201004229	US	US7385939	Granted		2-Jul-2001	N/A	N/A	NETWORK MANAGEMENT APPARATUS AND METHOD FOR DETERMINING THE TOPOLOGY OF A NETWORK
82273325	F201004230	US	US7673035	Granted		2-Jul-2001	2-Sep-2021	7,706.00	APPARATUS AND METHOD FOR PROCESSING DATA RELATING TO EVENTS ON A NETWORK

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82273337	F201004232	US	US7016955	Granted		2-Jul-2001	N/A	N/A	NETWORK MANAGEMENT APPARATUS AND METHOD FOR PROCESSING EVENTS ASSOCIATED WITH DEVICE REBOOT
82273376	F201004271	US	US7010588	Granted		2-Jul-2001	N/A	N/A	A SYSTEM USING A SERIES OF EVENT PROCESSORS FOR PROCESSING NETWORK EVENTS TO REDUCE NUMBER OF EVENTS TO BE DISPLAYED
82273394	F201004275	US	US7065670	Granted		31-Oct-2002	N/A	N/A	SERVER MONITORING AND FAILOVER MECHANISM
82273406	F201004278	US	US7028086	Granted		22-Aug-2001	N/A	N/A	APPARATUS, METHOD, AND COMPUTER PROGRAM FOR DETECTION OF SERVER-LIKE DEVICES ON A COMPUTER NETWORK BASED ON INGRESS TO EGRESS NETWORK TRAFFIC RATIOS
82273439	F201004307	US	US6877145	Granted		2-Aug-2001	N/A	N/A	AUTOMATIC GENERATION OF INTERCONNECT LOGIC COMPONENTS
82273496	F201004328	US	US7392518	Granted		21-Feb-2002	N/A	N/A	ROBUST REMOTE FLASH ROM UPGRADE SYSTEM AND METHOD

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82273550	F201004338	US	US6970921	Granted		27-Jul-2001	N/A	N/A	NETWORK INTERFACE SUPPORTING VIRTUAL PATHS FOR QUALITY OF SERVICE
82273604	F201004359	US	US7225236	Granted		7-Aug-2001	N/A	N/A	LOAD BALANCING BETWEEN LNSS USING VIRTUAL LNS WITH MINIMAL LAC CONFIGURATION
82273751	F201004415	US	US7340536	Granted		22-Jan-2002	N/A	N/A	METHOD AND APPARATUS FOR DETERMINING UNMANAGED NETWORK DEVICES IN THE TOPOLOGY OF A NETWORK
82273757	F201004416	US	US6915448	Granted		24-Apr-2002	N/A	N/A	STORAGE DISK FAILOVER AND REPLACEMENT SYSTEM
82273814	F201004432	US	US7042889	Granted		4-Mar-2002	N/A	N/A	NETWORK SWITCH WITH PARALLEL WORKING OF LOOK-UP ENGINE AND NETWORK PROCESSOR
82273865	F201004452	US	US7274703	Granted		16-Jul-2002	N/A	N/A	STACKABLE NETWORK UNITS WITH RESILIENCY FACILITY
82273868	F201004452	GB	GB2386524	Granted		29-Aug-2002	29-Aug-2021	896.07	STACKABLE NETWORKS UNITS WITH RESILIENCE FACILITY

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82273871	F201004453	US	US7249183	Granted		4-Jun-2002	N/A	N/A	METHOD TO ENABLE CONTINUOUS MOBILITY ACROSS WIRED AND WIRELESS NETWORK INTERFACES
82273874	F201004454	US	US7564861	Granted		22-Aug-2002	21-Jan-2021	7,706.00	SYSTEMS AND METHODS FOR COMPRESSING DATA
82273883	F201004458	US	US7283555	Granted		25-Jun-2002	N/A	N/A	METHOD AND APPARATUS FOR DETERMINING A POLLING INTERVAL IN A NETWORK MANAGEMENT SYSTEM
82273907	F201004475	US	US7564835	Granted		6-Nov-2002	21-Jan-2021	7,406.00	SYSTEM AND METHOD FOR MAXIMIZING THE USE OF BANDWIDTH OPTIMIZATION TECHNIQUES IN VOICE-OVER-PACKET CONNECTIONS
82273931	F201004480	US	US7123615	Granted		11-Mar-2002	N/A	N/A	STACKED NETWORK ROUTERS
82273988	F201004504	US	US8307063	Granted		25-Jun-2002	6-May-2024	7,706.00	METHOD AND APPARATUS FOR MANAGING DATA TRAFFIC ASSOCIATED WITH A USER ON A NETWORK
82274069	F201004528	US	US6807266	Granted		30-Aug-2002	N/A	N/A	METHOD AND APPARATUS FOR PROVISIONING A SOFT SWITCH
82274084	F201004533	US	US6839239	Granted		17-Jul-2002	N/A	N/A	ELECTRONIC DEVICE PACKAGING

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82274096	F201004537	US	US7089424	Granted		10-May-2002	N/A	N/A	PERIPHERAL DEVICE FOR PROTECTING DATA STORED ON HOST DEVICE AND METHOD AND SYSTEM USING THE SAME
82274120	F201004543	US	US7274750	Granted		27-Sep-2002	N/A	N/A	GAIN AND PHASE IMBALANCE COMPENSATION FOR OFDM SYSTEMS
82274231	F201004569	US	US7490155	Granted		13-Mar-2003	N/A	N/A	MANAGEMENT AND CONTROL FOR INTERACTIVE MEDIA SESSIONS
82274267	F201004572	US	US7420968	Granted		6-Jun-2003	N/A	N/A	HIGH-SPEED SWITCH ARCHITECTURE
82274273	F201004573	US	US7362750	Granted		17-Jun-2003	N/A	N/A	SWITCH MODULE ARCHITECTURE
82274282	F201004575	US	US7391784	Granted		30-Dec-2002	N/A	N/A	METHOD AND SYSTEM FOR COMMUNICATIN G STATE INFORMATION BETWEEN DEVICES OF A COMMUNICATIO NS NETWORK
82274294	F201004582	US	US7480723	Granted		8-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING DIRECTORY BASED SERVICES
82576918	F201006045	US	USD732547	Granted		31-Jan-2011	N/A	N/A	BEZEL WITH DOCKING RECESS
83852687	F201006045	US	USD753664	Granted		1-Apr-2014	N/A	N/A	BEZEL WITH DOCKING RECESS

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84161772	F201006045	US	USD765088	Granted		24-Feb-2015	N/A	N/A	BEZEL WITH DOCKING RECESS
82062347	F30003063	US	US6941476	Granted		10-May-2001	N/A	N/A	INFORMATION STORAGE
82062344	F30003063	GB	GB2362970	Expired		31-May-2000	N/A	N/A	IMPROVEMENTS RELATING TO INFORMATION STORAGE
82065557	F30014514	US	US7363425	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO MEDIA BASED ON MEDIUM IDENTIFICATION NUMBERS
82065560	F30014514	JP	JP4716478	Granted		19-Dec-2002	8-Apr-2021	1,069.38	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO MEDIA BASED ON MEDIUM IDENTIFICATION NUMBERS
82664940	F700205218	US	US8661279	Granted		19-Jul-2011	25-Aug-2021	3,766.00	POWER CAPPING USING C-STATES
82965470	F700207896	US	US8966313	Granted		30-Apr-2012	24-Aug-2022	3,766.00	SYSTEMS AND METHODS FOR A SHARED DEBUG PIN

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81974582	F10003624	US	US6862691	Granted		19-Sep-2001	N/A	N/A	REDUNDANT COMPONENT SYSTEM AND METHOD FOR FACILITATING ENDSYSTEM FUNCTIONALITY
81984005	F10007152	US	US6954928	Granted		8-Aug-2001	N/A	N/A	METHOD FOR SELECTING A SET OF PATCHES TO UPDATE A SYSTEM OF PROGRAMS
81986741	F10008034	US	US6708515	Granted		31-Aug-2001	N/A	N/A	PASSIVE SPRAY COOLANT PUMP
81986753	F10008038	US	US6886117	Granted		20-Nov-2001	N/A	N/A	FIELD REPAIRABLE EMBEDDED MEMORY IN SYSTEM-ON-A-CHIP
81986756	F10008039	US	US6910155	Granted		25-Jun-2001	N/A	N/A	SYSTEM AND METHOD FOR CHIP TESTING
81988508	F10010393	US	US6964035	Granted		3-Jul-2001	N/A	N/A	DEBUGGING AN OPERATING SYSTEM KERNEL WITH DEBUGGER SUPPORT IN A NETWORK INTERFACE CARD
81988553	F10010441	US	US6981104	Granted		12-Jul-2002	N/A	N/A	METHOD FOR CONDUCTING CHECKPOINTING WITHIN A WRITEBACK CACHE
81989051	F10010651	US	US6883091	Granted		30-May-2001	N/A	N/A	REDUCING BOOT TIMES VIA INTRUSION MONITORING

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83087160	F100110476	US	US9053458	Granted		7-Aug-2012	N/A	N/A	SYSTEM AND METHOD FOR PROFILING CLIENTS WITHIN A SYSTEM FOR HARVESTING COMMUNITY KNOWLEDGE
81990020	F10011053	US	US7076539	Granted		30-Jul-2001	N/A	N/A	NETWORK CONNECTIVITY ESTABLISHMENT AT USER LOG-IN
81991103	F10011520	US	US6976073	Granted		29-Nov-2001	N/A	N/A	TRANSPARENT REMOTE DATA STORAGE DEVICE AND METHOD
81991115	F10011521	US	US6907519	Granted		19-Mar-2002	N/A	N/A	SYSTEMS AND METHODS FOR INTEGRATING EMULATED AND NATIVE CODE
81993140	F10012290	US	US6874050	Granted		16-Jan-2002	N/A	N/A	CIRCUIT AND METHOD FOR EXPANDING A SERIAL BUS
81994784	F10012965	US	US7046587	Granted		23-Aug-2001	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM
81994793	F10012965	DE	DE60220350.3	Granted		22-Aug-2002	22-Aug-2020	2,108.66	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM

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81994799	F10012965	GB	GB1288937	Granted		22-Aug-2002	22-Aug-2020	826.86	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM
81995162	F10013118	US	US6901303	Granted		31-Jul-2001	N/A	N/A	METHOD AND APPARATUS FOR CONTROLLING FANS AND POWER SUPPLIES TO PROVIDE ACCELERATED RUN-IN TESTING
81996422	F10013826	US	US6889349	Granted		22-Aug-2001	N/A	N/A	DIGITAL EVENT SAMPLING CIRCUIT AND METHOD
81996431	F10013830	US	US6851064	Granted		22-Aug-2001	N/A	N/A	FINE-GRAINED THERMAL CONTROL IN MEMORY SUBSYSTEMS
82000199	F10016250	US	US6918027	Granted		30-Jul-2001	N/A	N/A	SYSTEM AND METHOD FOR IN-SYSTEM PROGRAMMING THROUGH AN ON-SYSTEM JTAG
82002023	F10017351	US	US6857047	Granted		10-Jun-2002	N/A	N/A	MEMORY COMPRESSION FOR COMPUTER SYSTEMS
82002458	F10017545	US	US7318120	Granted		24-Dec-2004	N/A	N/A	HARDWARE ASSISTED COMMUNICATIO N BETWEEN PROCESSORS
82002905	F10017839	US	US6909577	Granted		7-Jun-2002	N/A	N/A	LOW-OVERHEAD STORAGE MAGAZINE

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82002914	F10017840	US	US6883109	Granted		30-Jul-2001	N/A	N/A	METHOD FOR ACCESSING SCAN CHAINS AND UPDATING EEPROM-RESIDENT FPGA CODE THROUGH A SYSTEM MANGEMENT PROCESSOR AND JTAG BUS
82003640	F10018117	US	US7480815	Granted		10-Jun-2005	N/A	N/A	CONTROLLER COMMUNICATIONS OVER AN ALWAYS-ON CONTROLLER INTERCONNECT
82004525	F10018651	US	US7340749	Granted		3-Dec-2002	N/A	N/A	METHOD AND APPARATUS TO DETECT PRESENCE OF OR A SIZE OF A DATA CARTRIDGE
82004534	F10018651	DE	DE60307027.2	Granted		21-Nov-2003	21-Nov-2020	2,039.61	MEDIA-DETECTION SYSTEMS
82004993	F10019017	US	US6980884	Granted		16-Jul-2002	N/A	N/A	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005002	F10019017	DE	DE60332514.9	Granted		11-Jul-2003	11-Jul-2021	2,272.89	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005005	F10019017	FR	FR1383121	Granted		11-Jul-2003	11-Jul-2021	946.25	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005008	F10019017	GB	GB1383121	Granted		11-Jul-2003	11-Jul-2021	837.70	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82086674	F10019724	US	US7263192	Granted		20-Mar-2002	N/A	N/A	ESTABLISHING AN ENCRYPTED SESSION

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82006889	F10019840	US	US6909570	Granted		25-Nov-2002	N/A	N/A	HARD DISK DRIVE STORAGE SYSTEM
82006910	F10019852	US	US7256435	Granted		2-Jun-2003	N/A	N/A	MULTILEVEL IMPRINT LITHOGRAPHY
82082915	F100200135	US	US7529966	Granted		20-Aug-2004	5-Nov-2020	7,406.00	STORAGE SYSTEM WITH JOURNALING
82084247	F100200743	US	US6858162	Granted		1-Apr-2002	N/A	N/A	SINGLE MOLECULE REALIZATION OF THE SWITCH AND DOIDE COMBINATION
82085375	F100201208	US	US7219230	Granted		8-May-2002	N/A	N/A	OPTIMIZING COSTS ASSOCIATED WITH MANAGING ENCRYPTED DATA
82085789	F100201450	GB	GB2391582	Granted		10-Jun-2003	10-Jun-2021	837.70	FAN-SECURING DEVICE FOR USE WITH A HEAT TRANSFER DEVICE
82085792	F100201450	US	US6879487	Granted		30-Sep-2003	N/A	N/A	FAN-SECURING DEVICE FOR USE WITH A HEAT TRANSFER DEVICE
82087094	F100201843	US	US6976119	Granted		14-Jun-2002	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING A LOCATION OF A DATA INTERFACE
82087100	F100201843	GB	GB2393291	Granted		4-Jun-2003	4-Jun-2021	837.70	METHOD AND SYSTEM FOR PROVIDING A LOCATION OF A DATA INTERFACE
82087247	F100201886	US	US6907314	Granted		16-Sep-2003	N/A	N/A	INVENTORY CONTROL DEVICE

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82088090	F100202247	US	US7334978	Granted		23-Jun-2003	N/A	N/A	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82088099	F100202247	DE	DE60326440.9	Granted		29-Dec-2003	29-Dec-2021	2,272.89	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82088105	F100202247	GB	GB1492104	Granted		29-Dec-2003	29-Dec-2020	753.48	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82090061	F100203351	US	US7886430	Granted		13-Dec-2002	15-Aug-2022	7,406.00	METHOD OF INSTALLING CIRCUIT BOARD COMPONENT
82090346	F100203591	US	US7188171	Granted		23-Jan-2003	N/A	N/A	METHOD AND APPARATUS FOR SOFTWARE AND HARDWARE EVENT MONITORING AND REPAIR
82091372	F100204291	US	US6896541	Granted		18-Feb-2003	N/A	N/A	INTERFACE CONNECTOR THAT ENABLES DETECTION OF CABLE CONNECTION
82091852	F100204836	US	US6895460	Granted		19-Jul-2002	N/A	N/A	SYNCHRONIZATION OF ASYNCHRONOUS EMULATED INTERRUPTS
82578862	F109	US	US7502903	Granted		7-Nov-2005	N/A	N/A	METHOD AND APPARATUS FOR MANAGING DATA STORAGE SYSTEMS

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82578875	F109	US	US7444489	Granted		7-Nov-2005	N/A	N/A	APPLICATIONS FOR NON-DISRUPTIVELY MOVING DATA BETWEEN LOGICAL DISK REGIONS IN A DATA STORAGE SYSTEM
82031588	F10971442	US	US7062702	Granted		14-Mar-2001	N/A	N/A	EFFICIENT PARITY OPERATIONS
82578819	F12535	US	US7093278	Granted		8-May-2002	N/A	N/A	REMOTE CONSOLE FOR MONITOR AND CONTROL OF SYSTEM FIRMWARE
82578822	F12537	US	US7111157	Granted		8-May-2002	N/A	N/A	SPURIOUS INPUT DETECTION FOR FIRMWARE
82578829	F12540	US	US7124324	Granted		22-Aug-2002	N/A	N/A	METHOD OF TESTING FIBRE CHANNEL PORTS IN A STORAGE SERVER AT FULL BANDWIDTH WITHOUT CONNECTION TO EXTERNAL DEVICES
82093328	F200205608	US	US7469370	Granted		23-Dec-2002	N/A	N/A	ENABLING MULTIPLE TESTING DEVICES
82094180	F200206068	US	US6880146	Granted		31-Jan-2003	N/A	N/A	MOLECULAR-WIRE-BASED RESTORATIVE MULTIPLEXER, AND METHOD FOR CONSTRUCTING A MULTIPLEXER BASED ON A CONFIGURABLE, MOLECULAR-JUNCTION-NANOWIRE CROSSBAR

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82094192	F200206075	US	US6898098	Granted		31-Jan-2003	N/A	N/A	MOLECULAR-JUNCTION-NANOWIRE-CROSSBAR-BASED ASSOCIATIVE ARRAY
82094783	F200206363	US	US6856926	Granted		3-Mar-2003	N/A	N/A	FREQUENCY MARGIN TESTING OF BLADED SERVERS
82095791	F200206843	US	US6820146	Granted		1-Oct-2002	N/A	N/A	FILTER DRIVER FOR BLOCKING ACCESS BY HOST TO DEVICES
82097240	F200207344	US	US7493450	Granted		14-Apr-2003	N/A	N/A	METHOD OF TRIGGERING READ CACHE PRE-FETCH TO INCREASE HOST READ THROUGHPUT
82097885	F200207703	US	US7228345	Granted		15-Oct-2002	N/A	N/A	SERVER WITH LAN SWITCH THAT CONNECTS PORTS BASED ON BOOT PROGRESS INFORMATION
82098389	F200207865	US	US7100273	Granted		3-Mar-2003	N/A	N/A	INTERCONNECT VALIDATION INSTRUMENTS
82099109	F200208131	US	US7873723	Granted		30-Jan-2003	18-Jul-2022	7,706.00	DEVICE DATA
82220018	F200208131	US	US7686229	Granted		27-Mar-2006	30-Sep-2021	7,706.00	RFID READER DEVICE HAVING CLOSELY PACKED ANTENNAS
82220252	F200208131	US	US7806333	Granted		18-Oct-2006	5-Apr-2022	7,706.00	TRACKING RFID TAGS WITH OVERLAPPING ANTENNAS

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82099112	F200208132	US	US6796506	Granted		10-Mar-2003	N/A	N/A	TRACKING ELECTRONIC DEVICES
82099676	F200208397	US	US7546475	Granted		13-May-2003	N/A	N/A	POWER-AWARE ADAPTATION IN A DATA CENTER
82099691	F200208401	US	US7045996	Granted		30-Jan-2003	N/A	N/A	POSITION DETERMINATION BASED ON PHASE DIFFERENCE
82103501	F200209613	US	US7590909	Granted		24-Aug-2005	15-Mar-2021	7,406.00	IN-CIRCUIT TESTING SYSTEM AND METHOD
82103666	F200209639	US	US7145775	Granted		30-Jul-2004	N/A	N/A	CHASSIS CONDUCTED COOLING THERMAL DISSIPATION APPARATUS FOR SERVERS
82103681	F200209643	US	US8621304	Granted		7-Oct-2004	30-Jun-2021	3,606.00	BUILT-IN- SELF-TEST SYSTEM AND METHOD FOR AN INTEGRATED CIRCUIT
82105283	F200300040	US	US6868899	Granted		25-Aug-2003	N/A	N/A	VARIABLE HEIGHT THERMAL INTERFACE
82105697	F200300182	US	US6982570	Granted		30-Oct-2003	N/A	N/A	RECONFIGURAB LE DEVICE
82117616	F200301772	US	US6874103	Granted		13-Nov-2001	N/A	N/A	ADAPTER-BASED RECOVERY SERVER OPTION
82118564	F200302016	US	US7284067	Granted		20-Feb-2002	N/A	N/A	METHOD FOR INTEGRATED LOAD BALANCING AMONG PEER SERVERS

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82119695	F200302139	US	US8370468	Granted		8-Nov-2006	5-Aug-2024	7,706.00	METHOD AND APPARATUS FOR CREATING A SECURE EMBEDDED I/O PROCESSOR FOR A REMOTE SERVER MANAGEMENT CONTROLLER
82119701	F200302141	US	US7047462	Granted		4-Jan-2002	N/A	N/A	METHOD AND APPARATUS FOR PROVIDING JTAG FUNCTIONALITY IN A REMOTE SERVER MANAGEMENT CONTROLLER
82119902	F200302189	US	US6912599	Granted		19-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR SENSING POSITIONS OF DEVICE ENCLOSURES WITHIN MULTI-SHELF CABINETS
82119950	F200302202	US	US6889345	Granted		19-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR LOCATING A FAILED STORAGE DEVICE IN A DATA STORAGE SYSTEM
82120214	F200302270	US	US6870436	Granted		11-Mar-2002	N/A	N/A	METHOD AND APPARATUS TO ATTENUATE POWER PLANE NOISE ON A PRINTED CIRCUIT BOARD USING HIGH ESR CAPACITORS
82120691	F200302389	US	US7028177	Granted		31-Jan-2002	N/A	N/A	ARRAY CONTROLLER ROM CLONING IN REDUNDANT CONTROLLERS

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82120694	F200302390	US	US7093043	Granted		27-Dec-2001	N/A	N/A	DATA ARRAY HAVING REDUNDANCY MESSAGING BETWEEN ARRAY CONTROLLERS OVER THE HOST BUS
82121663	F200302525	US	US6901458	Granted		11-Jul-2002	N/A	N/A	MULTI-MODE SCSI BACKPLANE AND DETECTION LOGIC
82168088	F200308692	US	US6922496	Granted		31-Jan-2003	N/A	N/A	INTEGRATED VCSELS ON ASIC MODULE USING FLEXIBLE ELECTRICAL CONNECTIONS
82168127	F200308692	US	US6975514	Granted		31-Jan-2003	N/A	N/A	INTEGRATED VCSELS ON TRADITIONAL VLSI PACKAGING
82168292	F200308761	US	US7028106	Granted		5-Dec-2003	N/A	N/A	REMAPPING ROUTING INFORMATION ENTRIES IN AN EXPANDER
82171157	F200309939	US	US8023828	Granted		17-Oct-2005	20-Mar-2023	7,706.00	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS
82171166	F200309939	JP	JP5437634	Granted		21-Jul-2006	20-Dec-2020	467.95	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS

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82171169	F200309939	CN	CN200680038674.4	Granted		21-Jul-2006	21-Jul-2020	959.27	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS
82174472	F200311229	US	US7930539	Granted		3-Aug-2004	19-Oct-2022	7,706.00	COMPUTER SYSTEM RESOURCE ACCESS CONTROL
82179221	F200313243	US	US8028174	Granted		4-May-2005	27-Mar-2023	7,706.00	CONTROLLING UPATE OF CONTENT OF A PROGRAMMABLE READ-ONLY MEMORY
82179365	F200313243	US	US7296146	Granted		12-Jan-2004	N/A	N/A	SECURITY MEASURES IN A PARTITIONABLE COMPUTING SYSTEM
82179857	F200313535	US	US7484065	Granted		20-Apr-2004	N/A	N/A	SELECTIVE MEMORY ALLOCATION
82203497	F200313719	US	US7307732	Granted		31-May-2005	N/A	N/A	PHOTONIC CRYSTAL INTERFEROMETER
82180394	F200313719	US	US7492979	Granted		27-Sep-2004	17-Aug-2020	7,406.00	PHOTONIC CRYSTAL LASER SENSORS AND METHODS
82187561	F200400222	US	US7519973	Granted		29-Sep-2004	N/A	N/A	PROVIDING UNIQUE EVENT NOTIFICATION TO ENABLE FIRMWARE TO REQUEST THAT AN OPERATING SYSTEM PERFORM A UNIQUE ACTION

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82187903	F200400362	US	US7386537	Granted		23-Jul-2004	N/A	N/A	METHOD AND SYSTEM FOR DETERMINING SIZE OF A DATA CENTER
82188296	F200400516	US	US7610526	Granted		24-Jan-2005	27-Apr-2021	7,706.00	ON-CHIP CIRCUITRY FOR BUS VALIDATION
82189034	F200400854	US	US7607123	Granted		21-Sep-2004	20-Apr-2021	7,706.00	SYSTEMS AND METHODS FOR VALIDATING DEBUG INFORMATION FOR OPTIMIZED CODE
82192358	F200402482	US	US8375114	Granted		9-Apr-2004	12-Aug-2024	7,706.00	DEVICE LOADING IN STORAGE NETWORKS
82192430	F200402517	US	US7633928	Granted		27-Mar-2006	15-Jun-2021	7,706.00	COMMUNICATIO N DATA METHOD AND SYSTEM FOR VOICE APPLICATIONS EXCECUTABLE BY USER EQUIPMENT.
82193402	F200402838	US	US8694423	Granted		21-May-2004	8-Oct-2021	3,606.00	SYSTEMS AND METHODS FOR BROKERING DATA IN A TRANSACTIONA L GATEWAY
82193606	F200402914	US	US7447889	Granted		20-Apr-2005	N/A	N/A	METHOD AND APPARATUS FOR CONFIGURING A COMPUTER SYSTEM UTILIZING A READ ONLY MEMORY STORING AN OPTION FILE CONTAINING SELECTABLE CONFIGURATION OPTIONS AND A SCRIPT FILE

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82194782	F200403286	US	US8059539	Granted		29-Dec-2004	15-May-2023	7,706.00	LINK THROUGHPUT ENHANCER
82198589	F200405003	US	US7555644	Granted		21-Jul-2006	30-Dec-2020	7,406.00	SYSTEM AND METHOD FOR OPERATING SYSTEM IMAGE PROVISIONING IN A UTILITY COMPUTING ENVIRONMENT
82199369	F200405354	US	US7581242	Granted		30-Apr-2005	25-Feb-2021	7,706.00	AUTHENTICATING PRODUCTS
82201619	F200406527	US	US8782186	Granted		31-Jul-2006	15-Jan-2022	3,766.00	SYSTEMS AND METHODS FOR ADDRESSING MANAGED ELEMENTS
82204112	F200407681	US	US8392546	Granted		28-Oct-2005	5-Sep-2024	7,706.00	DISTRIBUTED MANAGED SYSTEM, SYSTEM COMPONENTS, AND METHODS OF COMMUNICATING COMMANDS
82204703	F200407943	US	US7831768	Granted		30-Oct-2007	9-May-2022	7,706.00	METHOD AND APPARATUS FOR WRITING DATA TO A DISK ARRAY
82205429	F200408352	US	US7825512	Granted		12-Sep-2005	2-May-2022	7,706.00	ELECTRONIC PACKAGE WITH COMPLIANT ELECTRICALLY-CONDUCTIVE BALL INTERCONNECT
82208054	F200501046	US	US7926042	Granted		31-Oct-2005	12-Oct-2022	7,406.00	SYSTEM AND METHOD FOR DYNAMIC INSTRUMENTATION
82209239	F200501635	GB	GB2426841	Granted		4-Jun-2005	4-Jun-2021	691.79	MEMORY CONTROLLER

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82209242	F200501635	US	US7461216	Granted		23-Feb-2006	N/A	N/A	MEMORY CONTROLLER
82213925	F200504155	US	US9032127	Granted		14-Sep-2006	12-Nov-2022	3,606.00	METHOD OF BALANCING I/O DEVICE INTERRUPT SERVICE LOADING IN A COMPUTER SYSTEM
82215089	F200504853	US	US8369212	Granted		29-Aug-2006	5-Aug-2020	3,606.00	NETWORK PATH VALIDATION BASED ON USER-SPECIFIED CRITERIA
82217183	F200505971	US	US7984242	Granted		1-Jun-2009	19-Jan-2023	7,706.00	PROGRAM THREAD SYNCHRONIZATION
82218749	F200505971	US	US7587555	Granted		10-Nov-2005	8-Mar-2021	7,706.00	PROGRAM THREAD SYNCHRONIZATION
82221359	F200600469	US	US7600111	Granted		20-Sep-2006	6-Apr-2021	7,706.00	METHOD OF RESTARTING A COMPUTER PLATFORM
82222361	F200600469	US	US7962734	Granted		15-Mar-2007	14-Dec-2022	7,706.00	METHOD OF RESTARTING A COMPUTER PLATFORM
82222121	F200600653	US	US7933993	Granted		24-Apr-2006	26-Oct-2022	7,406.00	RELOCATABLE VIRTUAL PORT FOR ACCESSING EXTERNAL STORAGE
82226867	F200602849	US	US7877645	Granted		30-Jul-2007	25-Jul-2022	7,406.00	USE OF OPERATIONAL CONFIGURATION PARAMETERS TO PREDICT SYSTEM FAILURES
82230503	F200700250	US	US8929741	Granted		30-Jul-2007	6-Jul-2022	3,766.00	OPTICAL INTERCONNECT

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82232561	F200700952	US	US8255513	Granted		14-Dec-2001	28-Feb-2024	7,706.00	A TOPOLOGY INFORMATION SYSTEM FOR A MANAGED WORLD
82233401	F200701159	US	US7984150	Granted		31-Jul-2007	19-Jan-2023	7,706.00	CELL COMPATIBILTY IN MULTIPROCESSOR SYSTEMS
82233404	F200701159	CN	CN200810129477.4	Granted		31-Jul-2008	31-Jul-2021	1,032.98	CELL COMPATIBILTY IN MULTIPROCESSOR SYSTEMS
82235156	F200701620	US	US8357980	Granted		15-Oct-2007	22-Jul-2020	3,606.00	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235162	F200701620	CN	CN200880112331.7	Granted		15-Oct-2008	15-Oct-2021	1,032.98	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235165	F200701620	DE	DE112008002737	Granted		15-Oct-2008	15-Oct-2021	1,178.09	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235168	F200701620	JP	JP5222950	Granted		15-Oct-2008	15-Mar-2021	397.69	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES

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82235171	F200701620	KR	KR10-1517423	Granted		15-Oct-2008	28-Apr-2021	451.15	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235777	F200701831	US	US8053748	Granted		20-Oct-2008	8-May-2023	7,706.00	INTEGRATED CIRCUITS WITH PHASE CHANGE DEVICES
82854022	F200701831	US	US8212230	Granted		25-Sep-2011	3-Jan-2024	7,706.00	INTEGRATED CIRCUITS WITH PHASE CHANGE DEVICES
82236662	F200702022	US	US8254996	Granted		21-Aug-2008	28-Feb-2024	7,706.00	SYSTEMS AND METHODS FOR MANAGING ACCESS CHANNELS
82240685	F200703283	US	US9389649	Granted		25-Mar-2008	12-Jan-2024	3,766.00	LOCKING MECHANISM WITH MOVABLE AND FIXED MEMBERS EACH HAVING SINGLE AND DOUBLE LOCKING FEATURES
82241528	F200703619	US	US8373061	Granted		28-Oct-2008	12-Aug-2020	3,606.00	PHOTOVOLTAIC CELLS WITH STACKED LIGHT-ABSORPTION LAYERS AND METHODS OF FABRICATING THE SAME
82573265	F200704722	CN	CN200880130176.1	Granted		2-Jul-2008	2-Jul-2020	1,081.10	VERIFICATION OF REMOTE COPIES OF DATA
82756289	F200801174	US	US8368118	Granted		16-Dec-2008	5-Aug-2020	3,606.00	SEMICONDUCTOR STRUCTURE HAVING AN ELOG ON A THERMALLY AND ELECTRICALLY CONDUCTIVE MASK

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82853054	F200802102	CN	CN200980158980.5	Granted		27-Apr-2009	27-Apr-2021	1,032.98	ENERGY-EFFICIENT STANDBY MODE IN A SWITCHING POWER SUPPLY
82853058	F200802102	US	US9401635	Granted		27-Apr-2009	26-Jan-2024	3,766.00	SWITCHING POWER SUPPLY FOR A LOAD IN STANDBY MODE
82852232	F200802394	US	US8664605	Granted		28-Apr-2009	4-Sep-2021	3,766.00	COVERT LABEL STRUCTURE
82249742	F200803068	US	US8370688	Granted		22-Apr-2010	5-Aug-2020	3,606.00	IDENTIFYING A STORAGE DEVICE AS FAULTY FOR A FIRST STORAGE VOLUME WITHOUT IDENTIFYING THE STORAGE DEVICE AS FAULTY FOR A SECOND STORAGE VOLUME
82249793	F200803147	US	US8370571	Granted		8-Apr-2009	5-Aug-2020	3,606.00	TRANSFER CONTROL OF A STORAGE VOLUME BETWEEN STORAGE CONTROLLERS IN A CLUSTER
82854071	F200803277	US	US9494419	Granted		31-Jul-2009	15-May-2024	3,766.00	BEAM DIRECTION SENSOR
82925991	F200803277	CN	CN200980160709.5	Granted		31-Jul-2009	31-Jul-2021	1,032.98	BEAM DIRECTION SENSOR
82250642	F200803771	US	US9311319	Granted		27-Aug-2009	12-Oct-2023	3,766.00	METHOD AND SYSTEM FOR ADMINISTRATION OF STORAGE OBJECTS
82250732	F200900008	US	US7939967	Granted		25-Jun-2009	10-Nov-2022	7,706.00	MULTIPLE POWER SUPPLY CONTROL

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82257317	F200901894	US	US8930010	Granted		5-Feb-2007	6-Jul-2022	3,606.00	INTELLIGENT ASSEMBLY SYSTEM AND METHOD OF USE
82853115	F200902751	US	US8634321	Granted		18-Dec-2009	21-Jul-2021	3,606.00	PROXY AGENTS IN A NETWORK
82635896	F200903834	TW	TW477810	Granted		31-Jan-2011	20-Mar-2021	359.56	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
82853254	F200903834	US	US8952403	Granted		29-Jan-2010	10-Aug-2022	3,766.00	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
84121874	F200903834	US	US10061139	Granted		14-Jan-2015	28-Feb-2022	2,006.00	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
82654418	F200904389	TW	TWI440907	Granted		1-Mar-2011	10-Jun-2021	359.56	TELECENTRIC OPTICAL ASSEMBLY
83119816	F200904389	US	US8947796	Granted		7-May-2010	3-Aug-2022	3,766.00	TELECENTRIC OPTICAL ASSEMBLY
83164626	F200904841	US	US9158647	Granted		20-Jul-2010	13-Apr-2023	3,766.00	FORMATTING SYSTEM MONITORING INFORMATION
83235817	F201001046	JP	JP5777722	Granted		29-Oct-2010	17-Jul-2021	476.28	SMALL-MODE-VOLUME, VERTICAL-CAVITY, SURFACE-EMITTING LASER
83235820	F201001046	US	US9991676	Granted		29-Oct-2010	5-Dec-2021	2,006.00	SMALL-MODE-VOLUME, VERTICAL-CAVITY, SURFACE-EMITTING LASER

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82265270	F201001847	US	US8726261	Granted		6-Apr-2011	13-Nov-2021	3,766.00	ZERO DOWNTIME HARD DISK FIRMWARE UPDATE
83546345	F201001922	KR	KR101603135	Granted		10-Feb-2011	8-Mar-2021	342.80	GRATING-BASED POLARIZERS AND OPTICAL ISOLATORS
82271360	F201003405	US	US6665543	Granted		4-Oct-2000	N/A	N/A	ANTENNA EXTRACTION ON REMOVAL OF STYLUS FOR HANDHELD DEVICE
82272962	F201004041	US	US7002932	Granted		12-Jan-2001	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING NETWORK CONNECTIVITY AND MOBILITY WHILE ROAMING
82273352	F201004237	US	US7137047	Granted		5-Apr-2004	N/A	N/A	METHOD AND APPARATUS FOR SELECTION OF ARQ PARAMETERS AND ESTIMATION OF IMPROVED COMMUNICATIONS
82273664	F201004389	US	US8346938	Granted		25-Sep-2002	1-Jul-2024	7,706.00	EFFICIENT ESTABLISHMENT OF WIRELESS CONNECTIONS
82273793	F201004428	US	US7424532	Granted		15-Feb-2002	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATIC NETWORK RESOURCE SELECTION AND CONFIGURATION IN A NETWORK ENVIRONMENT

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82274156	F201004550	US	US9479464	Granted		14-Apr-2009	25-Apr-2024	3,766.00	COMPUTER SYSTEM AND NETWORK INTERFACE WITH HARDWARE BASED PACKET FILTERING AND CLASSIFICATION
82274387	F201004599	US	US7702903	Granted		8-Aug-2005	20-Oct-2021	7,706.00	LICENSE RE-ALLOCATION SYSTEM AND METHOD
82274405	F201004603	GB	GB2411540	Granted		25-Feb-2004	25-Feb-2021	764.74	CASCADE CONTROL SYSTEM FOR NETWORK UNITS
82274408	F201004603	US	US7660323	Granted		28-Jun-2004	9-Aug-2021	7,706.00	CASCADE CONTROL SYSTEM FOR NETWORK UNITS
82274432	F201004608	US	US8327026	Granted		1-Jul-2004	4-Jun-2024	7,706.00	METHOD AND SYSTEM FOR SELECTING A DATA COMPRESSION TECHNIQUE FOR DATA TRANSFER THROUGH A DATA NETWORK
82274459	F201004619	US	US7480260	Granted		13-May-2004	N/A	N/A	METHOD AND APPARATUS FOR IMPLEMENTING A PRESENCE-BASED UNIVERSAL CAMP-ON FEATURE IN PACKET-BASED TELEPHONY SYSTEMS
82274465	F201004621	GB	GB2414623	Granted		27-May-2004	27-May-2021	764.74	DISTRIBUTED BRIDGING WITH SYNCHRONIZATION OF FORWARDING DATABASES

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82274468	F201004621	US	US7483999	Granted		9-Jul-2004	N/A	N/A	DISTRIBUTED BRIDGING WITH SYNCHRONIZATION FORWARDING DATABASES
82274471	F201004622	US	US7555751	Granted		11-Aug-2004	N/A	N/A	METHOD AND SYSTEM FOR PERFORMING A LIVE SYSTEM UPGRADE
82274480	F201004624	US	US8792475	Granted		11-Mar-2005	29-Jan-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING PASS THROUGH WEB CONFIGURATION ON AN INTERNET PROTOCOL (IP) TELEPHONE
82274483	F201004625	US	US9036618	Granted		11-Mar-2005	19-Nov-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING VOICE ASSISTED CONFIGURATION ON AN INTERNET PROTOCOL (IP) TELEPHONE
82274519	F201004633	US	US7480299	Granted		22-Feb-2005	N/A	N/A	RULES ENGINE FOR ACCESS CONTROL LISTS IN NETWORK UNITS
82274522	F201004635	GB	GB2420468	Granted		17-Nov-2004	17-Nov-2020	681.61	PACKET METERING IN HIGH-SPEED NETWORK UNITS
82274525	F201004635	US	US7349335	Granted		11-Jan-2005	N/A	N/A	PACKET METERING IN HIGH-SPEED NETWORK UNITS
82274528	F201004636	US	US8767974	Granted		15-Jun-2005	1-Jan-2022	3,606.00	SYSTEM AND METHOD FOR GENERATING COMFORT NOISE

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82274531	F201004637	US	US7526081	Granted		5-Oct-2004	N/A	N/A	TELEPHONE RECORDING AND STORING ARBITRARY KEYSTROKES SEQUENCE WITH REPLAY WITH A SINGLE STROKE
82274534	F201004637	US	US8218533	Granted		13-Mar-2009	10-Jan-2024	7,706.00	TELEPHONE RECORDING AND STORING ARBITRARY KEYSTROKES SEQUENCE WITH REPLAY WITH A SINGLE STROKE
82274555	F201004642	US	US7480300	Granted		22-Feb-2005	N/A	N/A	CONTENT ADDRESSABLE MEMORY ORGANIZED TO SHARE ENTRIES BETWEEN DIFFERENT ENTITIES SUCH AS PORTS OF A NETWORK UNIT
82274777	F201004678	US	US7711744	Granted		18-Jan-2006	4-Nov-2021	7,406.00	SIMPLE AND FAST DIRECTORY SEARCH WITH REDUCED KEYSTROKES AND REDUCED SERVER CALLS
82274798	F201004688	US	US7532474	Granted		21-Feb-2006	12-Nov-2020	7,406.00	APPARATUS FOR DISSIPATING HEAT FROM ELECTRONIC COMPONENTS IN AN ENCLOSED HOUSING
82062101	F30003028	US	US6925288	Granted		29-Mar-2001	N/A	N/A	GATHERING INFORMATION FROM SHORT-RANGE WIRELESS PORTALS
82065014	F30012087	US	US6873270	Granted		30-Oct-2002	N/A	N/A	DATA STORAGE AND ANALYSIS

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82070618	F50004606	US	US6920492	Granted		18-Jun-2001	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070621	F50004606	DE	DE60039975.3	Expired		19-Jun-2000	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070627	F50004606	GB	GB1168711	Expired		19-Jun-2000	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070990	F50011154	US	US7062672	Granted		7-Jun-2002	N/A	N/A	METHOD OF AND COMPUTER NETWORK ARRANGEMENT FOR RESTORING AN IMPAIRED SOFTWARE IMAGE
82801074	F700205328	US	US8862577	Granted		15-Aug-2011	14-Apr-2022	3,766.00	VISUALIZING SENTIMENT RESULTS WITH VISUAL INDICATORS REPRESENTING USER SENTIMENT AND LEVEL OF UNCERTAINTY
82689078	F700205361	US	US8539113	Granted		16-Jun-2011	17-Mar-2021	3,766.00	INDICATORS FOR STREAMS ASSOCIATED WITH MESSAGES
83791163	F700205461	KR	KR101602811	Granted		29-Jul-2011	7-Mar-2021	383.94	OPTICAL POWER SPLITTERS
83791132	F700205462	KR	KR10-1563608	Granted		29-Jul-2011	21-Oct-2021	463.28	FIBER OPTICS CONNECTORS

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83791138	F700205462	US	US9052475	Granted		29-Jul-2011	9-Dec-2022	3,766.00	FIBER OPTICS CONNECTORS
82654416	F700205946	US	US8549219	Granted		7-Dec-2010	1-Apr-2021	3,766.00	PREVENTING HARD DRIVE FAILURE AND DATA LOSS DUE TO VIBRATION
82755131	F700206210	US	US8924667	Granted		3-Oct-2011	30-Jun-2022	3,766.00	BACKUP STORAGE MANAGEMENT
83698837	F700206222	CN	CN201180070805.8	Granted		18-Jul-2011	18-Jul-2020	666.46	OPTICAL INTERCONNECT
83698845	F700206222	US	US9170377	Granted		18-Jul-2011	27-Apr-2023	3,766.00	OPTICAL INTERCONNECT
82753547	F700206817	US	US9218527	Granted		29-Sep-2011	22-Jun-2023	3,766.00	ANOMALY DETECTION IN STREAMING DATA
82859781	F700206858	US	US9413358	Granted		29-Apr-2012	9-Feb-2024	3,766.00	FORWARD COUNTER BLOCK
84049818	F700207121	US	US9164250	Granted		14-Mar-2012	20-Apr-2023	3,766.00	REPLACEABLE MODULAR OPTICAL CONNECTION ASSEMBLY
82871690	F700207287	US	US8811210	Granted		13-Feb-2012	19-Feb-2022	3,766.00	EFFECTIVE APPLICATION DENSITIES FOR FABRICS
83930310	F700207642	US	US9341780	Granted		9-Dec-2011	17-Nov-2023	3,766.00	OPTICAL CONNECTIONS
82978201	F700207679	US	US8883616	Granted		31-Jul-2012	11-May-2022	3,766.00	GERMANIUM ON INSULATOR APPARATUS
82850245	F700207691	US	US8711693	Granted		21-Feb-2012	29-Oct-2021	3,766.00	GATEWAY CHANNEL UTILIZATION

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83996161	F700208065	US	US9372522	Granted		20-Apr-2012	21-Dec-2023	3,766.00	OVERVOLTAGE PROTECTION SYSTEMS AND METHOD
83991414	F700208157	US	US9413623	Reviving		26-Apr-2012	9-Feb-2024	3,606.00	MULTICAST ROUTING PATH CHECK
83992351	F700208617	US	US9161105	Granted		11-Apr-2012	13-Apr-2023	3,766.00	ROUTING OPTICAL SIGNALS
83150130	F700209140	US	US9246774	Granted		21-Feb-2013	26-Jul-2023	3,766.00	SAMPLE BASED DETERMINATION OF NETWORK POLICY VIOLATIONS
84076180	F700209670	US	US9520946	Granted		26-Jul-2012	13-Jun-2024	3,766.00	OPTICAL ENGINE
83992436	F700209695	US	US9176279	Granted		25-Apr-2012	3-May-2023	3,766.00	ANALYZING LIGHT BY MODE INTERFERENCE
83206779	F700212807	US	US9058295	Granted		25-Apr-2013	16-Dec-2022	3,766.00	ENCRYPT DATA OF STORAGE DEVICE
90142920	F700214270	US	US9715431	Granted		15-Jul-2013	25-Jan-2021	2,006.00	REBUILDING DRIVE DATA
83777585	F700215692	US	US9329965	Granted		31-Jan-2014	3-Nov-2023	3,766.00	EXTRACTING LOG FILES FROM STORAGE DEVICES
84293496	FARBA0002	CN	CN200780041079.0	Granted		3-Jul-2007	3-Jul-2021	1,032.98	A METHOD AND SYSTEM FOR DYNAMIC METRIC AND WIRELESS HELLO PROTOCOL
84268251	FARBA0042	US	US8351546	Granted		17-Dec-2008	8-Jul-2024	7,706.00	SENSING DEVICE ORIENTATION IN WIRELESS NETWORKS

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84268551	FARBA0118	US	US7983163	Granted		23-Dec-2008	19-Jan-2023	7,706.00	SYSTEM AND METHOD FOR IMPLEMENTING ADAPTIVE LOAD SHARING TO BALANCE NETWORK TRAFFIC

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81966353	F10001098	US	US6857086	Expired		21-Apr-2003	N/A	N/A	HIERARCHY OF FAULT ISOLATION TIMERS
81969824	F10002142	US	US7124180	Expired		27-Apr-2000	N/A	N/A	INTERNET USAGE DATA RECORDING SYSTEM AND METHOD EMPLOYING A CONFIGURABLE RULE ENGINE FOR THE PROCESSING AND CORRELATION OF NETWORK DATA
81971150	F10002493	US	US6813275	Expired		21-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR PREVENTING UNDERFLOW AND OVERFLOW ACROSS AN ASYNCHRONOUS CHANNEL
81971252	F10002509	US	US6912679	Expired		29-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR ELECTRICAL DATA LINK TESTING
81971258	F10002511	US	US6647469	Expired		1-May-2000	N/A	N/A	USING READ CURRENT TRANSACTIONS FOR IMPROVED PERFORMANCE IN DIRECTORY-BASED COHERENT I/O SYSTEMS
81971459	F10002566	US	US6928525	Expired		28-Apr-2000	N/A	N/A	PER CACHE LINE SEMAPHORE FOR CACHE ACCESS ARBITRATION
81972005	F10002818	US	US6671792	Expired		28-Apr-2000	N/A	N/A	SHARE MASKS AND ALIAS FOR DIRECTORY COHERENCY

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81972032	F10002825	US	US6651124	Expired		28-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR PREVENTING DEADLOCK IN A DISTRIBUTED SHARED MEMORY SYSTEM
81972035	F10002825	US	US6865634	Expired		16-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR DEADLOCK PREVENTION IN A DISTRIBUTED SHARED MEMORY SYSTEM
81972050	F10002834	US	US6647517	Expired		27-Apr-2000	N/A	N/A	APPARATUS AND METHOD FOR PROVIDING ERROR ORDERING INFORMATION AND ERROR LOGGING INFORMATION
81972209	F10002924	US	US6799287	Expired		1-May-2000	N/A	N/A	METHOD AND APPARATUS FOR VERIFYING ERROR CORRECTING CODES
81977594	F10004587	US	US7032086	Granted		28-Feb-2003	N/A	N/A	SYSTEM AND METHOD FOR ADJUSTING STORAGE DEVICE LAYOUT WITH AT LEAST ONE STATUS FOR THE ADJUSTING
81986432	F10007913	US	US7424461	Granted		28-Jun-2001	N/A	N/A	MULTI-MODULE GENETIC PROGRAMMING WITH MULTIPLE GENETIC DATA REPRESENTATIO NS
82082450	F100111713	US	US7224891	Granted		13-Feb-2002	N/A	N/A	DIGITAL PHOTOGRAPH PRESENTATION USING DVD PLAYERS

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81994958	F10013045	US	US7774611	Granted		6-May-2002	10-Feb-2022	7,706.00	ENFORCING FILE AUTHORIZATION ACCESS
81996038	F10013647	US	US7502839	Granted		28-Sep-2001	10-Sep-2020	7,406.00	MODULE-BUILDING METHOD FOR DESIGNING INTERCONNECT FABRICS
81996071	F10013661	US	US8032828	Granted		4-Mar-2002	4-Apr-2023	7,706.00	METHOD AND SYSTEM OF DOCUMENT TRANSFORMATION BETWEEN A SOURCE EXTENSIBLE MARKUP LANGUAGE (XML) SCHEMA AND A TARGET XML SCHEMA
81999323	F10015521	US	US8051176	Granted		7-Nov-2002	1-May-2023	7,706.00	METHOD AND SYSTEM FOR PREDICTING CONNECTIONS IN A COMPUTER NETWORK
82085489	F100201273	US	US8798964	Granted		6-Nov-2002	5-Feb-2022	3,766.00	METHODS AND APPARATUS FOR DESIGNING THE RANKING AND WIRING CONFIGURATIONS FOR PIECES OF HARDWARE
82095059	F100201387	US	US8799501	Granted		27-Jun-2002	5-Feb-2022	3,766.00	SYSTEM AND METHOD FOR ANONYMOUSLY SHARING AND SCORING INFORMATION POINTERS, WITHIN A SYSTEM FOR HARVESTING COMMUNITY KNOWLEDGE
82087874	F100202128	US	US7024758	Granted		28-May-2003	N/A	N/A	ASSEMBLY FOR ALIGNING A COMPONENT

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82089530	F100203011	US	US6829142	Granted		25-Oct-2002	N/A	N/A	CELL THERMAL CONNECTOR
82090361	F100203618	US	US7073029	Granted		27-Jan-2003	N/A	N/A	STORAGE SYSTEM USING FAST STORAGE AND LOG-STRUCTURED STORAGE
81956231	F1094649	GB	GB2048314	Expired		21-Jun-1995	N/A	N/A	MEDIA AUTOCHANGER SUCH AS AN OPTICAL DISK AUTOCHANGER
82008596	F10950142	GB	GB2048315	Expired		21-Jun-1995	N/A	N/A	CONTROL MODULE FOR A COMPUTER PERIPHERAL SUCH AS A MEDIA AUTOCHANGER
82035512	F10972015	US	US6728951	Expired		14-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR PERFORMING AUTOMATED INCREMENTAL COMPILATION OF COMPUTER PROGRAMS
82040858	F10980981	US	US8171266	Granted		2-Aug-2001	N/A	N/A	LOOK-AHEAD LOAD PRE-FETCH IN A PROCESSOR
82041722	F10981145	US	US6941569	Expired		3-Dec-2002	N/A	N/A	SYSTEM AND METHOD UTILIZING A CONDUCTIVE BRUSH FOR PROVIDING POWER SIGNALS TO A CARTRIDGE ACCESS DEVICE
82047860	F10990153	DE	DE49906067.9	Granted		22-Jun-1999	N/A	N/A	BEZEL FOR RACK MOUNTED DEVICE

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82052933	F10991388	US	US6888836	Expired		26-May-1999	N/A	N/A	METHOD FOR ALLOCATING WEB SITES ON A WEB HOSTING CLUSTER
82054217	F10991599	US	US7143315	Expired		16-Oct-2003	N/A	N/A	DATA STORAGE SYSTEMS AND METHODS
82055057	F10991802	US	US6671802	Expired		13-Apr-2000	N/A	N/A	PERFORMANCE OPTIMIZATION OF COMPUTER SYSTEM BY DYNAMICALLY AND IMMEDIATELY UPDATING A CONFIGURATION SETTING BASED ON DETECTED CHANGE IN PREFERRED USE
82058666	F10992650	US	US6487636	Expired		24-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR MAPPING DATA IN A HETEROGENEOUS DISK ARRAY STORAGE SYSTEM
82094639	F200206289	US	US7983422	Granted		25-Jul-2003	19-Jan-2023	7,706.00	QUANTUM CRYPTOGRAPHY
82094648	F200206289	JP	JP4829788	Granted		22-Jul-2004	22-Sep-2020	1,770.42	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK
82094651	F200206289	DE	DE602004010270.9	Granted		22-Jul-2004	22-Jul-2020	1,690.52	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK
82094657	F200206289	GB	GB1652334	Granted		22-Jul-2004	22-Jul-2020	682.85	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK

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82096223	F200207002	US	US7607136	Granted		28-Oct-2003	20-Apr-2021	7,706.00	METHOD AND APPARATUS FOR INTERFACING WITH A DISTRIBUTED COMPUTING SERVICE
82096484	F200207094	US	US7337018	Granted		31-Jul-2003	N/A	N/A	HEAT SINK FAN MANAGEMENT BASED ON PERFORMANCE REQUIREMENTS
82096487	F200207094	GB	GB2404792	Granted		29-Jul-2004	29-Jul-2020	682.85	HEAT SINK FAN MANAGEMENT BASED ON PERFORMANCE REQUIREMENTS
82096490	F200207095	US	US7054156	Granted		2-Sep-2003	N/A	N/A	FAN ROTOR SYSTEMS HAVING COLLAPSIBLE FAN BLADES
82101161	F200208889	US	US6896539	Granted		30-Jun-2003	N/A	N/A	PIVOT COMPONENT COUPLED WITH FIRST CIRCUIT BOARD FOR CONTROL OF RELATIVE ALIGNMENT OF FIRST CIRCUIT BOARD CONNECTION COMPONENT WITH SECOND CIRCUIT BOARD CONNECTION COMPONENT
82103495	F200209610	US	US7082032	Granted		25-Aug-2003	N/A	N/A	HEAT DISSIPATION DEVICE WITH TILTED FINS
82103654	F200209636	US	US7079390	Granted		5-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR HEAT DISSIPATION AND AIR FLOW REDIRECTION IN A CHASSIS

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82104851	F200210142	US	US7480797	Granted		31-Jul-2004	20-Jul-2020	7,406.00	METHOD AND SYSTEM FOR PREVENTING CURRENT-PRIVILEGE-LEVEL-INFORMATION LEAKS TO NON-PRIVILEGED CODE
82104926	F200210171	US	US7643983	Granted		27-Mar-2003	5-Jul-2021	7,706.00	DATA STORAGE SYSTEM EMULATION
82105160	F200300004	US	US7107600	Granted		17-Mar-2003	N/A	N/A	SYSTEM AND METHOD FOR CLEANING ELECTRICAL DELIVERY SYSTEMS
82117313	F200301707	US	US6456510	Expired		31-Aug-2000	N/A	N/A	REGULATED DC POWER SUPPLY
82117337	F200301713	US	US6442067	Expired		23-May-2000	N/A	N/A	RECOVERY ROM FOR ARRAY CONTROLLERS
82117649	F200301781	US	US6678840	Granted		31-Aug-2000	N/A	N/A	FAULT CONTAINMENT AND ERROR RECOVERY IN A SCALABLE MULTIPROCESSOR
82117652	F200301781	US	US7152191	Expired		23-Oct-2003	N/A	N/A	FAULT CONTAINMENT AND ERROR RECOVERY IN A SCALABLE MULTIPROCESSOR

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82118051	F200301885	US	US6832282	Expired		1-Jul-2003	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING FORWARD PROGRESS AND AVOIDING STARVATION AND LIVELOCK IN A MULTIPROCESSOR COMPUTER SYSTEM
82122050	F200302633	US	US7023708	Granted		20-Dec-2002	N/A	N/A	MULTILEVEL CABLE SUPPORT ARM AND SYSTEM AND METHOD INCORPORATING SAME
82132523	F200304132	US	US6842833	Expired		30-Jun-1998	N/A	N/A	COMPUTER SYSTEM AND METHOD FOR TRANSFERRING DATA BETWEEN MULTIPLE PEER-LEVEL STORAGE UNITS
82166255	F200308314	US	US6654902	Expired		11-Apr-2000	N/A	N/A	PERSISTENT RESERVATION IO BARRIERS
82166258	F200308314	US	US7346801	Expired		1-Aug-2003	N/A	N/A	PERSISTENT RESERVATION IO BARRIERS
82166381	F200308347	US	US7114020	Expired		28-Apr-2000	N/A	N/A	SOFTWARE MECHANISM FOR UNIQUE IDENTIFICATION OF SCSI DEVICE
82167758	F200308575	US	US7348498	Granted		17-Jul-2003	N/A	N/A	PARTIALLY VOIDED ANTI-PADS

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82168118	F200308700	US	US7333293	Granted		29-Jun-2004	N/A	N/A	STORAGE SYSTEM HAVING A READER WITH A LIGHT SENSING PORTION INCLINED WITH RESPECT TO AN AXIS OF A LABEL OF A STORAGE MEDIUM
82171787	F200310143	US	US7761421	Granted		16-May-2003	20-Jan-2022	7,706.00	READ, WRITE, AND RECOVERY OPERATIONS FOR REPLICATED DATA
82174301	F200311171	US	US7697690	Granted		21-Jul-2003	13-Oct-2021	7,706.00	WINDOWED BACKWARD KEY ROTATION
82176806	F200312160	US	US7505261	Granted		18-Mar-2004	17-Sep-2020	7,406.00	ELECTRICAL-OPTICAL SIGNAL CONVERSION FOR AUTOMATED STORAGE SYSTEMS
82176827	F200312171	US	US7230792	Granted		19-Nov-2003	N/A	N/A	MEDIA SELECTION SYSTEMS AND METHODS HAVING A COUPLER FOR SLIDABLY ENGAGING A STORAGE MEDIUM IN A STORAGE SYSTEM
82179566	F200313377	US	US7336490	Granted		24-Nov-2004	N/A	N/A	MULTI-CHIP MODULE WITH POWER SYSTEM
82179569	F200313377	US	US7499281	Granted		2-Jan-2008	3-Sep-2020	7,406.00	MULTI-CHIP MODULE WITH POWER SYSTEM

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82179656	F200313407	US	US7451302	Granted		10-Mar-2004	N/A	N/A	SYSTEM AND METHOD FOR MANAGING CONFIGURATION DATA FOR A MULTI-CELL COMPUTER SYSTEM
82180403	F200313720	US	US7289221	Granted		27-Sep-2004	N/A	N/A	MACH ZEHNDER PHOTONIC CRYSTAL SENSORS AND METHODS
82184357	F200315378	US	US7823156	Granted		3-Feb-2005	26-Apr-2022	7,706.00	METHOD OF HASHING ADDRESS SPACE TO STORAGE SERVERS
82186991	F200316679	US	US7480113	Granted		8-Aug-2007	20-Jul-2020	7,406.00	TAPE DRIVE APPARATUS
82216535	F200401087	US	US7436209	Granted		30-Oct-2006	N/A	N/A	NANOSCALE ELECTRONIC LATCH
82189427	F200401087	US	US7307448	Granted		24-May-2005	N/A	N/A	INTERCONNECTABLE NANOSCALE COMPUTATIONAL STAGES
82189433	F200401087	US	US7257016	Granted		24-May-2005	N/A	N/A	ENHANCED NANOWIRE-CROSSBAR LATCH ARRAY
82189598	F200401152	US	US7529060	Granted		2-Feb-2004	5-Nov-2020	7,406.00	READ AND WRITE HEAD ELEMENT ARRANGEMENT
82190375	F200401591	US	US7546600	Granted		30-Apr-2004	9-Dec-2020	7,406.00	METHOD OF ASSIGNING VIRTUAL PROCESS IDENTIFIER TO PROCESS WITHIN PROCESS DOMAIN

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82191587	F200402090	US	US7289321	Granted		16-Nov-2004	N/A	N/A	VENTILATED CASING FOR AN ELECTRONIC DEVICE
82193519	F200402893	US	US7552434	Granted		30-Apr-2004	23-Dec-2020	7,406.00	METHOD OF PERFORMING KERNEL TASK UPON INITIAL EXECUTION OF PROCESS AT USER LEVEL
82194107	F200403003	US	US8364829	Granted		24-Sep-2004	29-Jul-2020	3,606.00	SYSTEM AND METHOD FOR ASCRIBING RESOURCE CONSUMPTION TO ACTIVITY IN A CAUSAL PATH OF A NODE DISTRIBUTED COMPUTING SYSTEM
82194314	F200403103	US	US7471638	Granted		8-Oct-2004	N/A	N/A	TESTING FOR A MISCONNECTION BETWEEN FIRST AND SECOND NETWORKS
82194803	F200403293	US	USD523859	Expired		4-Apr-2005	N/A	N/A	MEDIA CARTRIDGE
82195382	F200403483	US	US8627213	Granted		10-Aug-2004	7-Jul-2021	3,766.00	CHAT ROOM SYSTEM
82196798	F200404117	US	US8392900	Granted		17-Mar-2005	5-Sep-2020	3,606.00	METHODS AND SYSTEMS FOR BARRIER REDUCTION IN PARALLEL PROCESSING SYSTEMS
82197119	F200404283	US	US7467329	Granted		23-Jun-2005	16-Jun-2020	7,406.00	METHOD OF ESTIMATING STORAGE SYSTEM RELIABILITY
82197158	F200404313	US	US9053501	Granted		31-Oct-2004	9-Dec-2022	3,766.00	SPONTANEOUS SHARING OF MEDIA ASSET REFERENCES

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82201010	F200406253	US	US7544591	Granted		18-Jan-2007	9-Dec-2020	7,406.00	METHOD OF CREATING ISOLATED ELECTRODES IN A NANOWIRE-BASED DEVICE
82201907	F200406631	US	US7242199	Granted		21-Apr-2005	N/A	N/A	ACTIVE INTERCONNECTS AND CONTROL POINTS IN INTEGRATED CIRCUITS
82205042	F200408089	US	US7480424	Granted		19-Sep-2005	20-Jul-2020	7,406.00	METHOD AND APPARATUS FOR MODIFYING AN ELECTROMAGNETIC RADIATION BEAM
82207400	F200408089	US	US8098971	Granted		19-Sep-2005	17-Jul-2023	7,706.00	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207409	F200408089	JP	JP4829971	Granted		21-Jul-2006	22-Sep-2020	1,031.63	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207415	F200408089	DE	DE602006009536.8	Granted		21-Jul-2006	21-Jul-2020	1,272.38	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207418	F200408089	FR	FR1938429	Granted		21-Jul-2006	21-Jul-2020	555.56	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL

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82207421	F200408089	GB	GB1938429	Granted		21-Jul-2006	21-Jul-2020	524.44	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82218434	F200408089	US	US7352941	Granted		31-Oct-2006	N/A	N/A	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE AND AMPLIFICATION USING NEGATIVE INDEX MATERIAL
82206395	F200500206	US	US7836111	Granted		29-Apr-2005	16-May-2022	7,706.00	DETECTING CHANGE IN DATA
82206401	F200500206	US	US7505868	Granted		29-Apr-2005	17-Sep-2020	7,406.00	PERFORMING QUALITY DETERMINATION OF DATA
82206671	F200500369	US	US8781977	Granted		29-Mar-2005	15-Jan-2022	3,766.00	SYSTEM AND METHOD OF PRICING RESOURCES
82208927	F200501467	US	US7437338	Granted		21-Mar-2006	N/A	N/A	PROVIDING INFORMATION REGARDING A TREND BASED ON OUTPUT OF A CATEGORIZER
82210514	F200502276	US	US7474823	Granted		12-Oct-2006	6-Jul-2020	7,406.00	TUNABLE DISPERSION COMPENSATION
82210871	F200502477	US	US7251092	Granted		25-Jul-2005	N/A	N/A	DATA TRANSFER APPARATUS AND METHOD FOR TRANSFERRING DATA

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82211144	F200502628	US	US7289868	Granted		22-Aug-2005	N/A	N/A	SYSTEM AND METHOD FOR CALCULATING A SHIFT VALUE BETWEEN PATTERN INSTANCES
82212551	F200503308	US	US7502971	Granted		12-Oct-2005	N/A	N/A	DETERMINING A RECURRENT PROBLEM OF A COMPUTER RESOURCE USING SIGNATURES
82213670	F200503906	US	US7489583	Granted		6-Sep-2005	N/A	N/A	CONSTANT-WEIGHT-CODE-BASED ADDRESSING OF NANOSCALE AND MIXED MICROSCALE/NANOSCALE ARRAYS
82214174	F200504358	US	US8606894	Granted		27-Apr-2006	10-Jun-2021	3,766.00	SERVER CONSOLIDATION
82214600	F200504603	US	US7546013	Granted		31-May-2006	N/A	N/A	NANOPARTICLE COUPLED TO WAVEGUIDE
82214609	F200504603	JP	JP4871994	Granted		22-May-2007	25-Nov-2020	873.50	NANOPARTICLE COUPLED TO WAVEGUIDE
82214642	F200504613	US	US7530032	Granted		28-Oct-2005	5-Nov-2020	7,406.00	NANOWIRE CROSSBAR IMPLEMENTATIONS OF LOGIC GATES USING CONFIGURABLE, TUNNELING RESISTOR JUNCTIONS
82216148	F200505468	US	US7447026	Granted		31-Aug-2006	N/A	N/A	SYSTEM FOR HOT SWAPPING HEAT EXCHANGERS

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82217930	F200506432	US	US7823154	Granted		16-Sep-2005	26-Apr-2022	7,706.00	SYSTEM AND METHOD FOR PROVIDING, BY A PLURALITY OF SCHEDULERS, DIFFERENTIATED SERVICE TO CONSUMERS OF DISTRIBUTED RESOURCES
82218791	F200506906	US	US7243877	Granted		7-Apr-2006	N/A	N/A	TAPE REEL
82218968	F200507008	US	US8214838	Granted		26-Jul-2006	3-Jan-2024	7,400.00	SYSTEM AND METHOD FOR ATTRIBUTING TO A CORRESPONDING VIRTUAL MACHINE CPU UTILIZATION OF A NETWORK DRIVER DOMAIN BASED ON WEIGHTED COMMUNICATION
82219595	F200507343	US	US7517794	Granted		21-Oct-2005	N/A	N/A	METHOD FOR FABRICATING NANOSCALE FEATURES
82219769	F200507436	US	US8732307	Granted		25-Jul-2006	20-Nov-2021	3,766.00	PREDICTIVE CONTROL FOR RESOURCE ENTITLEMENT
82220357	F200600115	US	US7707215	Granted		17-Oct-2006	27-Oct-2021	7,706.00	PARIMUTUEL CONTENT PROVISIONING
82222718	F200601010	US	US7610383	Granted		11-Aug-2006	27-Apr-2021	7,706.00	DATA-OBJECT-RELATED-REQUEST ROUTING IN A DYNAMIC, DISTRIBUTED DATA-STORAGE SYSTEM

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82223486	F200601309	US	US8347726	Granted		25-Apr-2007	8-Jul-2020	3,606.00	FREE-STANDING NANOWIRE SENSOR AND METHODS FOR FORMING AND USING THE SAME
82223495	F200601311	US	US8773882	Granted		15-Apr-2010	8-Jan-2022	3,766.00	MIXED-SCALE ELECTRONIC INTERFACES
82225259	F200602234	US	USD627772	Granted		26-Mar-2007	N/A	N/A	AN OPERATOR CONTROL PANEL WITH DISPLAY AND MULTIPLE FUNCTION BUTTONS FOR A STORAGE LIBRARY
82233167	F200602441	US	US8024514	Granted		17-Jul-2007	20-Mar-2023	7,706.00	ACCESS CONTROL MANAGEMENT
82226204	F200602589	US	US8395896	Granted		24-Feb-2007	12-Sep-2020	3,606.00	REDUNDANT COOLING SYSTEMS AND METHODS
82230137	F200700096	US	US7757023	Granted		1-Aug-2007	13-Jan-2022	7,706.00	STORAGE-CENTRIC MANAGEABILITY IN A SYSTEM
82231646	F200700635	US	US7962480	Granted		31-Jul-2007	14-Dec-2022	7,406.00	USING A WEIGHTED TREE TO DETERMINE DOCUMENT RELEVANCE
82231916	F200700731	US	US8793264	Granted		18-Jul-2007	29-Jan-2022	3,766.00	DETERMINING A SUBSET OF DOCUMENTS FROM WHICH A PARTICULAR DOCUMENT WAS DERIVED
82232318	F200700875	US	US8392708	Granted		29-Sep-2008	5-Sep-2020	3,606.00	AUDITING DATA INTEGRITY

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82239869	F200700875	US	US8281151	Granted		1-Oct-2008	2-Apr-2024	7,706.00	AUDITOR ASSISTED EXTRACTION AND VERIFICATION OF CLIENT DATA RETURNED FROM A STORAGE PROVIDED WHILE HIDING CLIENT DATA FROM THE AUDITOR
82232477	F200700945	US	US7477809	Granted		31-Jul-2007	13-Jul-2020	7,406.00	PHOTONIC GUIDING DEVICE
82232483	F200700945	US	US7835602	Granted		23-Oct-2008	16-May-2022	7,706.00	PHOTONIC GUIDING DEVICE
82232486	F200700945	CN	CN200880101515.3	Granted		30-Jul-2008	30-Jul-2021	990.04	PHOTONIC GUIDING DEVICE
82232495	F200700945	KR	KR10-1588348	Granted		30-Jul-2008	19-Jan-2021	260.52	PHOTONIC GUIDING DEVICE
82239827	F200702994	US	US8732308	Granted		1-Oct-2008	20-Nov-2021	3,766.00	COORDINATED MANAGEMENT IN VIRTUALIZED SYSTEMS USING MANAGEMENT BROKERS AND MANAGEMENT CHANNELS
82245341	F200702994	US	US9395786	Granted		9-Oct-2008	19-Jan-2024	3,766.00	CROSS-LAYER POWER MANAGEMENT IN A MULTI-LAYER SYSTEM
82239983	F200703037	US	US8812508	Granted		14-Dec-2007	19-Feb-2022	3,766.00	SYSTEMS AND METHODS FOR EXTRACTING PHASES FROM TEXT
82241663	F200703681	US	US8694991	Granted		22-Aug-2008	8-Oct-2021	3,766.00	SERVER VIRTUALIZED USING VIRTUALIZATIO N PLATFORM

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82654469	F200703809	US	US8677365	Granted		27-Aug-2008	18-Sep-2021	3,766.00	PERFORMING ZONE BASED WORKLOAD SCHEDULING ACCORDING TO ENVIRONMENTAL CONDITIONS
82242488	F200703973	US	US7925927	Granted		30-Oct-2008	12-Oct-2022	7,706.00	SIMULATOR FOR DETERMINING DATA LOSS IN A FAULT TOLERANT SYSTEM
82242503	F200703974	US	US8677208	Granted		19-Sep-2008	18-Sep-2021	3,766.00	GENERATING A PARALLEL RECOVERY PLAN FOR A DATA STORAGE SYSTEM
82242506	F200703974	CN	CN200880117051.5	Granted		19-Sep-2008	19-Sep-2020	985.42	GENERATING A PARALLEL RECOVERY PLAN FOR A DATA STORAGE SYSTEM
82243097	F200704122	US	US8019765	Granted		29-Oct-2008	13-Mar-2023	7,706.00	IDENTIFYING FILES ASSOCIATED WITH A WORKFLOW
82620394	F200704234	US	US8774625	Granted		8-Aug-2008	8-Jan-2022	3,766.00	METHOD AND SYSTEMS FOR IMPLEMENTING HIGH-RADIX SWITCH TOPOLOGIES ON RELATIVELY LOWER-RADIX SWITCH PHYSICAL NETWORKS
82244438	F200704554	GB	GB2461899	Granted		17-Jul-2008	17-Jul-2021	443.74	CONTROLLING MOTION OF STORAGE MEDIA
82244441	F200704554	US	US7911727	Granted		1-Oct-2008	22-Sep-2022	7,706.00	CONTROLLING MOTION OF STORAGE MEDIA

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82641262	F200704721	US	US8386494	Granted		7-Aug-2008	26-Aug-2020	3,606.00	PROVIDING DATA STRUCTURES FOR DETERMINING WHETHER KEYS OF AN INDEX ARE PRESENT IN A STORAGE SYSTEM
82245164	F200800251	US	US8347070	Granted		30-Oct-2008	1-Jul-2024	7,706.00	METHOD FOR CONTROLLING RESOURCE UTILIZATION RATE AND COMPUTER SYSTEM
82245167	F200800252	US	US8677375	Granted		29-Jan-2009	18-Sep-2021	3,766.00	SELECTING EXECUTING REQUESTS TO PREEMPT
82247732	F200801486	US	US8516099	Granted		26-Jan-2009	20-Feb-2021	3,606.00	SCALING MANAGEMENT TASKS PERFORMED BY A MANAGEMENT SYSTEM ACCORDING TO A DETERMINED SIZE OF A MANAGED ENVIRONMENT
82910274	F200802535	US	US9179580	Granted		10-Jun-2010	3-May-2023	3,766.00	DATA CENTER COOLER WITH CHILLER AND COOLING TOWER (AS AMENDED)
82249292	F200802683	US	US8355828	Granted		13-Mar-2009	15-Jul-2020	3,606.00	DETERMINING OPTIMAL SETTINGS FOR RESOURCE ACTUATORS
82853976	F200803285	US	US8774638	Granted		31-Jul-2009	8-Jan-2022	3,766.00	PHOTONIC QUANTUM SYSTEM ALIGNMENT USING MULTIPLE BEAMS

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82925997	F200803285	CN	CN200980160706.1	Granted		31-Jul-2009	31-Jul-2021	1,032.98	PHOTONIC QUANTUM SYSTEM ALIGNMENT USING MULTIPLE BEAMS
82250756	F200900032	US	US8390705	Granted		27-Oct-2009	5-Sep-2024	7,706.00	NANOWIRE PHOTODIODES
82250801	F200900057	US	US8402016	Granted		27-May-2009	19-Sep-2020	3,606.00	FETCHING OPTIMIZATION IN MULTI-WAY PIPELINED DATABASE JOINS
82922683	F200900329	US	US8569900	Granted		20-Jul-2009	29-Apr-2021	3,766.00	NANOWIRE SENSOR WITH ANGLED SEGMENTS THAT ARE DIFFERENTLY FUNCTIONALIZED
82251176	F200900333	US	US8327721	Granted		26-Oct-2009	11-Jun-2024	7,706.00	SENSOR FABRIC FOR SHAPE PERCEPTION
82251317	F200900411	US	US8374622	Granted		12-Dec-2007	12-Aug-2024	7,706.00	CALL ADMISSION CONTROL FOR WI FI
82918780	F200902356	CN	CN200980161379.1	Granted		10-Jul-2009	10-Jul-2020	666.46	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82258220	F200902356	TW	TWI517465	Granted		9-Jul-2010	10-Jan-2021	237.00	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82852408	F200902356	US	US8710483	Granted		10-Jul-2009	29-Oct-2021	3,766.00	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82918782	F200902356	KR	KR10-1530118	Granted		10-Jul-2009	12-Jun-2021	664.27	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER

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82258373	F200902417	TW	TWI523290	Granted		27-Jul-2010	20-Feb-2021	237.00	MEMRISTORS WITH ASYMMETRIC ELECTRODES
82853070	F200902417	US	US9171613	Granted		28-Jul-2009	27-Apr-2023	3,766.00	MEMRISTORS WITH ASYMMETRIC ELECTRODES
82258460	F200902461	US	US9405731	Granted		26-Aug-2009	2-Feb-2024	3,766.00	ENERGY BASED WAVELET THRESHOLDING
82259390	F200903200	US	US8431474	Granted		25-Sep-2009	30-Oct-2024	7,406.00	THREE DIMENSIONAL MULTILAYER CIRCUIT
82259435	F200903225	US	US8392168	Granted		3-Nov-2009	5-Sep-2020	3,606.00	SIMULATING AN APPLICATION DURING A SAMPLING PERIOD AND A NON-SAMPLING PERIOD
82259600	F200903307	US	US8402461	Granted		15-Nov-2009	19-Sep-2020	3,606.00	SWITCHING BETWEEN DIRECT MODE AND INDIRECT MODE FOR VIRTUAL MACHINE I/O REQUESTS
90045005	F200903800	JP	JP5969677	Granted		5-Oct-2015	15-Jul-2020	182.67	MULTIMODE VERTICAL-CAVITY SURFACE-EMITTING LASER ARRAYS
83034236	F200903989	US	US8904176	Granted		28-Apr-2010	2-Jun-2022	3,766.00	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA

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90648620	F200903989	DE	DE602010053953.9	Granted		28-Apr-2010	28-Apr-2021	804.57	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA
90648624	F200903989	GB	GB2564346	Granted		28-Apr-2010	28-Apr-2021	327.01	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA
82261124	F200904320	US	US8364909	Granted		25-Jan-2010	29-Jul-2020	3,606.00	DETERMINING A CONFLICT IN ACCESSING SHARED RESOURCES USING A REDUCED NUMBER OF CYCLES
82261316	F200904449	US	US8664940	Granted		12-Oct-2010	4-Sep-2021	3,766.00	GRAPHITE-BASED SENSOR
83214681	F201000277	CN	CN201080069548.1	Granted		11-Oct-2010	11-Oct-2020	648.83	SYSTEM AND METHOD FOR QUERYING A DATA STREAM
82263137	F201000463	US	US8539059	Granted		2-Jun-2010	17-Mar-2021	3,766.00	MANAGING COOLING DEVICES AND COMPUTING NODES IN AN INFRASTRUCTURE
83139124	F201000520	US	US8990165	Granted		13-Jul-2010	24-Sep-2022	3,766.00	METHODS, APPARATUS AND ARTICLES OF MANUFACTURE TO ARCHIVE DATA
82585683	F201000596	US	US8725904	Granted		18-Aug-2011	13-Nov-2021	3,766.00	MANAGEMENT PROCESSORS, METHODS AND ARTICLES OF MANUFACTURE

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83166392	F201000824	US	US9275542	Granted		30-Jul-2010	1-Sep-2023	3,766.00	LOCATION-INDEXED AUDIO CONTENT
83834197	F201001697	CN	CN201180074045.8	Granted		2-Sep-2011	2-Sep-2021	698.53	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
83834203	F201001697	US	US9311998	Granted		2-Sep-2011	12-Oct-2023	3,766.00	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
90175060	F201001697	US	US9431103	Granted		9-Mar-2016	29-Feb-2024	3,766.00	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
82267643	F201002333	US	US6937610	Expired		6-Oct-2000	N/A	N/A	METHOD AND PROTOCOL FOR A MEDIUM ACCESS CONTROL LAYER FOR LOCAL AREA NETWORKS WITH MULTIPLE-PRIORITY TRAFFIC
82268585	F201002556	US	US6959082	Expired		10-Jul-2001	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATIC GAIN CONTROL WITH ADAPTIVE TABLE LOOKUP
82269776	F201002905	US	US7660408	Expired		28-Apr-2000	N/A	N/A	ATTENUATION AND TERMINATION CIRCUIT USING IMPEDANCE SYNTHESIS
82269779	F201002905	US	US8472614	Expired		22-Dec-2009	N/A	N/A	ATTENUATION AND TERMINATION CIRCUIT USING IMPEDANCE SYNTHESIS

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82269821	F201002924	US	US6859051	Expired		2-Jun-2003	N/A	N/A	SYSTEMS AND METHODS FOR IMPEDANCE SYNTHESIS
82270880	F201003297	US	US6507303	Expired		31-May-2000	N/A	N/A	DIRECT DIGITAL CONVERSION OF BASEBAND SIGNALS TO SUPER-NYQUIST FREQUENCIES
82272755	F201003297	US	US6703954	Expired		20-Dec-2002	N/A	N/A	DIRECT DIGITAL CONVERSION OF BASEBAND SIGNALS TO SUPER-NYQUIST FREQUENCIES
82271678	F201003514	US	US6601180	Expired		14-Apr-2000	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING LINK DETECTION TO A PC CARD FOR POWER MANAGEMENT
82271741	F201003533	US	US7275093	Expired		26-Apr-2000	N/A	N/A	METHODS AND DEVICE FOR MANAGING MESSAGE SIZE TRANSMITTED OVER A NETWORK
82271903	F201003585	US	US6826279	Expired		25-May-2000	N/A	N/A	BASE BAND ECHO CANCELLATION USING LAGUERRE ECHO ESTIMATION
82272026	F201003635	US	US6982962	Expired		10-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR SELECTING A NETWORK ACCESS PROVIDER USING A PORTABLE INFORMATION DEVICE

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82272263	F201003731	US	US6545643	Expired		8-Sep-2000	N/A	N/A	EXTENDABLE PLANAR DIVERSITY ANTENNA
82272266	F201003731	US	US6933896	Expired		7-Apr-2003	N/A	N/A	EXTENDABLE PLANAR DIVERSITY ANTENNA
82272293	F201003749	US	US6766453	Expired		28-Apr-2000	N/A	N/A	AUTHENTICATED DIFFIE-HELLMAN KEY AGREEMENT PROTOCOL WHERE THE COMMUNICATING PARTIES SHARE A SECRET KEY WITH A THIRD PARTY
82272296	F201003753	US	US7024690	Expired		28-Apr-2000	N/A	N/A	PROTECTED MUTUAL AUTHENTICATION OVER AN UNSECURED WIRELESS COMMUNICATION CHANNEL
82272530	F201003835	US	US6772349	Expired		3-May-2000	N/A	N/A	DETECTION OF AN ATTACK SUCH AS A PRE-ATTACK ON A COMPUTER NETWORK
82272536	F201003836	US	US6862286	Expired		8-May-2000	N/A	N/A	TRACKING DYNAMIC ADDRESSES ON A NETWORK
82272572	F201003848	US	US6704016	Expired		8-May-2000	N/A	N/A	METHOD AND APPARATUS FOR THE GRAPHICAL PRESENTATION OF SELECTED DATA

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82272617	F201003860	US	US6701442	Expired		9-May-2000	N/A	N/A	A POWER MANAGEMENT CIRCUIT FOR SELECTIVELY APPLYING POWER TO NETWORK MONITORING CIRCUITRY WHICH MONITORS THE RECEIPT OF NETWORK WAKE-UP MESSAGES
82272695	F201003911	US	US6273735	Expired		25-Oct-2000	N/A	N/A	ROTATING TURRET SIDE-ENTRY RETRACTABLE JACK
82272893	F201004009	US	US6366261	Expired		8-Sep-2000	N/A	N/A	METHOD AND APPARATUS FOR OVERMOLDED ANTENNA
82272908	F201004015	US	US6509876	Expired		8-Sep-2000	N/A	N/A	ANTENNA FOR WIRELESS COMMUNICATIO N SYSTEM
82818908	F201005231	US	US9275041	Granted		24-Oct-2011	1-Sep-2023	3,766.00	PERFORMING SENTIMENT ANALYSIS ON MICROBLOGGIN G DATA, INCLUDING IDENTIFYING A NEW OPINION TERM THEREIN (AS AMENDED)
82576208	F201005331	US	US8390959	Granted		24-Mar-2011	5-Sep-2020	3,606.00	ACTUATOR WITH NON-MOVING MASS
83051101	F201005530	TW	TWI529988	Granted		19-Jul-2012	10-Apr-2021	237.00	MEMRISTOR STRUCTURE WITH A DOPANT SOURCE
83786501	F201005530	US	US9178153	Granted		20-Jul-2011	3-May-2023	3,766.00	MEMRISTOR STRUCTURE WITH A DOPANT SOURCE

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83057100	F201005561	TW	TWI520149	Granted		26-Jul-2012	31-Jan-2021	237.00	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
83769079	F201005561	KR	KR10-1620761	Granted		27-Jul-2011	4-May-2021	383.94	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
83769083	F201005561	US	US9405614	Granted		27-Jul-2011	2-Feb-2024	3,766.00	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
82678579	F201005877	US	US8373584	Granted		16-May-2011	12-Aug-2020	3,606.00	COMPRESSING AND DECOMPRESSIN G DATA
83051185	F201006081	TW	TWI520393	Granted		26-Jul-2012	31-Jan-2021	237.00	NITRIDE-BASED MEMRISTORS
83807343	F201006081	KR	KR10-1528572	Granted		3-Aug-2011	8-Jun-2021	522.19	NITRIDE-BASED MEMRISTORS
83566663	F700205541	JP	JP5859654	Lapsed		25-Aug-2011	25-Dec-2020	206.51	MODEL-BASED STEREOSCOPIC AND MULTIVIEW CROSS-TALK REDUCTION
82835640	F700206343	US	US8854860	Granted		31-Jan-2012	7-Apr-2022	3,766.00	METAL-INSULATOR TRANSITION LATCH

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83862114	F700206343	KR	KR10-1634191	Granted		28-Oct-2011	22-Jun-2021	383.94	METAL-INSULATOR PHASE TRANSITION FLIP-FLOP
83862120	F700206343	US	US9331700	Granted		28-Oct-2011	3-Nov-2023	3,766.00	METAL-INSULATOR PHASE TRANSITION FLIP-FLOP
83863051	F700206384	KR	KR101620247	Granted		4-Nov-2011	3-May-2021	486.79	DECODER CIRCUITS HAVING METAL-INSULATOR-METAL THRESHOLD SWITCHES
83815245	F700206830	US	US9064568	Granted		26-Aug-2011	23-Dec-2022	3,766.00	CIRCUIT AND METHOD FOR READING A RESISTIVE SWITCHING DEVICE IN AN ARRAY
84020521	F700208907	US	US9224821	Granted		26-Apr-2012	29-Jun-2023	3,766.00	CUSTOMIZABLE NONLINEAR ELECTRICAL DEVICES
83013477	F700210371	US	US8793258	Granted		31-Jul-2012	29-Jan-2022	3,766.00	PREDICTING SHARING ON A SOCIAL NETWORK
83099558	F700211223	US	US9411657	Granted		9-Nov-2012	9-Feb-2024	3,766.00	LOAD-BALANCED SPARSE ARRAY PROCESSING
83138539	F700212517	US	US8810780	Granted		31-Jan-2013	19-Feb-2022	3,766.00	PLASMON RESONANCE BASED STRAIN GAUGE
83139311	F700212552	US	US9408050	Granted		31-Jan-2013	2-Feb-2024	3,766.00	REDUCING BANDWIDTH USAGE OF A MOBILE CLIENT

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83140845	F700212571	US	US9195727	Granted		30-Jan-2013	24-May-2023	3,766.00	DELTA PARTITIONS FOR BACKUP AND RESTORE
84191546	F700220555	EM	EM28789910001	Granted		27-Nov-2015	27-Nov-2020	135.11	RDX MICROSERVER MODULE
90405775	F700220555	EM	EM28789910002	Granted		27-Nov-2015	27-Nov-2020	135.11	SERVER MODULE

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Recordable Assignment - Escrow (PEA) Valtrus_v3

Final Audit Report 2021-01-21

Created:	2021-01-20
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"Recordable Assignment - Escrow (PEA) Valtrus_v3" History

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HPE-OT_Valtrus_ Assignment and Lien

Final Audit Report 2021-01-21

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By:	Nishant jaiswal (nishant.jaiswal@hpe.com)
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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/123,403	6718277	2863	9200R | 0091 | 044 | 03

OC000000071383875

Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 22879 on 10/15/2014

- **Correspondence Address**
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10-123-403

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,718,277 B2
DATED : April 6, 2004
INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Columns 8, 9 and 10,
Please replace claims 1, 12, 17, and 22 with the following claims:

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

12. A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map; comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

17. The method as claimed in claim 12, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical thermal map, wherein said thermal mapping software triangulates locations of hot spots.

22. A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating comprises software for processing input from said means for sensing and for producing output in the form of said empirical atmospheric map;

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,718,277 B2
DATED : April 6, 2004
INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 22, cont'd.,

means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

Signed and Sealed this

Sixteenth Day of November, 2004

JON W. DUDAS
Director of the United States Patent and Trademark Office

PTO/SB/44 (04-04)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : US 6,718,277 B2

DATED : April 6, 2004

INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS:

Please replace claims 1, 12, 17, and 22 with the following claims. In the following, underlines indicate additions and strikethroughs indicate deletions.

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:
supplying a conditioned fluid inside said building;
sensing at least one atmospheric parameter in a plurality of locations inside said building;
generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;
comparing said empirical atmospheric map to a template atmospheric map; and
identifying pattern differentials between said empirical and template atmospheric maps.

12. A method of cooling a data center having equipment therein, said method comprising the steps of:
supplying a cooling fluid within said data center to cool said equipment within said data center;
sensing temperature within said data center in a plurality of locations;
generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map;
comparing said empirical thermal map to a template thermal map; and
identifying pattern differentials between said empirical and template thermal maps.

17. The method as claimed in claim ~~10~~12, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical ~~atmospheric~~ thermal map, wherein said thermal mapping software triangulates locations of hot spots.

22. A system for controlling atmospheric conditions within a building, said system comprising:
means for supplying a conditioned fluid inside said building;
means for sensing at least one atmospheric parameter in a plurality of locations inside said building;
means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating comprises software for processing input from said means for sensing and for producing output in the form of said empirical atmospheric map;
means for comparing said empirical atmospheric map to a template atmospheric map; and
means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

MAILING ADDRESS OF SENDER:

MANNAVA & KANG, P.C.
8221 Old Courthouse Road
Suite 104
Vienna, VA 22182

PATENT NO. 6,718,277 B2
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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 2231 3-1450.**

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6718,277

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PATENT
Atty Docket No.: 10018557-1

H-4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Ratnesh Sharma	**Confirmation No.:**	8143
Serial No.:	10/123,403	**Examiner:**	John H. Le
Filed:	April 17, 2002	**Group Art Unit:**	2863
Title:	ATMOSPHERIC CONTROL WITHIN A BUILDING		

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate
OCT 0 5 2004
of Correction

CERTIFICATE OF HAND-DELIVERY WITH THE USPTO

I hereby certify that this correspondence is being deposited with the United States Patent and Trademark Office. This correspondence contains the following document(s):

2 sheets of Request for Certificate of Correction.
1 sheet of Form PTO-1050 (2 copies).

Respectfully submitted,

MANNAVA & KANG, P.C.

On September 30, 2004

Timothy B. Kang
Reg. No.: 46,423

MANNAVA & KANG, P.C.
8221 Old Courthouse Road
Vienna, VA 22182
703-652-3817
703-880-5270 (facsimile)

6 OCT 2004

Vertiv Ex. 1003
Vertiv v. Valtrus

OIPE JC25
SEP 30 2004
PATENT & TRADEMARK OFFICE

PATENT
Atty Docket No.: 10018557-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Ratnesh Sharma	**Confirmation No.:**	8143
Serial No.:	10/123,403	**Examiner:**	John H. Le
Filed:	April 17, 2002	**Group Art Unit:**	2863
Title:	ATMOSPHERIC CONTROL WITHIN A BUILDING		

MAIL STOP CERTIFICATE OF CORRECTIONS BRANCH
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION

Sir:

Applicant requests that a Certificate of Correction be issued for this patent, pursuant to 35 U.S.C. §254 and 37 C.F.R. §1.322. Attached are two (2) copies of PTO Form 1050 (*i.e.*, Certificate of Correction). The complete Certificate of Correction involves 1 page.

The mistakes identified in the attached form occurred through the fault of the U.S. Patent Office, as clearly disclosed by the records of the application which matured into this patent. More particularly, the U.S. Patent Office failed to enter the amendments to Claims 1, 10 (now 12), 15 (now 17), and 18 (now 22) as set forth in the Examiner's Amendment dated December 24, 2003.

In addition, the amendment to Claim 18 (now 22) in the Examiner's Amendment incorrectly reflected the changes agreed to between the Examiner and the undersigned. The correct change to Claim 18 (now 22) should have revised this claim as noted in the attached Certificate of Correction. The correct change is evidenced in a Draft Amendment submitted to the Examiner on December 17, 2003.

16 OCT 2004
Vertiv Ex. 1003
Vertiv v. Valtrus

Please issue a Certificate of Correction containing the corrections.

Respectfully submitted,

MANNAVA & KANG, P.C.

On September 30, 2004

Timothy B. Kang
Reg. No.: 46,423

MANNAVA & KANG, P.C.
8221 Old Courthouse Road
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703-880-5270 (facsimile)

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : US 6,718,277 B2

DATED : April 6, 2004

INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS:

Please replace claims 1, 12, 17, and 22 with the following claims. In the following, underlines indicate additions and strikethroughs indicate deletions.

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:
supplying a conditioned fluid inside said building;
sensing at least one atmospheric parameter in a plurality of locations inside said building;
generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;
comparing said empirical atmospheric map to a template atmospheric map; and
identifying pattern differentials between said empirical and template atmospheric maps.

12. A method of cooling a data center having equipment therein, said method comprising the steps of:
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17. The method as claimed in claim ~~10~~12, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical ~~atmospheric~~ thermal map, wherein said thermal mapping software triangulates locations of hot spots.

22. A system for controlling atmospheric conditions within a building, said system comprising:
means for supplying a conditioned fluid inside said building;
means for sensing at least one atmospheric parameter in a plurality of locations inside said building;
means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating comprises software for processing input from said means for sensing and for producing output in the form of said empirical atmospheric map;
means for comparing said empirical atmospheric map to a template atmospheric map; and
means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

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TIFFANY TURNER (Depositor's name)
(Signature)
2-19-04 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1	8143

TITLE OF INVENTION: ATMOSPHERIC CONTROL WITHIN A BUILDING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	03/24/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
LE, JOHN H	2863	702-132000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ 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; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

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.

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(A) NAME OF ASSIGNEE: Hewlett-Packard Development Company, L.P.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Houston, Texas

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☒ corporation or other private group entity ☐ government

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Director for Patents 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) Richard P. Lange (Date) 2-19-04
Richard P. Lange (reg #27,296)

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02 FC:1504 300.00 DA

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PAGE 1/2 * RCVD AT 2/19/2004 2:03:04 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-2/0 * DNIS:7464000 * CSID:6508528063 * DURATION (mm-ss):01-28

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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

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Note: A certificate of mailing 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 or transmission.

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TIFFANY TURNER (Depositor's name)
(Signature)
2-19-04 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ramesh Sharma	10018557-1	8143

TITLE OF INVENTION: ATMOSPHERIC CONTROL WITHIN A BUILDING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	03/24/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
LE, JOHN H	2863	702-132000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ 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; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE: Hewlett-Packard Development Company, L.P.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Houston, Texas

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:
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- ☐ A check in the amount of the fee(s) is enclosed.
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- ☒ The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number 08-2025 (enclose an extra copy of this form).

Director for Patents 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) Richard P. Lange (Date) 2-19-04
Richard P. Lange (reg #27,296)

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.

02/20/2004 AWONDAF2 00000035 082025 10123403
01 FC:1501 1330.00 DA
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Vertiv Ex. 1003
Vertiv v. Valtrus

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

OIPE JC98
SEP 16 2003
PATENT & TRADEMARK OFFICE

4/a
J. Steptoe
12-10-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Ratnesh Sharma	**Confirmation No.:**	8143
Serial No.:	10/123,403	**Examiner:**	John H. Le
Filed:	April 17, 2002	**Group Art Unit:**	2863
Title:	ATMOSPHERIC CONTROL WITHIN A BUILDING		

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SEP 22 2003
TECHNOLOGY CENTER 2800

MAILSTOP NON-FEE AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. § 1.111

Sir:

In response to the Official Action dated June 16, 2003, kindly amend the application identified above as follows. In the following, underlines indicate additions and strikethroughs indicate deletions.

09/17/2003 ANABI1 00000105 082025 10123403
01 FC:1202 72.00 DA

Vertiv Ex. 1003
Vertiv v. Valtrus

IN THE SPECIFICATION:

Please amend the specification in the following manner:

On page 1, please amend the paragraph beginning on line 5 as follows:

The present invention is related to the following pending applications: Ser. No. 09/970,707, filed October 5, 2001, and entitled "SMART COOLING OF DATA CENTERS", by Patel et al.; Ser. No. ~~XX/XXX,XXX~~ 10/076,635, filed February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al; and Ser. No. ~~XX/XXX,XXX~~ 10/022,010, filed ~~Month DD, YYYY~~ April 16, 2002, and entitled "DATA CENTER ENERGY MANAGEMENT", by Friedrich et al. Each of the above listed cross-references is assigned to the assignee of the present invention and is incorporated by reference herein.

On page 11, please amend the paragraph beginning on line 22 as follows:

As shown in block 106, the pattern recognition software compares the empirical thermal map to a template thermal map. The template thermal map could also be termed a master, or model thermal map. The template basically represents a thermal map of an optimally operating data center cooling system. The template can be dynamic, generated either in real-time from current operating conditions, or can be static, generated prior to the comparing step 106. Computational fluid dynamics (CFD) software tools, such as FLOVENT/AIRPACK, are widely available and known to those skilled in the art. The CFD tool accepts various inputs for modeling, including heat loads from the racks within the data center, velocity of the cooling fluid flowing throughout the data center, temperature, pressure, and the like in the data center. CFD modeling can be used in the design and layout of a data center, suggesting locations for racks and vents. Alternatively, CFD modeling can be used to output a master, template, or model thermal map to be emulated by adjusting cooling system

Vertiv Ex. 1003
Vertiv v. Valtrus

variables. Instructive in this regard is U.S. Patent Application Ser. No. ~~XX/XXX,XXX~~ 10/076,635, filed on February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al., assigned to the assignee hereof and incorporated by reference herein in its entirety.

Vertiv Ex. 1003
Vertiv v. Valtrus

IN THE CLAIMS:

Please amend the claims as set forth below:

1. (Original) A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

2. (Original) The method as claimed in claim 1, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said determining step.

3. (Original) The method as claimed in claim 2, wherein said supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

4. (Original) The method as claimed in claim 3, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

Vertiv Ex. 1003
Vertiv v. Valtrus

5. (Original) The method as claimed in claim 4, wherein said varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

6. (Original) The method as claimed in claim 1, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map.

7. (Original) The method as claimed in claim 1, wherein said identifying step comprises using pattern recognition software.

8. (Original) The method as claimed in claim 1, wherein said plurality of locations of said sensing step comprises locations at various elevations within said building.

9. (Original) The method as claimed in claim 1, wherein said sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors, particle sensors, smoke sensors, and velocity sensors.

10. (Original) A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step;

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comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

11. (Original) The method as claimed in claim 10, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said cooling fluid in accord with said determining step.

12. (Original) The method as claimed in claim 11, wherein said supplying step comprises operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

13. (Original) The method as claimed in claim 12, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

14. (Original) The method as claimed in claim 13, wherein said varying step comprises adjusting at least one of the opening of at least one of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

15. (Original) The method as claimed in claim 10, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map, wherein said thermal mapping software triangulates locations of hot spots.

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16. (Original) The method as claimed in claim 10, wherein said identifying step comprises using pattern recognition software.

17. (Original) The method as claimed in claim 10, wherein said plurality of locations of said sensing step comprises locations at various elevations within said data center.

18. (Original) A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing;

means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

19. (Original) The system as claimed in claim 18, further comprising:

means for determining corrective action to reduce said pattern differentials; and

means for varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said means for determining corrective action.

20. (Original) The system as claimed in claim 19, wherein said means for supplying comprises an air-conditioning system having at least one of a plurality of vents, at least one

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blower, and at least one source of conditioned air, further wherein said means for determining comprises means for correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the respective location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air, and also wherein said means for varying comprises means for adjusting at least one of said plurality of vents, said at least one blower speed, and said at least one source of conditioned air output, wherein said generating means triangulates hot spots from said sensing means.

21. (Newly added) The method as claimed in claim 1, wherein the step of generating an empirical atmospheric map comprises generating a map composed of temperature contours that define various isothermal regions.

22. (Newly added) The method as claimed in claim 1, wherein the step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots.

23. (Newly added) The method as claimed in claim 10, wherein the step of generating an empirical atmospheric map comprises generating a map composed of temperature contours that define various isothermal regions.

24. (Newly added) The method as claimed in claim 10, wherein the step of identifying pattern differentials between said empirical and template atmospheric maps comprises performing at least one of extrapolation and triangulation to determine locations of one or more hot spots.

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REMARKS

Favorable reconsideration of this application is respectfully requested in view of the amendments above and the following remarks. By virtue of the claim amendments, Claims 21-24 have been added. Therefore, Claims 1-24 are pending in the present application.

No new matter has been introduced by way of the claim additions. Moreover, support for the elements in Claims 21-24 may be found, for instance, on page 8, lines 3-9 of the Specification.

Information Disclosure Statement

At the outset, the Applicant notes with appreciation the indication that the references cited in the Information Disclosure Statement filed on July 16, 2002 have been considered by the Examiner.

Drawings

The indication that the formal drawings submitted on April 17, 2002 are approved is also noted with appreciation.

Specification

The Official Action objected to the Specification as containing informalities. The Specification has been amended to replace all recitations of "XX/XXX,XXX" with their corresponding serial numbers. In addition, the Specification has been reviewed for any additional informalities and no other informalities have been found. Accordingly, the Examiner is respectfully requested to withdraw the objection to the specification.

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Claim Rejections Under 35 U.S.C. §102

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

> Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

The Official Action states that Claims 1, 10, and 18 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by the disclosure contained in U.S. Patent No. 5,290,200 to Kiser. However, the Official Action also sets forth rejections of Claims 2-5, 8, 9, 11-14, 17, 19 and 20 as allegedly being anticipated by Kiser. Therefore, the following response discusses these rejections as well.

Initially, the rejection of Claims 1, 10, and 18 is respectfully traversed because the claimed inventions as set forth in Claims 1, 10, and 18 are not anticipated by and are allowable over the disclosure contained in the Kiser document. In addition, the claims that depend therefrom are also allowable over the disclosure contained in the Kiser document at least by virtue of their dependencies and for reasons set forth below.

The present invention as set forth in Claims 1 and 10 pertain to, respectively, a method of controlling atmospheric conditions within a building and a method of cooling a

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data center having equipment therein. In both methods, a conditioned fluid is supplied and at least one atmospheric parameter in a plurality of locations is sensed. An empirical atmospheric map from the results of the sensing step is generated and the empirical atmospheric map is compared to a template atmospheric map. In addition, pattern differentials between the empirical and template atmospheric maps are identified.

The present invention as set forth in Claim 18 pertains to a system for controlling atmospheric conditions within a building. The system includes means for supplying a conditioned fluid inside the building and means for sensing at least one atmospheric parameter in a plurality of locations inside the building. The system also includes means for generating an empirical atmospheric map from the means for sensing and means for comparing the empirical atmospheric map to a template atmospheric map. In addition, the system includes means for identifying characteristics of pattern differentials between the empirical and template atmospheric maps, the characteristics comprising at least one of location, size, and intensity of the pattern differentials.

Kiser relates to "[a] system for maintaining atmospheric conditions in an enclosed building within desired parameters and rapidly evacuating abnormally high amounts of airborne pollutants from localized areas of the building." (Abstract). In setting forth the rejection of Claims 1, 10, and 18, the Official Action alleges that column 7, lines 20-24 of Kiser discloses a "computer 24 for generating an empirical map, empirical thermal map from said means for sensing". It is respectfully submitted that Kiser does not disclose the generation of an empirical map as alleged in the Official Action. An empirical map of any sort is not disclosed anywhere in the Kiser document. In addition, column 7, lines 20-24 of Kiser discusses a control unit that is programmed to periodically poll the sensors 25, 26, 27 or the monitoring devices 28 to receive a signal of the current conditions noted by the sensors 25, 26, 27 or the monitoring devices 28. As can clearly be seen, there is no indication in

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Kiser that an empirical map is generated. Instead, in column 7, lines 20-24, Kiser merely states that current conditions noted by sensors are received by a control unit periodically.

Moreover, the Official Action admits that Kiser fails to disclose the empirical thermal map and a computer configured to generate the empirical thermal map. In paragraph 6, the Official Action states that "Kiser...discloses the claimed invention except step of using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map." Clearly, this statement contradicts the statements made in paragraph 4 of the Official Action. For instance, if Kiser fails to disclose software to form the empirical atmospheric map, how could Kiser include a computer configured to generate the empirical atmospheric map? The answer is that Kiser does not include a computer configured to generate the empirical map nor does Kiser disclose the step of generating the empirical map.

The Official Action also alleges that column 7, lines 25-29 discloses the step of "comparing said empirical atmospheric map to a template atmospheric map, comparing said empirical thermal map to a template thermal map". At least by virtue of Kiser's failure to disclose the generation of an empirical map as discussed hereinabove, Kiser cannot disclose a step of comparing the empirical map to a template atmospheric or thermal map. In addition, column 7, lines 25-29 of Kiser discusses that the current condition received from the sensors is entered into a computer memory and is "compared to stored data representing the desired condition at that location..." The step of comparing current conditions to stored desired condition data is not equivalent to comparing a generated empirical map to a template atmospheric or thermal map as alleged in the Official Action. Clearly, Kiser does not disclose that an empirical map is generated with the conditions noted by the sensors or monitoring devices. In this regard, Kiser fails to disclose the step of "comparing said

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empirical atmospheric map to a template atmospheric map, comparing said empirical thermal map to a template thermal map" as alleged in the Official Action.

The Official Action further alleges that Kiser discloses in column 4, lines 10-20, column 5, lines 30-39, and column 7, lines 39-60, the step of "identifying characteristics of pattern differentials between said empirical and template atmospheric maps, between said empirical and template thermal maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials." It is respectfully submitted that Kiser fails to disclose the above-identified step. Column 4, lines 10-20 of Kiser discusses that the building illustrated in Figure 1 is merely typical and that other types of buildings may employ the invention described in the Kiser document. Thus, this passage of Kiser does not disclose the step of "identifying characteristics of pattern differentials". Column 5, lines 30-39 discusses the use of a light source 30 to detect the level of pollutants. Again, this passage does not relate in any respect to "identifying characteristics of pattern differentials". Column 7, lines 39-60 discusses the importance of maintaining positive pressure in the interior of the building and how this is accomplished in Kiser. Clearly, this passage also does not disclose the step of "identifying characteristics of pattern differentials".

As can be seen from the above-discussion, Kiser fails to disclose each and every element of the claimed invention as set forth in Claims 1, 10, and 18. Therefore, Kiser fails to anticipate the claimed invention as set forth in Claims 1, 10, and 18 and, thus, the claimed invention is distinguishable over the cited reference.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 1, 10, and 19 as being anticipated by the disclosure contained in Kiser as these claims are allowable over Kiser. Claims 2-9, 11-17, 19, and 20 depend from allowable Claims 1, 10, and 18 and are also allowable over the disclosure contained in Kiser at least by virtue of their dependencies.

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For instance, with respect to Claims 2, 11, and 19, Kiser fails to disclose each and every element claimed therein. Claims 2 and 11 pertain to, *inter alia*, a step of determining corrective action to reduce pattern differentials and Claim 19 pertains to a means for determining corrective action to reduce pattern differentials. The pattern differentials cited in these claims pertain to differentials in patterns formed in a comparison between the generated empirical map and the template empirical map. Because Kiser fails to disclose that empirical maps are used in any respect, Kiser cannot disclose the step of determining corrective action to reduce pattern differentials or means for determining corrective action to reduce pattern differentials. In addition, the discussion in column 3, lines 26-39 and column 8, lines 21-56 pertain to a comparison of noted conditions with desired parameters which substantially differs from a comparison of pattern differentials from empirical maps.

Claim Rejections Under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Kiser in view of U.S. Patent No. 6,296,193 to West et al.

Claims 6 and 15 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in Kiser in view of U.S. Patent No. 6,296,193 to West et al. This rejection is respectfully traversed because Kiser and West et al., considered

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singly or in combination do not disclose the claimed invention as set forth in Claims 6 and 15. In addition, West et al. does not make up for the deficiencies in the Kiser document.

The Official Action correctly points out that Kiser fails to disclose the "step of using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map." In an effort to make up for this deficiency, the Official Action relies upon the disclosure contained in West et al. More particularly, the Official Action alleges that column 6, lines 26-28 of the West et al. document discloses this element. This passage in the West et al. document states "the software for the controller 52 estimates the hot and cold duct temperatures." It is unclear how this passage relates in any respect to thermal mapping software. Evidently, the software described in West et al. may estimate temperatures, but there is nothing in that passage to indicate that the software processes input from a sensing step and produces output in the form of an empirical atmospheric map.

Thus, even assuming for the sake of argument that the proposed combination of Kiser and West et al. is valid, such a proposed combination would not yield the present invention as set forth in Claims 6 and 15. Consequently, because the proposed combination of Kiser and West et al. fail to teach or suggest all the claim limitations of Claims 6 and 15, the proposed combination fails the test for obviousness under 35 U.S.C. § 103.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 6 and 15 and to allow those claims.

Kiser in view of U.S. Patent No. 5,506,768 to Seem et al.

Claims 7 and 16 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the disclosure contained in Kiser in view of U.S. Patent No. 5,506,768 to Seem et al. This rejection is respectfully traversed because Kiser and Seem et al., considered

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singly or in combination do not disclose the claimed invention as set forth in Claims 7 and 16. In addition, Seem et al. does not make up for the deficiencies in Kiser.

The Official Action correctly notes that Kiser fails to disclose that the "step of identifying pattern differentials comprises using pattern recognition software." In an effort to make up for this deficiency, the Official Action alleges that Seem et al. discloses that the "step of identifying pattern differentials comprises using pattern recognition software." (column 7, lines 5-9 and column 14, lines 30-33). It is respectfully submitted that Seem et al. fails to disclose the elements of the claimed invention as alleged in the Official Action.

At the outset, it is important to note that Seem et al. pertains to "a pattern recognition adaptive controller configured to dynamically adjust proportional gain and integral time control parameters to minimize integrated absolute errors between a setpoint temperature and a monitored temperature in an HVAC system." (Abstract). The pattern recognition software of Seem et al. also operates to compare "a sampled signal representative of the temperature and determines a smoothed signal based on the sampled signal." (Abstract) Hence, the statement in column 7, lines 5-9 of a controller 20 that "internally incorporates the hardaware and software required to implement the pattern recognition adaptive control process" relates to dynamically adjusting proportional gain and integral control parameters sampled signal representations. In addition, in column 14, lines 30-33, Seem et al. discloses that the pattern recognition adaptive controller has "a variable tune noise band which adjusts automatically to different noise levels in the process." These differ substantially from the pattern recognition software claimed in Claims 7 and 16 of the present invention. More particularly, the pattern recognition software of Claims 7 and 16 operates to compare a generated empirical map with a template empirical map. In the cited passages above, it is evident that Seem et al. fails to disclose that the adaptive controller either generates an empirical map or compares the generated empirical map with a template empirical map.

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Thus, even assuming for the sake of argument that the proposed combination of Kiser and Seem et al. is valid, the proposed combination would not yield the present invention as set forth in Claims 7 and 16. Consequently, because the proposed combination of Kiser and Seem et al. fail to teach or suggest all the claim limitations of Claims 7 and 16, the proposed combination fails the test for obviousness under 35 U.S.C. § 103.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 7 and 16 and to allow those claims.

Newly Added Claims

Claims 21-24 have been added to further define the invention. Claims 21-24 are allowable for at least the reasons set forth above with respect to Claims 1 and 10. In addition, Kiser does not disclose, *inter alia*, the step of generating an empirical map composed of temperature contours that define various isothermal regions as set forth in Claims 21 and 23. Moreover, Kiser does not disclose, *inter alia*, the step of performing at least one of extrapolation and triangulation to determine locations of one or more hot spots as set forth in Claims 22 and 24.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please

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Vertiv v. Valtrus

grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Ratnesh Sharma

Dated: September 16, 2003

By: _____
Timothy B. Kang
Registration No.: 46,423

MANNAVA & KANG
2930 Langdon Gate Drive
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(703) 991-1162 (facsimile)

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Vertiv v. Valtrus

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P. O. Box 272400
Fort Collins, Colorado 80527-2400

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2863

PATENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Ratnesh Sharma

Confirmation No.: 8143

Application No.: 10/123,403

Examiner: John H. Le

Filing Date: April 17, 2002

Group Art Unit: 2863

Title: ATMOSPHERIC CONTROL WITHIN A BUILDING

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Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

(X) Response/Amendment ( ) Petition to extend time to respond
(X) New fee as calculated below ( ) Supplemental Declaration
( ) No additional fee (Address envelope to "Mail Stop Non-Fee Amendment")
( ) Other: _____ (fee $_____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	24	MINUS	20	= 4	X $18	$ 72
INDEP. CLAIMS	3	MINUS	3	= 0	X $84	$ 0
[ ] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ $280	$ 0
EXTENSION FEE	1ST MONTH $110.00 [ ]	2ND MONTH $410.00 [ ]	3RD MONTH $930.00 [ ]	4TH MONTH $1450.00 [ ]		$ 0
					OTHER FEES	$
					TOTAL ADDITIONAL FEE FOR THIS AMENDMENT	$ 72

Charge $ 72 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450.

Date of Deposit:

Typed Name:

Signature:_____

Respectfully submitted,

Ratnesh Sharma

By _____

Timothy B. Kang

Attorney/Agent for Applicant(s)
Reg. No. **46,423**

Date: **Sept. 16, 2003**

Telephone No.: **(703) 560-8503**

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- Attach as First Page to Transmitted Papers -

Vertiv Ex. 1003
Vertiv v. Valtrus

OIPE JC99
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OIPE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Ratnesh Sharma	**Confirmation No.:**	8143
Serial No.:	10/123,403	**Examiner:**	John H. Le
Filed:	April 17, 2002	**Group Art Unit:**	2863
Title:	ATMOSPHERIC CONTROL WITHIN A BUILDING		

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CERTIFICATE OF HAND-DELIVERY WITH THE USPTO

I hereby certify that this correspondence is being deposited with the United States Patent and Trademark Office. This correspondence contains the following document(s):

1 sheet of Transmittal Letter for Response/Amendment. (2 copies).

18 sheets of Amendment Under 37 C.F.R. § 1.111.

Respectfully submitted,

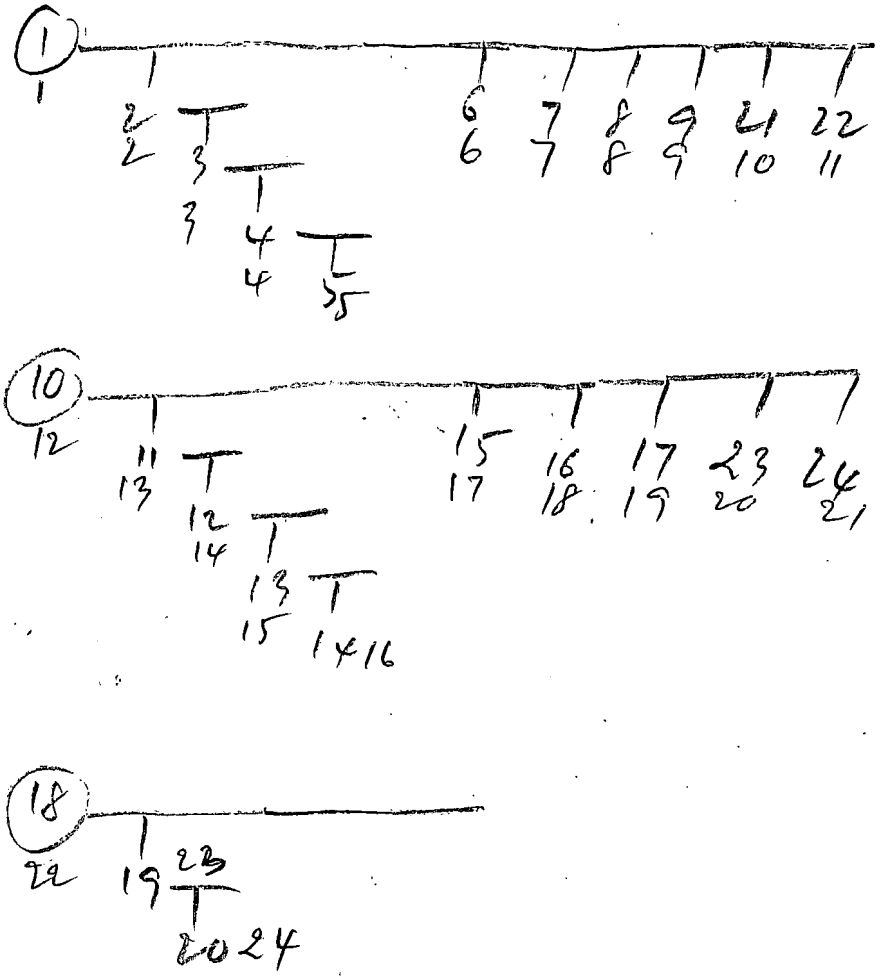
MANNAVA & KANG

On September 16, 2003

Timothy B. Kang
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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

2835
9-23-02

ENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

OIPE JC698
JUL 16 2002
PATENT & TRADEMARK OFFICE

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Ratnesh SHARMA

Confirmation No.:

Application No.: 10/123,403

Examiner: Not Yet Assigned

Filing Date: April 17, 2002

Group Art Unit: N/A

Title: ATMOSPHERIC CONTROL WITHIN A BUILDING

COMMISSIONER FOR PATENTS
Washington, D.C. 20231

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INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

(X) under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of national application; or before mailing date of first office action on the merits; whichever occurs last)

( ) under 37 CFR 1.97(c) together with either a:
( ) Statement under 37 CFR 1.97(e), or
( ) a $180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)

( ) under 37 CFR 1.97 (d) together with a:
( ) Statement under 37 CFR 1.97(e), and
( ) a petition under 37 CFR 1.97(d)(2), and
( ) a $180.00 petition fee set forth in 37 CFR 1.17(p).
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Please charge to Deposit Account **08-2025** the sum of $0.00 . At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **08-2025** pursuant to 37 CFR 1.25.

(X) Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

( ) A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individuals(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

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Date of Deposit

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Washington, D.C. 20231.

By _____

Typed Name:

Respectfully submitted,

Ratnesh SHARMA

By _____

Steven B. Walmsley

Attorney/Agent for Applicant(s)
Reg. No. **48,021**

Date: 7/11/02

Telephone No.: **(202) 663-6087**

Rev 05/02 (IDSXML)

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Vertiv v. Valtrus

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION
ATTORNEY DOCKET NO. 10018557-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Ratnesh SHARMA **Confirmation No.:**

Application No.: 10/123,403 **Examiner:** Not Yet Assigned

Filing Date: April 17, 2002 **Group Art Unit:** N/A

Title: ATMOSPHERIC CONTROL WITHIN A BUILDING

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JUL 16 2002
JC98
PATENT & TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

(X) under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of national application; or before mailing date of first office action on the merits; whichever occurs last)

( ) under 37 CFR 1.97(c) together with either a:
( ) Statement under 37 CFR 1.97(e), or
( ) a $180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)

( ) under 37 CFR 1.97 (d) together with a:
( ) Statement under 37 CFR 1.97(e), and
( ) a petition under 37 CFR 1.97(d)(2), and
( ) a $180.00 petition fee set forth in 37 CFR 1.17(p).
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

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Please charge to Deposit Account **08-2025** the sum of $0.00 . At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **08-2025** pursuant to 37 CFR 1.25.

(X) Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

( ) A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individuals(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

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By _____

Typed Name:

Respectfully submitted,

Ratnesh SHARMA

By _____

Steven B. Walmsley

Attorney/Agent for Applicant(s)
Reg. No. **48,021**

Date: 7/11/02

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Rev 05/02 (IDSXML)

Vertiv Ex. 1003
Vertiv v. Valtrus

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.	APPLICATION NO.	CONFIRMATION NO.
10018557-1	10/123,403	N/A

APPLICANT: Ratnesh SHARMA

FILING DATE: April 17, 2002

GROUP: ~~N/A~~ 2863

OIPE JUL 16 2002 JC98 TRADEMARK OFFICE

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REFERENCE DESIGNATION — U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
AL	1A	2,991,405	Jul 4, 1961	Carlson	318/471
	1B	4,737,917	Apr 12,1988	Perron	700/205
	1C	4,823,290	Apr 18, 1989	Fasack et al.	340/825.01
	1D	5,372,426	Dec 13, 1994	Broudy et al.	374/127
	1E	5,506,768	Apr 9, 1996	Seem et al.	700/41
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	1G	5,249,741	Oct 5, 1993	Bistline et al.	236/49.3
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FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
1L					
1M					
1N					
1O					
1P					

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

1Q	
1R	
1S	

EXAMINER: John Le

DATE CONSIDERED: 06/06/2003

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FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.	APPLICATION NO.	CONFIRMATION NO.
10018557-1	10/123,403	N/A

APPLICANT: Ratnesh SHARMA

FILING DATE	GROUP
April 17, 2002	~~N/A~~ 2863

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REFERENCE DESIGNATION — U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
JV	1A	5,709,100	Jan 20, 1998	Baer et al.	62/259.2
	1B	5,828,572	Oct 27, 1998	Hasegawa et al.	700/117
	1C	6,296,193	Oct 2, 2001	West et al.	236/1B
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	1E	6,080,060	Jun 27, 2000	Larsson	454/187
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	1G				
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FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	1L					
	1M					
	1N					
	1O					
	~~1P~~					

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

1Q	
1R	
1S	

EXAMINER	DATE CONSIDERED
John Le	06/06/2003

Rev 05/02 (PTO1449)

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APR 17 2002 TRADEMARK OFFICE

PATENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

IN THE U.S. PATENT AND TRADEMARK OFFICE
Patent Application Transmittal Letter

04/17/02 jc971 U.S. PTO 10/123403 04/17/02

COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing under 37 CFR 1.53(b) is a(n): (X) Utility ( ) Design
(X) original patent application,
( ) continuation-in-part application

INVENTOR(S): **Ratnesh SHARMA**

TITLE: **ATMOSPHERIC CONTROL WITHIN A BUILDING**

Enclosed are:

(X) The Declaration and Power of Attorney. (X) signed ( ) unsigned or partially signed

(X) 2 sheets of drawings (one set) ( ) Associate Power of Attorney

( ) Form PTO-1449 ( ) Information Disclosure Statement and Form PTO-1449

( ) Priority document(s) ( ) (Other)_____ (fee $_____)

CLAIMS AS FILED BY OTHER THAN A SMALL ENTITY				
(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) TOTALS
TOTAL CLAIMS	20 — 20	0	X $18	$ 0
INDEPENDENT CLAIMS	3 — 3	0	X $84	$ 0
ANY MULTIPLE DEPENDENT CLAIMS	0		$280	$ 0
BASIC FEE: Design ($330.00); Utility ($740.00)				$ 740
TOTAL FILING FEE				$ 740
OTHER FEES				$
TOTAL CHARGES TO DEPOSIT ACCOUNT				$ 740

Charge $ 740 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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By _____

Typed Name:

Respectfully submitted,

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Rev 10/01 (TransNew)

- Attach as First Page to Transmitted Papers -

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION FOR:

ATMOSPHERIC CONTROL WITHIN A BUILDING

INVENTOR:

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HP Docket No.: 10018557-1

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ATMOSPHERIC CONTROL WITHIN A BUILDING

CROSS-REFERENCES TO RELATED APPLICATIONS

The present invention is related to the following pending applications: Ser. No. 09/970,707, filed October 5, 2001, and entitled "SMART COOLING OF DATA CENTERS", by Patel et al.; Ser. No. XX/XXX,XXX, filed February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al; and Ser. No. XX/XXX,XXX, filed Month DD, YYYY, and entitled "DATA CENTER ENERGY MANAGEMENT", by Friedrich et al. Each of the above listed cross-references is assigned to the assignee of the present invention and is incorporated by reference herein.

BACKGROUND

The present invention relates to controlling atmospheric conditions within a building. One type of building is a data center that houses numerous electronic packages. Each electronic package is arranged in one of a plurality of racks distributed throughout the data center. A rack may be defined as an Electronics Industry Association (EIA) enclosure and may be configured to house a number of personal computer (PC) boards. The PC boards typically include a number of electronic packages, such as processors, micro-controllers, high speed video cards, memories, semi-conductor devices, and the like. These electronic packages dissipate relatively significant amounts of heat during the operation of the respective components. For example, a typical PC board comprising multiple microprocessors may dissipate approximately 250 W of power. Thus, a rack containing forty (40) PC boards of this type may dissipate approximately 10 KW of power.

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The power required to remove the heat dissipated by the electronic packages in a given rack is generally equal to about 10 percent of the power needed to operate the packages. However, the power required to remove the heat dissipated by a plurality of racks in a data center is generally equal to about 50 percent of the power needed to operate the packages in the racks. The disparity in the amount of power required to dissipate the various heat loads between racks of data centers stems from the additional thermodynamic work needed in the data center to cool the air. Racks are typically cooled with fans that operate to move cooling fluid, such as air, across the heat dissipating components, whereas data centers often use reverse power cycles to cool heated return air. The additional work required to achieve the temperature reduction, in addition to the work associated with moving the cooling fluid in the data center and the condenser, often add up to the 50 percent power requirement mentioned above. As such, the cooling of entire data centers presents major challenges beyond those faced with the cooling of individual racks of electronic packages.

To substantially guarantee proper operation and to extend the life of the electronic packages arranged in the racks of the data center, it is necessary to maintain the temperatures of the packages within predetermined safe operating ranges. Operation at temperatures above maximum operating temperatures may result in irreversible damage to the electronic packages. In addition, it has been established that the reliabilities of electronic packages, such as semiconductor electronic devices, decrease with increasing temperature. Therefore, the heat energy produced by the electronic packages during operation must thus be removed at a rate that ensures that operational and reliability requirements are met. Because of the relatively large size of data centers and the high number of electronic packages contained therein, it is often expensive to cool data centers within the predetermined temperature ranges.

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Data centers are typically cooled by operation of one or more air conditioning units. The compressors of the air conditioning units typically require a minimum of about thirty (30) percent of the required cooling capacity to sufficiently cool the data centers. The other components, such as condensers, air movers (fans), etc., typically require an additional twenty (20) percent of the required cooling capacity. For example, a high density data center with 100 racks, each rack having a maximum power dissipation of 10KW, generally requires 1 MW of cooling capacity. Air conditioning units with a capacity of 1 MW of heat removal generally require a minimum of 300 KW input compressor power in addition to the power needed to drive the air moving devices, e.g., fans, blowers, etc.

Conventional data center air conditioning units do not vary their cooling output based on the distributed, location-specific needs of the data center. Typically, the distribution of work among the operating electronic components in the data center is random and is not controlled. Because of work distribution, some components in one location of the data center may be operating at a maximum capacity, while other components in another location of the data center may be operating at various power levels below a maximum capacity. Furthermore, conventional cooling systems typically operate at 100 percent of capacity on a continuous basis, thereby cooling all electronic packages, regardless of need. In other words, data centers are air conditioned on an overall, room-level basis, thereby yielding unnecessarily high operating expenses to sufficiently cool the heat generating components contained in the racks of data centers. Moreover, prior art attempts at cooling use relatively inaccurate and unsophisticated methods of monitoring and adjusting temperature distribution that result in less than optimal data center cooling efficiency.

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BRIEF SUMMARY OF THE INVENTION

According to one embodiment of the present invention, there is provided a method of controlling atmospheric conditions within a building. The method includes the steps of supplying a conditioned fluid inside of the building and sensing one or more atmospheric parameters in various locations inside of the building. From the results of the sensing step, an empirical atmospheric map is then generated and compared to a template atmospheric map. Pattern differentials are identified between the empirical and template atmospheric maps, and corrective action is determined to reduce the pattern differentials. Finally, one or more of the quantity, quality, and distribution of the conditioned fluid is varied. According to another aspect of the present invention, there is provided a system for carrying out an embodiment of the method of the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Features and advantages of the present invention will become apparent to those skilled in the art from the following description with reference to the drawings, in which:

Fig. 1 is a schematic illustration of an embodiment of a system of the present invention; and

Fig. 2 is a flow chart of an embodiment of a method of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

The present invention is not limited in its application to the details of any particular arrangement described or shown, since the present invention is capable of multitudes of embodiments without departing from the spirit and scope of the present invention. First, the principles of the present invention are described by referring to only a limited number of embodiments for simplicity and illustrative purposes. Although only a limited number of embodiments of the invention are particularly disclosed herein, one of ordinary skill in the art would readily recognize that the same principles are equally applicable to, and can be implemented in all types of atmospheric control systems. Furthermore, numerous specific details are set forth to convey with reasonable clarity the inventor's possession of the present invention, how to make and/or use the present invention, and the best mode in carrying out the present invention known to the inventor at the time of application. It will, however, be apparent to one of ordinary skill in the art that the present invention may be practiced without limitation to these specific details. In other instances, well known methods and structures have not been described in detail so as not to unnecessarily obscure the present invention. Finally, the terminology used herein is for the purpose of description and not of limitation. Thus, the following detailed description is not to be taken in a limiting sense and the scope of the present invention is defined by the claims and their equivalents.

Generally in accord with the present invention, a method and related system are configured to control one or more atmospheric conditions within a building. More specifically, the method and system are configured to adjust one or more of the quantity, quality, and distribution of a conditioned fluid throughout a data center. The method and system are configured to accomplish such control based upon atmospheric mapping and

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pattern recognition; using as input, one or more atmospheric parameters measured at various, discrete sensor locations throughout the data center.

In accord with one embodiment of the present invention, the amount of energy typically required to cool a data center may be relatively reduced by strategically distributing cooling fluid, or conditioned air, within the data center by substantially favoring or increasing the cooling fluid flow to locations within the data center having racks that dissipate greater amounts of heat, and by substantially disfavoring or decreasing the cooling fluid flow to locations having racks that dissipate lesser amounts of heat. Thus, instead of operating devices, e.g., compressors, fans, etc., of the cooling system at substantially 100 percent of the anticipated heat dissipation from the racks, those devices may be operated according to the actual location and area specific cooling needs. In addition, the racks may be positioned throughout the data center according to their anticipated heat loads to thereby enable computer room air conditioning (CRAC) units located at various positions throughout the data center to operate in a more efficient manner. In another respect, the positioning of the racks and cooling strategy may be determined through implementation of modeling and metrology of the cooling fluid flow throughout the data center. In addition, the numerical modeling may be implemented to determine the volume flow rate and velocity of the cooling fluid flow through the data center.

Referring specifically in detail to the Figures, there is shown in Figure 1 a schematic view of the system 10 that may be used in accordance with an embodiment of the present invention. The system 10 generally includes atmospheric sensors 12, a central processing unit (CPU) 14, and an atmospheric control system 16. The atmospheric control system 16 can be a smart cooling system, exemplified by co-pending U.S. Patent Application Ser. No.

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09/970,707, filed on October 5, 2001, by Patel et al., assigned to the assignee hereof, and incorporated by reference herein in its entirety. Alternatively, it is contemplated that any type of system directed at controlling atmospheric conditions could be employed, including air-conditioner systems, humidifier systems, filtering systems, fire suppression systems, etc.

The atmospheric sensors 12 are used for measuring one or more atmospheric parameter and encompass temperature sensors, such as thermocouples, temperature transducers, thermistors, or the like. The atmospheric sensors 12 could also include humidity sensors, barometric or pressure sensors, fluid velocity sensors, particle sensors, smoke sensors, and the like. The atmospheric sensors 12 are located throughout the portions of a data center type of building (not shown) that are desired to be atmospherically controlled. Specifically, the atmospheric sensors 12 can be positioned in a variety of ways. For example, the atmospheric sensors 12 could be dispersed randomly in various locations and elevations, or aligned according to a predetermined coordinate grid, or placed in alignment with locations of vents and/or racks, or placed in accordance with the recommendations from a computational fluid dynamics model. In any case, it is contemplated that very large data centers, measured in the tens of thousands of square feet, may require thousands of atmospheric sensors 12 spread throughout. The atmospheric sensors 12 are electronically communicated with the CPU 14 either through wiring or via wireless telemetry. In any case, the CPU 14 is capable of keeping track of the location of each atmospheric sensor 12 such that the output of each can be "mapped".

The CPU 14 can be a stand-alone personal computer, a computer board or boards docked within one of the racks in the data center, a computer chip, etc., regardless, the CPU 14 includes various software that is loaded thereto. First, the CPU 14 includes software for

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generating maps of atmospheric conditions, such as thermal mapping software 18. Thermal mapping software 18 is capable of processing thousands of input data points, such as thousands of sensor signals, and outputting map-like information. For example, a thermal map is composed of temperature contours that define various isothermal regions, or isotherms, of distinct temperatures. The most severe of these isotherms are commonly known as "hot spots". Hot spots may not necessarily correspond in exact location to any given temperature sensor, but may be located between various temperature sensors. Nevertheless, thermal mapping software can extrapolate or triangulate the location of the actual hot spot from the known locations of the temperature sensors. So, if temperature sensors are located in a range of elevations in various latitudinal and longitudinal coordinate positions of a data center, the thermal mapping software can triangulate not only the coordinate position of a hot spot, but also the elevation thereof. The temperature sensor readings provide temperature data and data for calculating temperature gradients, which are used to create a thermal map. In the absence of accurate or comprehensive temperature data, temperature gradients can be used to locate hot spots in the data center by mathematical optimization techniques like steepest gradient, etc. In general, triangulation presents a relatively accurate and efficient approximation technique and, thus, it is possible to use fewer, more sparsely distributed temperature sensors to save on equipment expense and failure modes if desired.

Second, the CPU 14 includes software for recognizing pattern differentials in such maps, more commonly known as pattern recognition software 20. Such software basically involves a decoding process in which discriminations in patterns are made without human intervention. Third, strategic software 22 is loaded on the CPU 14 and is used to determine a course of corrective action to minimize or eliminate the pattern differentials by accepting

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output of the mapping software 18, processing it, and outputting commands to the cooling system 16. It is contemplated that commercial, general purpose mathematical optimization software like MATLAB could be adapted to generate thermal maps and identify hot spots by pattern recognition. It is also contemplated at this time that application-specific neural network algorithms can also be used to do the same.

In response, the cooling system 16 is used to vary one or more of the quantity, quality, and distribution of the cooling fluid used to cool the data center. The cooling system 16 encompasses a chiller unit 24, but those skilled in the art will recognize that multitudes of other types of cooling systems are generally well-known and available for use with the present invention including, for example, refrigeration systems, cooling tower systems, cooler-condenser systems, and the like. In any case, the cooling system 16 also includes one or more variable-speed air movers or blowers 26, and one or more remotely controlled dampers or vents 28. Those skilled in the art will recognize that ventilation structure connecting the blower, vents, etc. are well known in the relevant art of Heating, Ventilating, and Air Conditioning (HVAC).

It is possible to vary any combination of cooling system control variables to change the quantity, quality, and/or distribution of the cooling fluid and thereby adjust the atmospheric conditions within the data center. For example, chiller cycle can be increased or decreased between 0% and 100% of operating capacity to change the cooling quality of the cooling fluid, i.e. temperature, humidity, particulate count, etc. To change the quantity of cooling fluid, such as conditioned air, the speed and/or baffling of the blower 26 can be adjusted, and the percentage opening of the vents 28 can be varied, either individually or collectively. Also, if the vents 28 include individual blowers (not shown), such blowers

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could also be adjusted in speed. To change the distribution of conditioned air, one or more of multiple chillers, blowers, and vents can be strategically adjusted to target one or more hot spot locations within the data center. For example, if one corner of the data center is demanding the most significant portion of the cooling needs of the entire data center, then the most proximate chiller(s), blower(s), and vent(s) can be selected, while the other, relatively distant chiller(s), blower(s), and vent(s) can be deactivated or reduced. It is contemplated that any other reasonably foreseen atmospheric control system control variables could also be adjusted.

Referring now to Figure 2, in addition to the embodiment described above, an embodiment of a method of the present invention involves cooperation of the CPU between the temperature sensors and the cooling system. The method of the present invention could also be practiced using other systems besides the one disclosed herein, and thus is not limited thereby. The system disclosed herein is simply one of many possible physical manifestations of the method. As discussed previously, the cooling system supplies a cooling fluid within the data center to cool the equipment within the data center, as shown in block 100. In block 102, the temperature within the data center is sensed in various locations and is communicated to the CPU.

The thermal mapping software converts the point-specific temperature sensor data into information by generating an empirical thermal map therefrom, as depicted in block 104. As discussed above, a thermal map can triangulate hot spots from discrete sensor locations based on mathematical optimization techniques. Hot spots are known to arise in several situations, for example, where electronic packages in a given rack draw exceptional amounts of power due to exceptionally high usage of those packages, and the data center cooling

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system cannot supply enough conditioned fluid to alleviate the overheating. Hot spots may also arise when racks output normal amounts of heat, but the data center cooling system is malfunctioning in a specific location, or in general.

The thermal mapping step may be executed on an instantaneous, snapshot, or sampling basis but, alternatively, this step may be done on a real-time basis. It is also contemplated that the thermal map could be generated directly, without discrete temperature sensors, using thermography technology, based on infrared detection of heat that is emitted by the equipment in the data center. It is further contemplated that the thermal map could be generated by estimating temperature as a function of the power draw to the electronic packages and/or racks within the data center. Thus, the temperature sensing and map generating steps could be accomplished with thermographic equipment and software, or inferring temperature from power draw.

The thermal map also provides a powerful visual tool for a data center operator. A typical data center is a highly thermally interdependent environment where thermal performance of each electronic package of each rack affects performance of neighboring packages and racks to various orders of magnitude. Thus, a thermal map also provides a pictorially informative way of identifying the thermal interdependencies across the data center landscape.

As shown in block 106, the pattern recognition software compares the empirical thermal map to a template thermal map. The template thermal map could also be termed a master, or model thermal map. The template basically represents a thermal map of an optimally operating data center cooling system. The template can be dynamic, generated

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either in real-time from current operating conditions, or can be static, generated prior to the comparing step 106. Computational fluid dynamics (CFD) software tools, such as FLOVENT/AIRPACK, are widely available and known to those skilled in the art. The CFD tool accepts various inputs for modeling, including heat loads from the racks within the data center, velocity of the cooling fluid flowing throughout the data center, temperature, pressure, and the like in the data center. CFD modeling can be used in the design and layout of a data center, suggesting locations for racks and vents. Alternatively, CFD modeling can be used to output a master, template, or model thermal map to be emulated by adjusting cooling system variables. Instructive in this regard is U.S. Patent Application Ser. No. XX/XXX,XXX, filed on February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al., assigned to the assignee hereof and incorporated by reference herein in its entirety.

After, or while, the empirical thermal map is compared to the model thermal map, the pattern recognition software is also applied to recognize pattern differentials therebetween, as depicted in block 108. Pattern recognition is also commonly referred to as template matching, masking, etc. For example, in the case of data center cooling, thermal hot spots can be identified. Once identified, an initial classification step occurs as depicted by block 110. Certain isotherms may exceed a predetermined range of temperature, size, etc., and thus can be targeted for elimination or reduction. Alternatively, if all isotherms are within the predetermined range of temperature, size, etc., then the cooling system simply maintains current operating conditions and settings, as depicted in block 112.

Upon recognizing the pattern differentials, the strategic software is used to determine the corrective action required to eliminate or at least reduce pattern differentials within the

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data center, as depicted in block 114. Control variable data, such as the location of the vents, the capacity of the blower, and the capacity of the chiller, are used to determine how most efficiently to cool the data center. In addition, the thermal map data is also used, such as the location, size, and intensity of the isotherms. Specifically, the above-mentioned data sets are correlated to develop an optimally efficient course of corrective action.

In block 116, based on the corrective action selected, one or more of the quantity, quality, and distribution of the conditioned fluid of the cooling system is varied. For example, if the size and/or intensity of an hot spot isotherm is relatively small, then the cooling system can merely adjust the opening size of the vent closest to the location of the isotherm. If, on the other hand, the size and/or intensity of an isotherm is relatively large, then multiple vents can be adjusted in addition to increasing the chiller cycle. Similarly, if the cooling system included multiple chillers, the chiller most proximate the isotherm could be increased in cycle. In general, the quantity and/or quality of the cooling fluid can be decreased, or maintained, for locations of the data center that exhibit pattern differentials within a predetermined acceptable range. In contrast, the quantity and/or quality of the cooling fluid may be increased for locations of the data center that exhibit pattern differentials outside of a predetermined acceptable range. Finally, the method is carried out such that the temperature sensing step through the step of varying the conditioned air can be a continuous loop.

Those of ordinary skill in the art will recognize that the present invention is capable of substantially reducing the energy consumption associated with cooling a data center, by virtue of using directed, location-specific cooling instead of diffused, room-level cooling. More particularly, the cooling system can be operated relatively more efficiently compared to

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the prior art by virtue of a more precise method of tracking and using actual temperature measurement as an input to cooling system control. In other words, the present invention provides methodology for extracting a large amount of discrete, location-specific temperature data points and converting same into more continuous, fluid-like information in the form of a thermal map. The present invention is suited for use with applications requiring thousands of sensors, or even just a few well-placed sensors. Regardless, the present invention enables use of the spaces between the sensor locations to be included in assessing or triangulating the locations, size, and intensity of hot spots, resulting in more accurate hot spot reduction than the prior art allows for. Therefore, compared to the prior art and for a given size data center, the present invention presents a more accurate and efficient cooling method, thus requiring fewer and smaller cooling devices and less energy consumption.

While the present invention has been described in terms of a limited number of embodiments, it is apparent that other forms could be adopted by one skilled in the art. In other words, the teachings of the present invention encompass any reasonable substitutions or equivalents of claim limitations. For example, other modes of carrying out the method steps could be used in addition to those described here, and the method could be practiced independently of the specific system disclosed herein. Those skilled in the art will appreciate that other applications, including those outside of data center cooling, are possible with this invention. Accordingly, the present invention is not limited to only cooling of data centers, but rather applies broadly to many other environmental control systems, including particulate filtering, HVAC, etc. Accordingly, the scope of the present invention is to be limited only by the following claims.

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What is claimed is:

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

2. The method as claimed in claim 1, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said determining step.

3. The method as claimed in claim 2, wherein said supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

4. The method as claimed in claim 3, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

5. The method as claimed in claim 4, wherein said varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

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6. The method as claimed in claim 1, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map.

7. The method as claimed in claim 1, wherein said identifying step comprises using pattern recognition software.

8. The method as claimed in claim 1, wherein said plurality of locations of said sensing step comprises locations at various elevations within said building.

9. The method as claimed in claim 1, wherein said sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors, particle sensors, smoke sensors, and velocity sensors.

10. A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step;

comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

11. The method as claimed in claim 10, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said cooling fluid in accord with said determining step.

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12. The method as claimed in claim 11, wherein said supplying step comprises operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

13. The method as claimed in claim 12, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

14. The method as claimed in claim 13, wherein said varying step comprises adjusting at least one of the opening of at least one of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

15. The method as claimed in claim 10, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map, wherein said thermal mapping software triangulates locations of hot spots.

16. The method as claimed in claim 10, wherein said identifying step comprises using pattern recognition software.

17. The method as claimed in claim 10, wherein said plurality of locations of said sensing step comprises locations at various elevations within said data center.

18. A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing;

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means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

19. The system as claimed in claim 18, further comprising:

means for determining corrective action to reduce said pattern differentials; and

means for varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said means for determining corrective action.

20. The system as claimed in claim 19, wherein said means for supplying comprises an air-conditioning system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air, further wherein said means for determining comprises means for correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the respective location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air, and also wherein said means for varying comprises means for adjusting at least one of said plurality of vents, said at least one blower speed, and said at least one source of conditioned air output, wherein said generating means triangulates hot spots from said sensing means.

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ABSTRACT

A method and system for controlling atmospheric conditions within a building. A conditioned fluid is supplied inside of the building and one or more atmospheric parameters in various locations inside of the building are sensed. An empirical atmospheric map is then generated and compared to a template atmospheric map. Pattern differentials are identified therebetween and corrective action to reduce the pattern differentials is determined. One or more of the quantity, quality, and distribution of the conditioned fluid is varied in accord with the corrective action determination.

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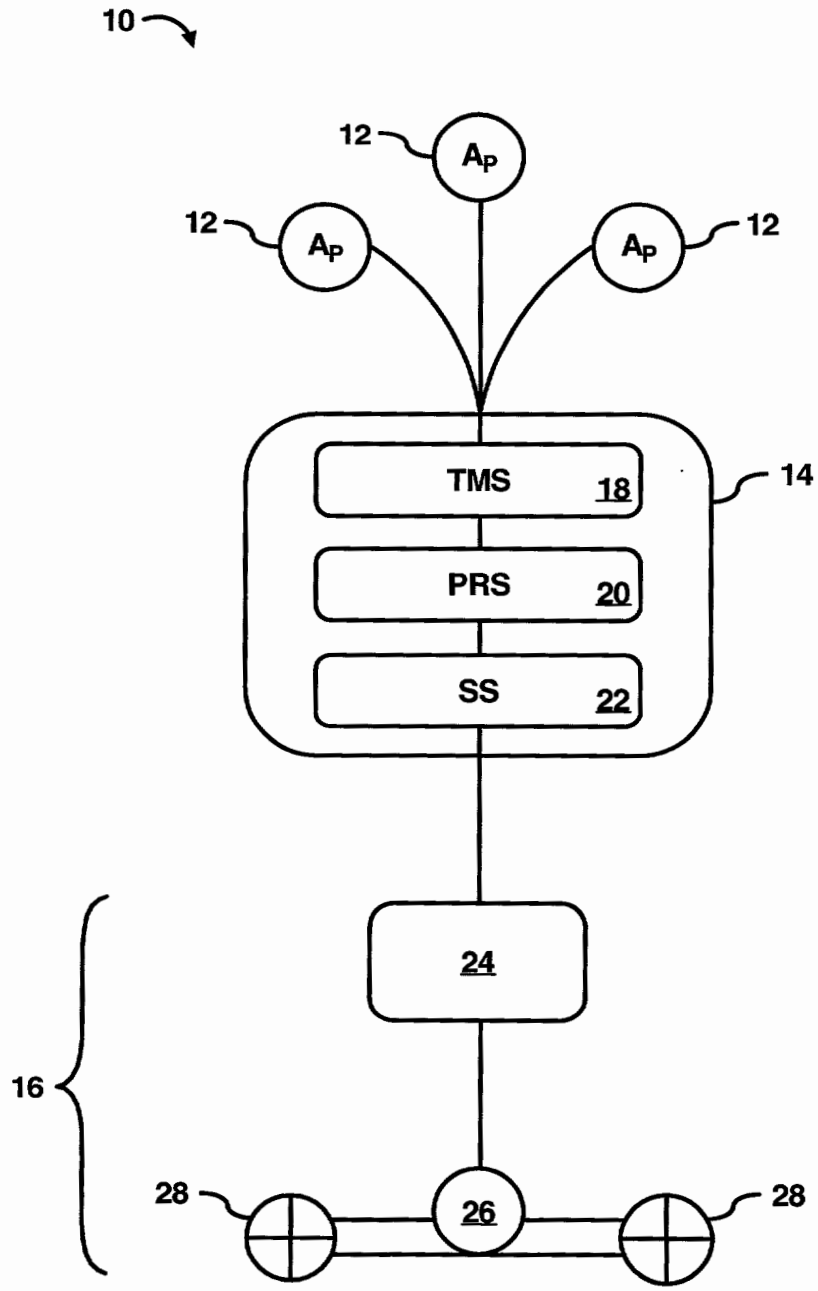


FIG. 1

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Vertiv v. Valtrus

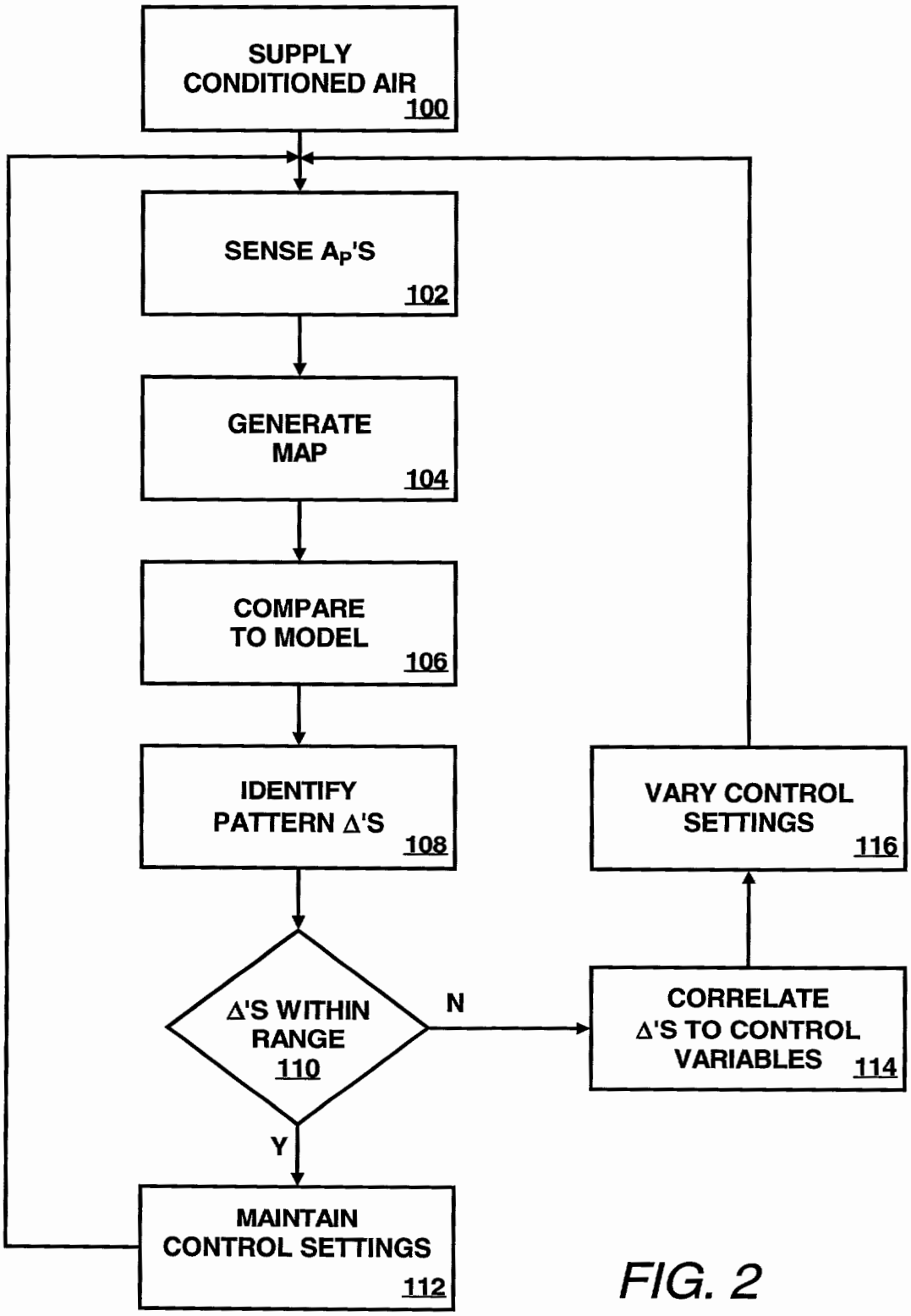

SUPPLY CONDITIONED AIR 100
SENSE A_P'S 102
GENERATE MAP 104
COMPARE TO MODEL 106
IDENTIFY PATTERN Δ'S 108
Δ'S WITHIN RANGE 110
N
Y
CORRELATE Δ'S TO CONTROL VARIABLES 114
VARY CONTROL SETTINGS 116
MAINTAIN CONTROL SETTINGS 112

FIG. 2

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

As a below named inventor, I hereby declare that:

My residence/post office address and citizenship are as stated below next to my name;

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:

ATMOSPHERIC CONTROL WITHIN A BUILDING

the specification of which is attached hereto unless the following box is checked:

(X) was filed on **HEREWITH** as US Application No. or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56.

Foreign Application(s) and/or Claim of Foreign Priority

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

COUNTRY	APPLICATION NUMBER	DATE FILED	PRIORITY CLAIMED UNDER 35 U.S.C. 119
			YES: ___ NO: ___
			YES: ___ NO: ___

Provisional Application

I hereby claim the benefit under Title 35, United States Code Section 119(e) of any United States provisional application(s) listed below:

APPLICATION NUMBER	FILING DATE

U. S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (patented/pending/abandoned)

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Customer Number 022879

Place Customer Number Bar Code Label here

Send Correspondence to:
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Direct Telephone Calls To:
Lloyd E. Dakin, Jr.
(650) 857-2295

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 or any patent issued thereon.

Full Name of Inventor: Ratnesh SHARMA **Citizenship:** IN

Residence: 1501 Decoto Road, #167, Union City, California 94587

Post Office Address: Same as Residence

Ratnesh K Sharma
Inventor's Signature

04/01/2002
Date

Rev 10/01 (DecPwr)

(Use Page Two For Additional Inventor(s) Signature(s))

Vertiv Ex. 1003
Vertiv v. Valtrus

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,718,277 B2
DATED : April 6, 2004
INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Columns 8, 9 and 10,
Please replace claims 1, 12, 17, and 22 with the following claims:

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

12. A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map; comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

17. The method as claimed in claim 12, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical thermal map, wherein said thermal mapping software triangulates locations of hot spots.

22. A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating comprises software for processing input from said means for sensing and for producing output in the form of said empirical atmospheric map;

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,718,277 B2
DATED : April 6, 2004
INVENTOR(S) : Sharma

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 22, cont'd.,

means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

Signed and Sealed this

Sixteenth Day of November, 2004

JON W. DUDAS
Director of the United States Patent and Trademark Office

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COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 8143

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/123,403	04/17/2002 RULE	~~361~~ 702	~~2835~~ 2863	10018557-1

APPLICANTS

Ratnesh Sharma, Union City, CA;

** CONTINUING DATA ********** None

** FOREIGN APPLICATIONS ********** None

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 05/06/2002

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☑ no	CA	2	20	3

35 USC 119 (a-d) conditions met: ☐ yes ☑ no ☐ Met after Allowance

Verified and Acknowledged: Examiner's Signature _____ Initials

ADDRESS

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins , CO 80527-2400

TITLE

Atmospheric control within a building

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
740	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Notice of References Cited	Application/Control No. 10/123,403	Applicant(s)/Patent Under Reexamination SHARMA, RATNESH	
	Examiner John H Le	Art Unit 2863	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,769,315	06-1998	Drees, Kirk H.	236/49.3
	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					
	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.

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Notice of References Cited	Application/Control No. 10/123,403	Applicant(s)/Patent Under Reexamination SHARMA, RATNESH	
	Examiner John H Le	Art Unit 2863	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5074137	12-1991	Harris et al.	73/31.01
	B	US-5290200	03-1994	Kiser	454/229
	C	US-6574104	06-2003	Patel et al.	361/695
	D	US-			
	E	US-			
	F	US-			
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	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

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	Q					
	R					
	S					
	T					

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*		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.

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Vertiv v. Valtrus

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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 12/24/2003

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
LE, JOHN H	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 12/24/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1	8143

TITLE OF INVENTION: ATMOSPHERIC CONTROL WITHIN A BUILDING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	03/24/2004

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 the same, pay the TOTAL FEE(S) DUE shown above.

B. 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

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 Mail Stop 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.

PTOL-85 (Rev. 11/03) Approved for use through 04/30/2004.

Vertiv Ex. 1003
Vertiv v. Valtrus

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000

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 12/24/2003

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

Note: A certificate of mailing 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 or transmission.

Certificate of Mailing or Transmission
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 Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1	8143

TITLE OF INVENTION: ATMOSPHERIC CONTROL WITHIN A BUILDING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1330	$300	$1630	03/24/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
LE, JOHN H	2863	702-132000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ 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; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

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 Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents 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)

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

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Vertiv Ex. 1003
Vertiv v. Valtrus

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1	8143

7590 12/24/2003

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
LE, JOHN H	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 12/24/2003

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

PTOL-85 (Rev. 11/03) Approved for use through 04/30/2004.

Vertiv Ex. 1003
Vertiv v. Valtrus

Notice of Allowability	Application No.	Applicant(s)	
	10/123,403	SHARMA, RATNESH	
	Examiner	Art Unit	
	John H Le	2863	

-- 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 *Applicant's amendment filed 09/16/2003*.
2. ☒ The allowed claim(s) is/are *1-24*.
3. ☒ The drawings filed on *17 April 2002* 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) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
   (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 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

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 (as "replacement sheets") 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 front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

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)
2☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
4☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5☐ Notice of Informal Patent Application (PTO-152)
6☐ Interview Summary (PTO-413), Paper No._____ .
7☒ Examiner's Amendment/Comment
8☒ Examiner's Statement of Reasons for Allowance
9☐ Other .

Vertiv Ex. 1003
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EXAMINER'S AMENDMENT

Response to Amendment

1. Applicant's amendment filed 09/16/2003 has been entered and carefully considered.

Claims 21-24 have been added.

The specification has been amended.

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 Attorney Timothy B. Kang on 12/17/2002.

The applicant has been amended as follows:

In claims:

Claims 1, 10, 15, and 18 replace as follows:

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

10. A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map;

comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

15. The method as claimed in claim 10, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical thermal map, wherein said thermal mapping software triangulates locations of hot spots.

18. A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map;

means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

Reasons for Allowance

3. Claims 1-24 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, none of the prior art of record teaches or suggests the combination of a method of controlling atmospheric conditions within a building, wherein the method comprising the steps of sensing at least one atmospheric parameter in a plurality of locations inside said building; generating an empirical atmospheric map from

the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map; comparing said empirical atmospheric map to a template atmospheric map; and identifying pattern differentials between said empirical and template atmospheric maps. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 10, none of the prior art of record teaches or suggests the combination of a method of cooling a data center having equipment therein, wherein the method comprising the steps of sensing temperature within said data center in a plurality of locations; generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map; comparing said empirical thermal map to a template thermal map; and identifying pattern differentials between said empirical and template thermal maps. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 18, none of the prior art of record teaches or suggests the combination of a system for controlling atmospheric conditions within a building, wherein the system comprising means for sensing at least one atmospheric parameter in a plurality of locations inside said building; means for generating an empirical atmospheric map from said means for sensing, wherein the means for generating using software for processing input from said sensing step and for producing output in the

form of said empirical atmospheric map; means for comparing said empirical atmospheric map to a template atmospheric map; and means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Drees (USP 5769,315) disclose a method and corresponding system that minimizes air flow disturbances in a multi-zone air conditioning system. 315' fails to specify the steps of sensing at least one atmospheric parameter in a plurality of locations inside said building; generating an empirical atmospheric map from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical atmospheric map; comparing said empirical atmospheric map to a template atmospheric map; and identifying pattern differentials between said empirical and template atmospheric maps as now recited in claims 1 and 18 of the present invention. 315' fails to specify the steps of sensing temperature within said data center in a plurality of locations; generating an empirical thermal map of said data center from the results of said sensing step using software for processing input from said sensing step and for producing output in the form of said empirical thermal map; comparing said empirical thermal map to a template thermal map; and identifying pattern differentials between said empirical and template thermal maps as now recited in claim 10 of the present invention.

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."

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is (703) 605-4361. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John H. Le

Patent Examiner-Group 2863

December 18, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/123,403	04/17/2002	Ratnesh Sharma	10018557-1	8143

7590 06/16/2003

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
LE, JOHN H	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 06/16/2003

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

Vertiv Ex. 1003
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Office Action Summary	Application No.	Applicant(s)	
	10/123,403	SHARMA, RATNESH	
	Examiner	Art Unit	
	John H Le	2863	

-- 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 _____ .

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) *1-20* 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) *1-20* 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 *17 April 2002* 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)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Page 1, lines 5-12, Ser. No. XX/XXX,XXX should be avoided or inserted to a correct number.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 10, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiser (USP 5,290,200).

Regarding claims 1, 10, and 18, Kiser teaches a system for controlling atmospheric conditions within a building (Abstract), said system comprising: air handling unit 23 for supplying a conditioned fluid inside said building (Col.6, lines 33-51); sensors 23, 26, 27, 59, which read on means for sensing at least one atmospheric parameter in a plurality of locations inside said building, sensing temperature within data center in a plurality of locations (Fig.3)(Col.4, line 62-Col.7, line 26); computer 24 for generating an

empirical atmospheric map, empirical thermal map from said means for sensing (Col.7, lines 20-24); comparing said empirical atmospheric map to a template atmospheric map, comparing said empirical thermal map to a template thermal map (Col.7, lines 25-29); identifying characteristics of pattern differentials between said empirical and template atmospheric maps, between said empirical and template thermal maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials (Col.4, lines 10-20, Col.5, lines 30-39, Col.7, lines 39-60).

Regarding claims 2, 11, 19, Kiser teaches computer 24 determining corrective action to reduce said pattern differentials (Col.3, lines 26-39, Col.8, lines 21-56); and quality sensors 27a-27e for varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said means for determining corrective action (Col.5, lines 1-8, Col.7, lines 13-29, Col.8, lines 60-66, Col.9, lines 6-11).

Regarding claims 3-5, 12-14, 20, Kiser teaches means for supplying comprises an air-conditioning system having at least one of a plurality of vents 28 (Fig.2) (Col.7, lines36-38), at least one blower 53 (Fig.3)(Col.6, lines 66-68), and at least one source of conditioned air 39 (Col.6, lines 18-32), further wherein said means for determining corrective action comprises means for correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the respective location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air (Col.5, lines 24-49), and also wherein said means for varying quality and distribution of said conditioned fluid comprises means for adjusting at least one of said plurality of vents, said at least one blower speed, and said at least

one source of conditioned air output (Col.8, lines 21-56), wherein said generating means triangulates hot spots 50 from said sensing means (Fig.3) (Col.6, lines 52-55).

Regarding claim 9, Kiser teaches that plurality of locations of said sensors 23, 26, 27, 59 locations at various elevations within said building (Fig.1).

Regarding claims 8, 17, Kiser teaches sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors (Col.3, lines 18-21), particle sensors (Col.8, lines 25-26), smoke sensors (Col.5, line 46), and velocity sensors (Col.7, lines 3-12).

Claim Rejections - 35 USC § 103

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 negatived by the manner in which the invention was made.

6. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiser (USP 5,290,200) in view of West et al. (USP 6,296,193).

Regarding claims 6 and 15, Kiser discussed supra, discloses the claimed invention except step of using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map.

West et al. teach a software for the controller 52 estimates the hot and cold duct temperatures (Col.6, lines 27-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a software for the controller 52 estimates the hot and

cold duct temperatures of West et al. in a system for maintaining atmospheric conditions in an enclosed building of Kiser for the purpose of providing supply of conditioned air to the particular zone (West et al., Col.1, lines 54-56).

7. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiser (USP 5,290,200) in view of Seem et al. (USP 5,506,768).

Regarding claims 7 and 16, Kiser discussed supra, discloses the claimed invention except step of identifying pattern differentials comprises using pattern recognition software.

Seem et al. teach step of identifying pattern differentials comprises using pattern recognition software (Col.7, lines 5-9, Col.14, lines 30-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a pattern recognition software of Seem et al. in a system for maintaining atmospheric conditions in an enclosed building of Kiser for the purpose of providing a method of dynamically adjusting the control parameters of a proportional gain and integral time controller disposed to control an actuator in an HVAC system (West et al., Col.4, lines 34-37).

Other Prior Art

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

Patel (USP 6,574,104) disclose a smart cooling of data centers.

Harris et al. (USP 5,074,137) disclose a programmable atmospheric stabilizer uses one or more sensors for detecting the condition of potentially hazardous materials within a container or some other enclosed atmosphere.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Le whose telephone number is (703) 605-4361. The examiner can normally be reached on Monday to Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. John Barlow, can be reached at (703) 308-3126. The facsimile number for Technology Center 2800 is (703) 308-5841.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of the Technology Center whose telephone number is (703) 308-0956.

John Le

Patent Examiner-Group 2863

June 7, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800

PATENT APPLICATION FEE DETERMINATION RECORD
Effective January 1, 2003

Application or Docket Number

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	minus 20=	*
INDEPENDENT CLAIMS	minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐ OR OTHER THAN SMALL ENTITY

RATE	FEE	OR	RATE	FEE
BASIC FEE	$375	OR	BASIC FEE	$750
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+145=		OR	+280=	
TOTAL		OR	TOTAL	

CLAIMS AS AMENDED - PART II

SMALL ENTITY OR OTHER THAN SMALL ENTITY

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 24	Minus	** 20	= 4
Independent	* 3	Minus	*** 3	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	72
X42=		OR	X84=	
+145=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	72

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+145=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+145=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number: 10018557-1

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20=	* 0
INDEPENDENT CLAIMS	3 minus 3 =	* 0
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL		OR	TOTAL	740

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Vertiv v. Valtrus

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

04/19/2002 WABDELR1 00000030 082025 10123403

01 FC:101 740.00 CH

PTO-1556
(5/87)

*U.S. Government Printing Office: 2001 — 481-697/59173

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ABSTRACT

A method and system for controlling atmospheric conditions within a building. A conditioned fluid is supplied inside of the building and one or more atmospheric parameters in various locations inside of the building are sensed. An empirical atmospheric map is then generated and compared to a template atmospheric map. Pattern differentials are identified therebetween and corrective action to reduce the pattern differentials is determined. One or more of the quantity, quality, and distribution of the conditioned fluid is varied in accord with the corrective action determination.

20050190 PCT/US2004/000024

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ATMOSPHERIC CONTROL WITHIN A BUILDING

CROSS-REFERENCES TO RELATED APPLICATIONS

The present invention is related to the following pending applications: Ser. No. 09/970,707, filed October 5, 2001, and entitled "SMART COOLING OF DATA CENTERS", by Patel et al.; Ser. No. XX/XXX,XXX, filed February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al; and Ser. No. XX/XXX,XXX, filed Month DD, YYYY, and entitled "DATA CENTER ENERGY MANAGEMENT", by Friedrich et al. Each of the above listed cross-references is assigned to the assignee of the present invention and is incorporated by reference herein.

BACKGROUND

The present invention relates to controlling atmospheric conditions within a building. One type of building is a data center that houses numerous electronic packages. Each electronic package is arranged in one of a plurality of racks distributed throughout the data center. A rack may be defined as an Electronics Industry Association (EIA) enclosure and may be configured to house a number of personal computer (PC) boards. The PC boards typically include a number of electronic packages, such as processors, micro-controllers, high speed video cards, memories, semi-conductor devices, and the like. These electronic packages dissipate relatively significant amounts of heat during the operation of the respective components. For example, a typical PC board comprising multiple microprocessors may dissipate approximately 250 W of power. Thus, a rack containing forty (40) PC boards of this type may dissipate approximately 10 KW of power.

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The power required to remove the heat dissipated by the electronic packages in a given rack is generally equal to about 10 percent of the power needed to operate the packages. However, the power required to remove the heat dissipated by a plurality of racks in a data center is generally equal to about 50 percent of the power needed to operate the packages in the racks. The disparity in the amount of power required to dissipate the various heat loads between racks of data centers stems from the additional thermodynamic work needed in the data center to cool the air. Racks are typically cooled with fans that operate to move cooling fluid, such as air, across the heat dissipating components, whereas data centers often use reverse power cycles to cool heated return air. The additional work required to achieve the temperature reduction, in addition to the work associated with moving the cooling fluid in the data center and the condenser, often add up to the 50 percent power requirement mentioned above. As such, the cooling of entire data centers presents major challenges beyond those faced with the cooling of individual racks of electronic packages.

To substantially guarantee proper operation and to extend the life of the electronic packages arranged in the racks of the data center, it is necessary to maintain the temperatures of the packages within predetermined safe operating ranges. Operation at temperatures above maximum operating temperatures may result in irreversible damage to the electronic packages. In addition, it has been established that the reliabilities of electronic packages, such as semiconductor electronic devices, decrease with increasing temperature. Therefore, the heat energy produced by the electronic packages during operation must thus be removed at a rate that ensures that operational and reliability requirements are met. Because of the relatively large size of data centers and the high number of electronic packages contained therein, it is often expensive to cool data centers within the predetermined temperature ranges.

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Data centers are typically cooled by operation of one or more air conditioning units. The compressors of the air conditioning units typically require a minimum of about thirty (30) percent of the required cooling capacity to sufficiently cool the data centers. The other components, such as condensers, air movers (fans), etc., typically require an additional twenty (20) percent of the required cooling capacity. For example, a high density data center with 100 racks, each rack having a maximum power dissipation of 10KW, generally requires 1 MW of cooling capacity. Air conditioning units with a capacity of 1 MW of heat removal generally require a minimum of 300 KW input compressor power in addition to the power needed to drive the air moving devices, e.g., fans, blowers, etc.

Conventional data center air conditioning units do not vary their cooling output based on the distributed, location-specific needs of the data center. Typically, the distribution of work among the operating electronic components in the data center is random and is not controlled. Because of work distribution, some components in one location of the data center may be operating at a maximum capacity, while other components in another location of the data center may be operating at various power levels below a maximum capacity. Furthermore, conventional cooling systems typically operate at 100 percent of capacity on a continuous basis, thereby cooling all electronic packages, regardless of need. In other words, data centers are air conditioned on an overall, room-level basis, thereby yielding unnecessarily high operating expenses to sufficiently cool the heat generating components contained in the racks of data centers. Moreover, prior art attempts at cooling use relatively inaccurate and unsophisticated methods of monitoring and adjusting temperature distribution that result in less than optimal data center cooling efficiency.

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BRIEF SUMMARY OF THE INVENTION

According to one embodiment of the present invention, there is provided a method of controlling atmospheric conditions within a building. The method includes the steps of supplying a conditioned fluid inside of the building and sensing one or more atmospheric parameters in various locations inside of the building. From the results of the sensing step, an empirical atmospheric map is then generated and compared to a template atmospheric map. Pattern differentials are identified between the empirical and template atmospheric maps, and corrective action is determined to reduce the pattern differentials. Finally, one or more of the quantity, quality, and distribution of the conditioned fluid is varied. According to another aspect of the present invention, there is provided a system for carrying out an embodiment of the method of the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Features and advantages of the present invention will become apparent to those skilled in the art from the following description with reference to the drawings, in which:

Fig. 1 is a schematic illustration of an embodiment of a system of the present invention; and

Fig. 2 is a flow chart of an embodiment of a method of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

The present invention is not limited in its application to the details of any particular arrangement described or shown, since the present invention is capable of multitudes of embodiments without departing from the spirit and scope of the present invention. First, the principles of the present invention are described by referring to only a limited number of embodiments for simplicity and illustrative purposes. Although only a limited number of embodiments of the invention are particularly disclosed herein, one of ordinary skill in the art would readily recognize that the same principles are equally applicable to, and can be implemented in all types of atmospheric control systems. Furthermore, numerous specific details are set forth to convey with reasonable clarity the inventor's possession of the present invention, how to make and/or use the present invention, and the best mode in carrying out the present invention known to the inventor at the time of application. It will, however, be apparent to one of ordinary skill in the art that the present invention may be practiced without limitation to these specific details. In other instances, well known methods and structures have not been described in detail so as not to unnecessarily obscure the present invention. Finally, the terminology used herein is for the purpose of description and not of limitation. Thus, the following detailed description is not to be taken in a limiting sense and the scope of the present invention is defined by the claims and their equivalents.

Generally in accord with the present invention, a method and related system are configured to control one or more atmospheric conditions within a building. More specifically, the method and system are configured to adjust one or more of the quantity, quality, and distribution of a conditioned fluid throughout a data center. The method and system are configured to accomplish such control based upon atmospheric mapping and

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pattern recognition; using as input, one or more atmospheric parameters measured at various, discrete sensor locations throughout the data center.

In accord with one embodiment of the present invention, the amount of energy typically required to cool a data center may be relatively reduced by strategically distributing cooling fluid, or conditioned air, within the data center by substantially favoring or increasing the cooling fluid flow to locations within the data center having racks that dissipate greater amounts of heat, and by substantially disfavoring or decreasing the cooling fluid flow to locations having racks that dissipate lesser amounts of heat. Thus, instead of operating devices, e.g., compressors, fans, etc., of the cooling system at substantially 100 percent of the anticipated heat dissipation from the racks, those devices may be operated according to the actual location and area specific cooling needs. In addition, the racks may be positioned throughout the data center according to their anticipated heat loads to thereby enable computer room air conditioning (CRAC) units located at various positions throughout the data center to operate in a more efficient manner. In another respect, the positioning of the racks and cooling strategy may be determined through implementation of modeling and metrology of the cooling fluid flow throughout the data center. In addition, the numerical modeling may be implemented to determine the volume flow rate and velocity of the cooling fluid flow through the data center.

Referring specifically in detail to the Figures, there is shown in Figure 1 a schematic view of the system 10 that may be used in accordance with an embodiment of the present invention. The system 10 generally includes atmospheric sensors 12, a central processing unit (CPU) 14, and an atmospheric control system 16. The atmospheric control system 16 can be a smart cooling system, exemplified by co-pending U.S. Patent Application Ser. No.

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09/970,707, filed on October 5, 2001, by Patel et al., assigned to the assignee hereof, and incorporated by reference herein in its entirety. Alternatively, it is contemplated that any type of system directed at controlling atmospheric conditions could be employed, including air-conditioner systems, humidifier systems, filtering systems, fire suppression systems, etc.

The atmospheric sensors 12 are used for measuring one or more atmospheric parameter and encompass temperature sensors, such as thermocouples, temperature transducers, thermistors, or the like. The atmospheric sensors 12 could also include humidity sensors, barometric or pressure sensors, fluid velocity sensors, particle sensors, smoke sensors, and the like. The atmospheric sensors 12 are located throughout the portions of a data center type of building (not shown) that are desired to be atmospherically controlled. Specifically, the atmospheric sensors 12 can be positioned in a variety of ways. For example, the atmospheric sensors 12 could be dispersed randomly in various locations and elevations, or aligned according to a predetermined coordinate grid, or placed in alignment with locations of vents and/or racks, or placed in accordance with the recommendations from a computational fluid dynamics model. In any case, it is contemplated that very large data centers, measured in the tens of thousands of square feet, may require thousands of atmospheric sensors 12 spread throughout. The atmospheric sensors 12 are electronically communicated with the CPU 14 either through wiring or via wireless telemetry. In any case, the CPU 14 is capable of keeping track of the location of each atmospheric sensor 12 such that the output of each can be "mapped".

The CPU 14 can be a stand-alone personal computer, a computer board or boards docked within one of the racks in the data center, a computer chip, etc., regardless, the CPU 14 includes various software that is loaded thereto. First, the CPU 14 includes software for

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generating maps of atmospheric conditions, such as thermal mapping software 18. Thermal mapping software 18 is capable of processing thousands of input data points, such as thousands of sensor signals, and outputting map-like information. For example, a thermal map is composed of temperature contours that define various isothermal regions, or isotherms, of distinct temperatures. The most severe of these isotherms are commonly known as "hot spots". Hot spots may not necessarily correspond in exact location to any given temperature sensor, but may be located between various temperature sensors. Nevertheless, thermal mapping software can extrapolate or triangulate the location of the actual hot spot from the known locations of the temperature sensors. So, if temperature sensors are located in a range of elevations in various latitudinal and longitudinal coordinate positions of a data center, the thermal mapping software can triangulate not only the coordinate position of a hot spot, but also the elevation thereof. The temperature sensor readings provide temperature data and data for calculating temperature gradients, which are used to create a thermal map. In the absence of accurate or comprehensive temperature data, temperature gradients can be used to locate hot spots in the data center by mathematical optimization techniques like steepest gradient, etc. In general, triangulation presents a relatively accurate and efficient approximation technique and, thus, it is possible to use fewer, more sparsely distributed temperature sensors to save on equipment expense and failure modes if desired.

Second, the CPU 14 includes software for recognizing pattern differentials in such maps, more commonly known as pattern recognition software 20. Such software basically involves a decoding process in which discriminations in patterns are made without human intervention. Third, strategic software 22 is loaded on the CPU 14 and is used to determine a course of corrective action to minimize or eliminate the pattern differentials by accepting

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output of the mapping software 18, processing it, and outputting commands to the cooling system 16. It is contemplated that commercial, general purpose mathematical optimization software like MATLAB could be adapted to generate thermal maps and identify hot spots by pattern recognition. It is also contemplated at this time that application-specific neural network algorithms can also be used to do the same.

In response, the cooling system 16 is used to vary one or more of the quantity, quality, and distribution of the cooling fluid used to cool the data center. The cooling system 16 encompasses a chiller unit 24, but those skilled in the art will recognize that multitudes of other types of cooling systems are generally well-known and available for use with the present invention including, for example, refrigeration systems, cooling tower systems, cooler-condenser systems, and the like. In any case, the cooling system 16 also includes one or more variable-speed air movers or blowers 26, and one or more remotely controlled dampers or vents 28. Those skilled in the art will recognize that ventilation structure connecting the blower, vents, etc. are well known in the relevant art of Heating, Ventilating, and Air Conditioning (HVAC).

It is possible to vary any combination of cooling system control variables to change the quantity, quality, and/or distribution of the cooling fluid and thereby adjust the atmospheric conditions within the data center. For example, chiller cycle can be increased or decreased between 0% and 100% of operating capacity to change the cooling quality of the cooling fluid, i.e. temperature, humidity, particulate count, etc. To change the quantity of cooling fluid, such as conditioned air, the speed and/or baffling of the blower 26 can be adjusted, and the percentage opening of the vents 28 can be varied, either individually or collectively. Also, if the vents 28 include individual blowers (not shown), such blowers

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could also be adjusted in speed. To change the distribution of conditioned air, one or more of multiple chillers, blowers, and vents can be strategically adjusted to target one or more hot spot locations within the data center. For example, if one corner of the data center is demanding the most significant portion of the cooling needs of the entire data center, then the most proximate chiller(s), blower(s), and vent(s) can be selected, while the other, relatively distant chiller(s), blower(s), and vent(s) can be deactivated or reduced. It is contemplated that any other reasonably foreseen atmospheric control system control variables could also be adjusted.

Referring now to Figure 2, in addition to the embodiment described above, an embodiment of a method of the present invention involves cooperation of the CPU between the temperature sensors and the cooling system. The method of the present invention could also be practiced using other systems besides the one disclosed herein, and thus is not limited thereby. The system disclosed herein is simply one of many possible physical manifestations of the method. As discussed previously, the cooling system supplies a cooling fluid within the data center to cool the equipment within the data center, as shown in block 100. In block 102, the temperature within the data center is sensed in various locations and is communicated to the CPU.

The thermal mapping software converts the point-specific temperature sensor data into information by generating an empirical thermal map therefrom, as depicted in block 104. As discussed above, a thermal map can triangulate hot spots from discrete sensor locations based on mathematical optimization techniques. Hot spots are known to arise in several situations, for example, where electronic packages in a given rack draw exceptional amounts of power due to exceptionally high usage of those packages, and the data center cooling

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system cannot supply enough conditioned fluid to alleviate the overheating. Hot spots may also arise when racks output normal amounts of heat, but the data center cooling system is malfunctioning in a specific location, or in general.

The thermal mapping step may be executed on an instantaneous, snapshot, or sampling basis but, alternatively, this step may be done on a real-time basis. It is also contemplated that the thermal map could be generated directly, without discrete temperature sensors, using thermography technology, based on infrared detection of heat that is emitted by the equipment in the data center. It is further contemplated that the thermal map could be generated by estimating temperature as a function of the power draw to the electronic packages and/or racks within the data center. Thus, the temperature sensing and map generating steps could be accomplished with thermographic equipment and software, or inferring temperature from power draw.

The thermal map also provides a powerful visual tool for a data center operator. A typical data center is a highly thermally interdependent environment where thermal performance of each electronic package of each rack affects performance of neighboring packages and racks to various orders of magnitude. Thus, a thermal map also provides a pictorially informative way of identifying the thermal interdependencies across the data center landscape.

As shown in block 106, the pattern recognition software compares the empirical thermal map to a template thermal map. The template thermal map could also be termed a master, or model thermal map. The template basically represents a thermal map of an optimally operating data center cooling system. The template can be dynamic, generated

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either in real-time from current operating conditions, or can be static, generated prior to the comparing step 106. Computational fluid dynamics (CFD) software tools, such as FLOVENT/AIRPACK, are widely available and known to those skilled in the art. The CFD tool accepts various inputs for modeling, including heat loads from the racks within the data center, velocity of the cooling fluid flowing throughout the data center, temperature, pressure, and the like in the data center. CFD modeling can be used in the design and layout of a data center, suggesting locations for racks and vents. Alternatively, CFD modeling can be used to output a master, template, or model thermal map to be emulated by adjusting cooling system variables. Instructive in this regard is U.S. Patent Application Ser. No. XX/XXX,XXX, filed on February 19, 2002, and entitled "DESIGNING LAYOUT FOR INTERNET DATACENTER COOLING", by Nakagawa et al., assigned to the assignee hereof and incorporated by reference herein in its entirety.

After, or while, the empirical thermal map is compared to the model thermal map, the pattern recognition software is also applied to recognize pattern differentials therebetween, as depicted in block 108. Pattern recognition is also commonly referred to as template matching, masking, etc. For example, in the case of data center cooling, thermal hot spots can be identified. Once identified, an initial classification step occurs as depicted by block 110. Certain isotherms may exceed a predetermined range of temperature, size, etc., and thus can be targeted for elimination or reduction. Alternatively, if all isotherms are within the predetermined range of temperature, size, etc., then the cooling system simply maintains current operating conditions and settings, as depicted in block 112.

Upon recognizing the pattern differentials, the strategic software is used to determine the corrective action required to eliminate or at least reduce pattern differentials within the

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data center, as depicted in block 114. Control variable data, such as the location of the vents, the capacity of the blower, and the capacity of the chiller, are used to determine how most efficiently to cool the data center. In addition, the thermal map data is also used, such as the location, size, and intensity of the isotherms. Specifically, the above-mentioned data sets are correlated to develop an optimally efficient course of corrective action.

In block 116, based on the corrective action selected, one or more of the quantity, quality, and distribution of the conditioned fluid of the cooling system is varied. For example, if the size and/or intensity of an hot spot isotherm is relatively small, then the cooling system can merely adjust the opening size of the vent closest to the location of the isotherm. If, on the other hand, the size and/or intensity of an isotherm is relatively large, then multiple vents can be adjusted in addition to increasing the chiller cycle. Similarly, if the cooling system included multiple chillers, the chiller most proximate the isotherm could be increased in cycle. In general, the quantity and/or quality of the cooling fluid can be decreased, or maintained, for locations of the data center that exhibit pattern differentials within a predetermined acceptable range. In contrast, the quantity and/or quality of the cooling fluid may be increased for locations of the data center that exhibit pattern differentials outside of a predetermined acceptable range. Finally, the method is carried out such that the temperature sensing step through the step of varying the conditioned air can be a continuous loop.

Those of ordinary skill in the art will recognize that the present invention is capable of substantially reducing the energy consumption associated with cooling a data center, by virtue of using directed, location-specific cooling instead of diffused, room-level cooling. More particularly, the cooling system can be operated relatively more efficiently compared to

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the prior art by virtue of a more precise method of tracking and using actual temperature measurement as an input to cooling system control. In other words, the present invention provides methodology for extracting a large amount of discrete, location-specific temperature data points and converting same into more continuous, fluid-like information in the form of a thermal map. The present invention is suited for use with applications requiring thousands of sensors, or even just a few well-placed sensors. Regardless, the present invention enables use of the spaces between the sensor locations to be included in assessing or triangulating the locations, size, and intensity of hot spots, resulting in more accurate hot spot reduction than the prior art allows for. Therefore, compared to the prior art and for a given size data center, the present invention presents a more accurate and efficient cooling method, thus requiring fewer and smaller cooling devices and less energy consumption.

While the present invention has been described in terms of a limited number of embodiments, it is apparent that other forms could be adopted by one skilled in the art. In other words, the teachings of the present invention encompass any reasonable substitutions or equivalents of claim limitations. For example, other modes of carrying out the method steps could be used in addition to those described here, and the method could be practiced independently of the specific system disclosed herein. Those skilled in the art will appreciate that other applications, including those outside of data center cooling, are possible with this invention. Accordingly, the present invention is not limited to only cooling of data centers, but rather applies broadly to many other environmental control systems, including particulate filtering, HVAC, etc. Accordingly, the scope of the present invention is to be limited only by the following claims.

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What is claimed is:

1. A method of controlling atmospheric conditions within a building, said method comprising the steps of:

supplying a conditioned fluid inside said building;

sensing at least one atmospheric parameter in a plurality of locations inside said building;

generating an empirical atmospheric map from the results of said sensing step;

comparing said empirical atmospheric map to a template atmospheric map; and

identifying pattern differentials between said empirical and template atmospheric maps.

2. The method as claimed in claim 1, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said determining step.

3. The method as claimed in claim 2, wherein said supplying step comprises the step of operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

4. The method as claimed in claim 3, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

5. The method as claimed in claim 4, wherein said varying step comprises adjusting at least one of the opening of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

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6. The method as claimed in claim 1, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map.

7. The method as claimed in claim 1, wherein said identifying step comprises using pattern recognition software.

8. The method as claimed in claim 1, wherein said plurality of locations of said sensing step comprises locations at various elevations within said building.

9. The method as claimed in claim 1, wherein said sensing step comprises using at least one of temperature sensors, humidity sensors, pressure sensors, particle sensors, smoke sensors, and velocity sensors.

10. A method of cooling a data center having equipment therein, said method comprising the steps of:

supplying a cooling fluid within said data center to cool said equipment within said data center;

sensing temperature within said data center in a plurality of locations;

generating an empirical thermal map of said data center from the results of said sensing step;

comparing said empirical thermal map to a template thermal map; and

identifying pattern differentials between said empirical and template thermal maps.

11. The method as claimed in claim 10, further comprising the steps of:

determining corrective action to reduce said pattern differentials; and

varying at least one of the quantity, quality, and distribution of said cooling fluid in accord with said determining step.

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12. The method as claimed in claim 11, wherein said supplying step comprises operating a system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air.

13. The method as claimed in claim 12, wherein said determining step comprises correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air.

14. The method as claimed in claim 13, wherein said varying step comprises adjusting at least one of the opening of at least one of said plurality of vents, the speed of said at least one blower, and the output of said at least one source of conditioned air.

15. The method as claimed in claim 10, wherein said generating step comprises using thermal mapping software to process input from said sensing step and to produce output in the form of said empirical atmospheric map, wherein said thermal mapping software triangulates locations of hot spots.

16. The method as claimed in claim 10, wherein said identifying step comprises using pattern recognition software.

17. The method as claimed in claim 10, wherein said plurality of locations of said sensing step comprises locations at various elevations within said data center.

18. A system for controlling atmospheric conditions within a building, said system comprising:

means for supplying a conditioned fluid inside said building;

means for sensing at least one atmospheric parameter in a plurality of locations inside said building;

means for generating an empirical atmospheric map from said means for sensing;

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means for comparing said empirical atmospheric map to a template atmospheric map; and

means for identifying characteristics of pattern differentials between said empirical and template atmospheric maps, said characteristics comprising at least one of location, size, and intensity of said pattern differentials.

19. The system as claimed in claim 18, further comprising:

means for determining corrective action to reduce said pattern differentials; and

means for varying at least one of the quantity, quality, and distribution of said conditioned fluid in accord with said means for determining corrective action.

20. The system as claimed in claim 19, wherein said means for supplying comprises an air-conditioning system having at least one of a plurality of vents, at least one blower, and at least one source of conditioned air, further wherein said means for determining comprises means for correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the respective location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air, and also wherein said means for varying comprises means for adjusting at least one of said plurality of vents, said at least one blower speed, and said at least one source of conditioned air output, wherein said generating means triangulates hot spots from said sensing means.

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PATENT APPLICATION

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

As a below named inventor, I hereby declare that:

My residence/post office address and citizenship are as stated below next to my name;

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:

ATMOSPHERIC CONTROL WITHIN A BUILDING

the specification of which is attached hereto unless the following box is checked:

(X) was filed on HEREWITH as US Application No. or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56.

Foreign Application(s) and/or Claim of Foreign Priority

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

COUNTRY	APPLICATION NUMBER	DATE FILED	PRIORITY CLAIMED UNDER 35 U.S.C. 119
			YES: ___ NO: ___
			YES: ___ NO: ___

Provisional Application

I hereby claim the benefit under Title 35, United States Code Section 119(e) of any United States provisional application(s) listed below:

APPLICATION NUMBER	FILING DATE

U. S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (patented/pending/abandoned)

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Customer Number 022879

Place Customer Number Bar Code Label here

Send Correspondence to:
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Direct Telephone Calls To:
Lloyd E. Dakin, Jr.
(650) 857-2295

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 or any patent issued thereon.

Full Name of Inventor: Ratnesh SHARMA **Citizenship:** IN

Residence: 1501 Decoto Road, #167, Union City, California 94587

Post Office Address: Same as Residence

Ratnesh K. Sharma
Inventor's Signature

04/01/2002
Date

Rev 10/01 (DecPwr)

(Use Page Two For Additional Inventor(s) Signature(s))

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HEWLETT-PACKARD COMPANY
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Fort Collins, Colorado 80527-2400

APR 17 2002 TRADEMARK OFFICE

PATENT APPLICATION

ATTORNEY DOCKET NO. 10018557-1

IN THE U.S. PATENT AND TRADEMARK OFFICE
Patent Application Transmittal Letter

04/17/02 U.S. PTO 10/123403 04/17/02

COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing under 37 CFR 1.53(b) is a(n): (X) Utility ( ) Design
(X) original patent application,
( ) continuation-in-part application

INVENTOR(S): **Ratnesh SHARMA**

TITLE: **ATMOSPHERIC CONTROL WITHIN A BUILDING**

Enclosed are:

(X) The Declaration and Power of Attorney. (X) signed ( ) unsigned or partially signed

(X) 2 sheets of drawings (one set) ( ) Associate Power of Attorney

( ) Form PTO-1449 ( ) Information Disclosure Statement and Form PTO-1449

( ) Priority document(s) ( ) (Other) _____ (fee $_____)

CLAIMS AS FILED BY OTHER THAN A SMALL ENTITY				
(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) TOTALS
TOTAL CLAIMS	20 — 20	0	X $18	$ 0
INDEPENDENT CLAIMS	3 — 3	0	X $84	$ 0
ANY MULTIPLE DEPENDENT CLAIMS	0		$280	$ 0
BASIC FEE: Design ($330.00); Utility ($740.00)				$ 740
TOTAL FILING FEE				$ 740
OTHER FEES				$
TOTAL CHARGES TO DEPOSIT ACCOUNT				$ 740

Charge $ 740 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Washington, D.C. 20231.

By _____

Typed Name:

Respectfully submitted,

Ratnesh SHARMA

By John W. Ryan

John W. Ryan

Attorney/Agent for Applicant(s)
Reg. No. **33,771**
Date: April 17, 2002
Telephone No.: **(202) 663-6446**

Rev 10/01 (TransNew)

- Attach as First Page to Transmitted Papers -

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION FOR:

ATMOSPHERIC CONTROL WITHIN A BUILDING

INVENTOR:

Ratnesh SHARMA
1501 Decoto Road, #167
Union City, CA 94587

HP Docket No.: 10018557-1

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[redacted] TO-447A

Staple to face of Application
(Rev. 7-98)

U.S. DEPARTMENT OF COMMERCE
PATENT & TRADEMARK OFFICE

APPLICATION TRANSFER REQUEST FOR S.N. 10123403

Section I. TRANSFER REQUEST BY (PRINT NAME) Guy Date: ~~6/25/99~~ 5/14/02

TO: Art Unit ~~2856~~ ~~2862~~ 2769 Class/sub 702 **FROM:** A.U. 2835 Class 361

REASON: ~~2835~~ air Computer control system for building. does beyond 361

Gatekeeper concurrence _____ Hand carried: Personally accepted by _____

Section II a. DISPOSITION BY RECEIVING TC By: H Washburn A.U. 2857 Date 8-23-02
AV2863

☒ **ACCEPTED BY RECEIVING T.C.**

NOT ACCEPTED ☐ **Forward to receiving TC Post Classifier**

☐ Non-classification issue/other, return to Originating TC/AU _____

REASON:

Section II b. DISPOSITION BY RECEIVING TC POST CLASSIFIER

☐ This dispute was resolved. Forward to TC/AU _____ Class/Sub _____ Post Classifier _____ Date _____

Concurring _____ Date _____

☐ This dispute was not resolved, forward to DISPUTE RESOLUTION PANEL

Post Classifier Assessment:

Gatekeeper Concurrence _____ Post Classifier _____ Date _____

Section III. DISPOSITION BY DISPUTE RESOLUTION PANEL Date _____

Panel Decision: Forward to Technology Center / Art Unit _____ Class/sub _____

REASON:

Panel Member _____ Concurring Panel Member _____

☐ This application **MAY NOT** be returned to the dispute resolution panel. **THIS IS A FINAL DISPOSITI**

Vertiv Ex. 1
Vertiv v. Va

PRINT OF DRAWINGS
AS ORIGINALLY FILED

Hilsted
702-132

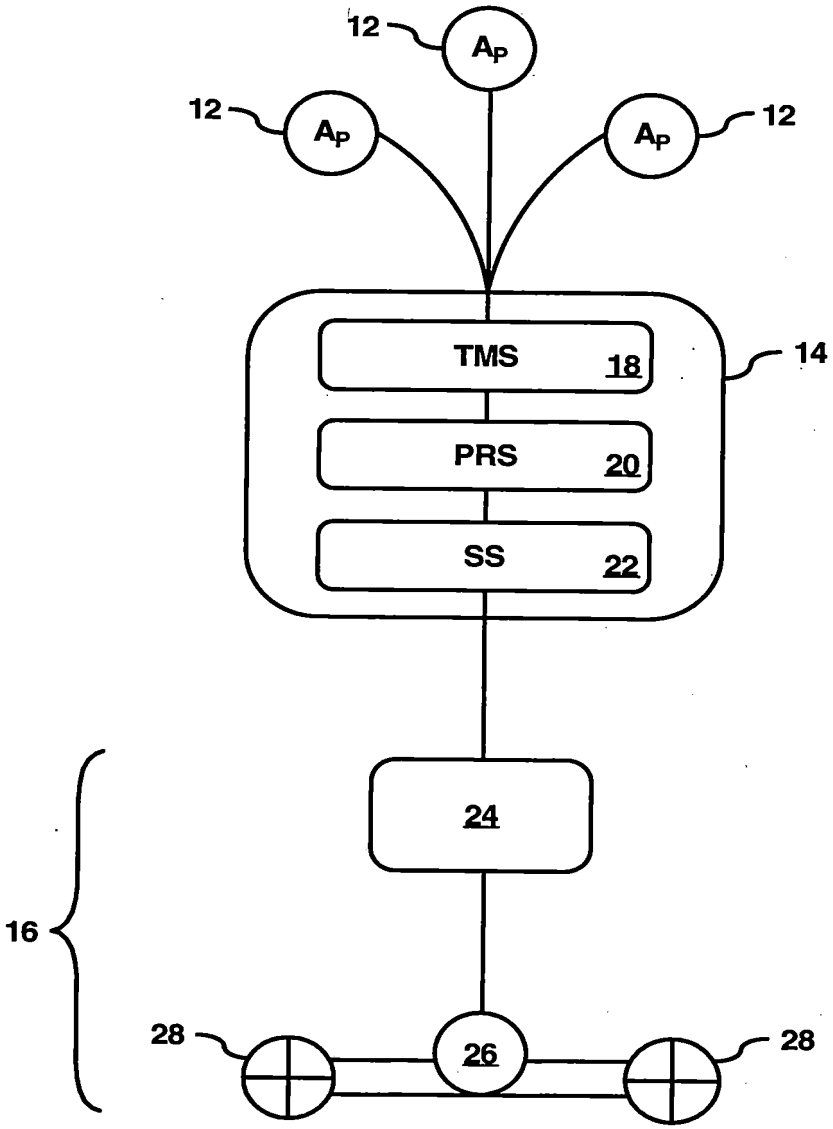


FIG. 1

Vertiv Ex. 1003
Vertiv v. Valtrus

PRINT OF DRAWINGS
AS ORIGINALLY FILED

application filed

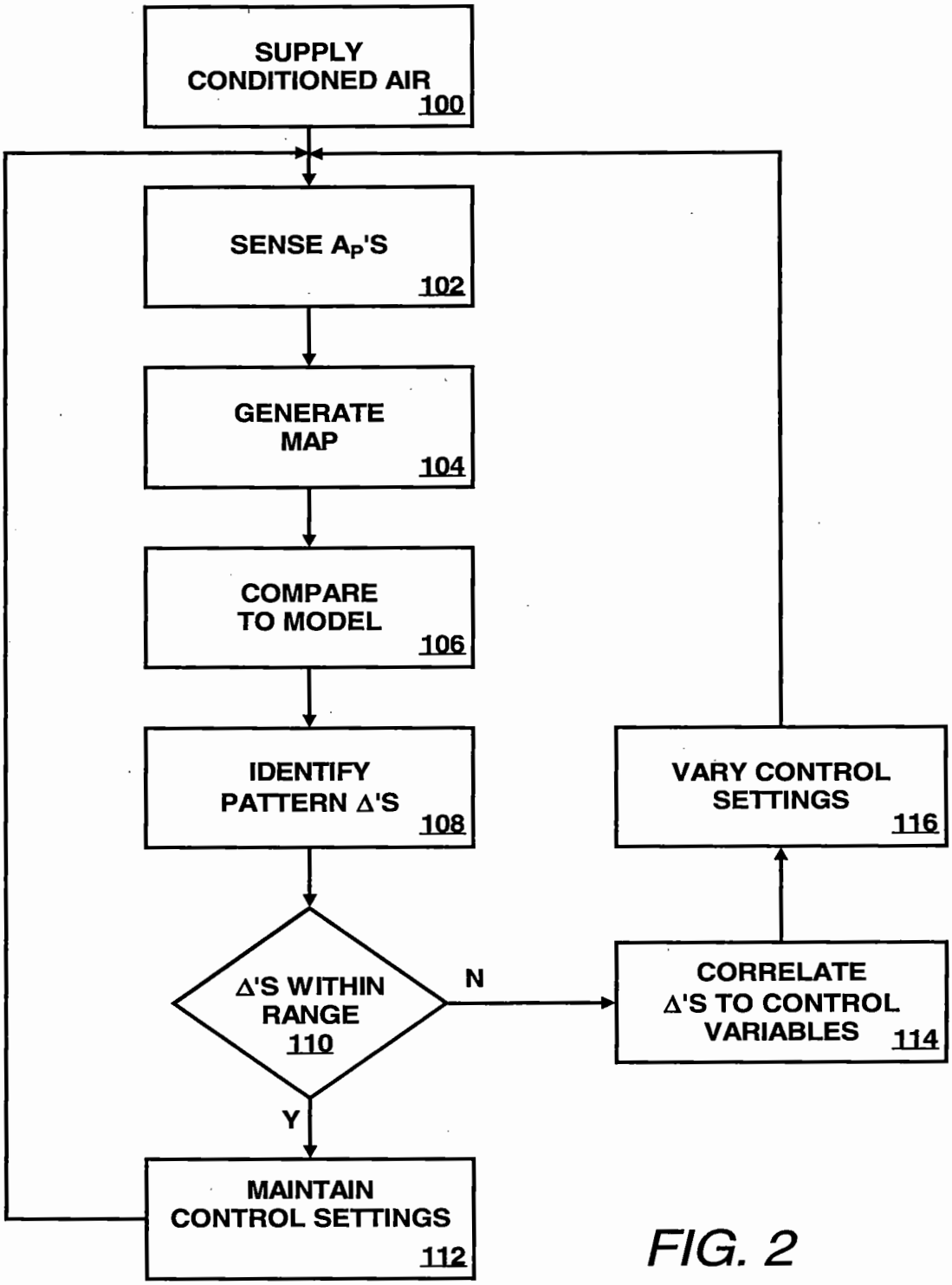


FIG. 2

BY CLASS SUBCLASS
CRAFTSMAN

ATMOSPHERIC CONTROL WITHIN A BUILDING
Ratnesh SHARMA
HP Docket No. 10018557-1

6718277

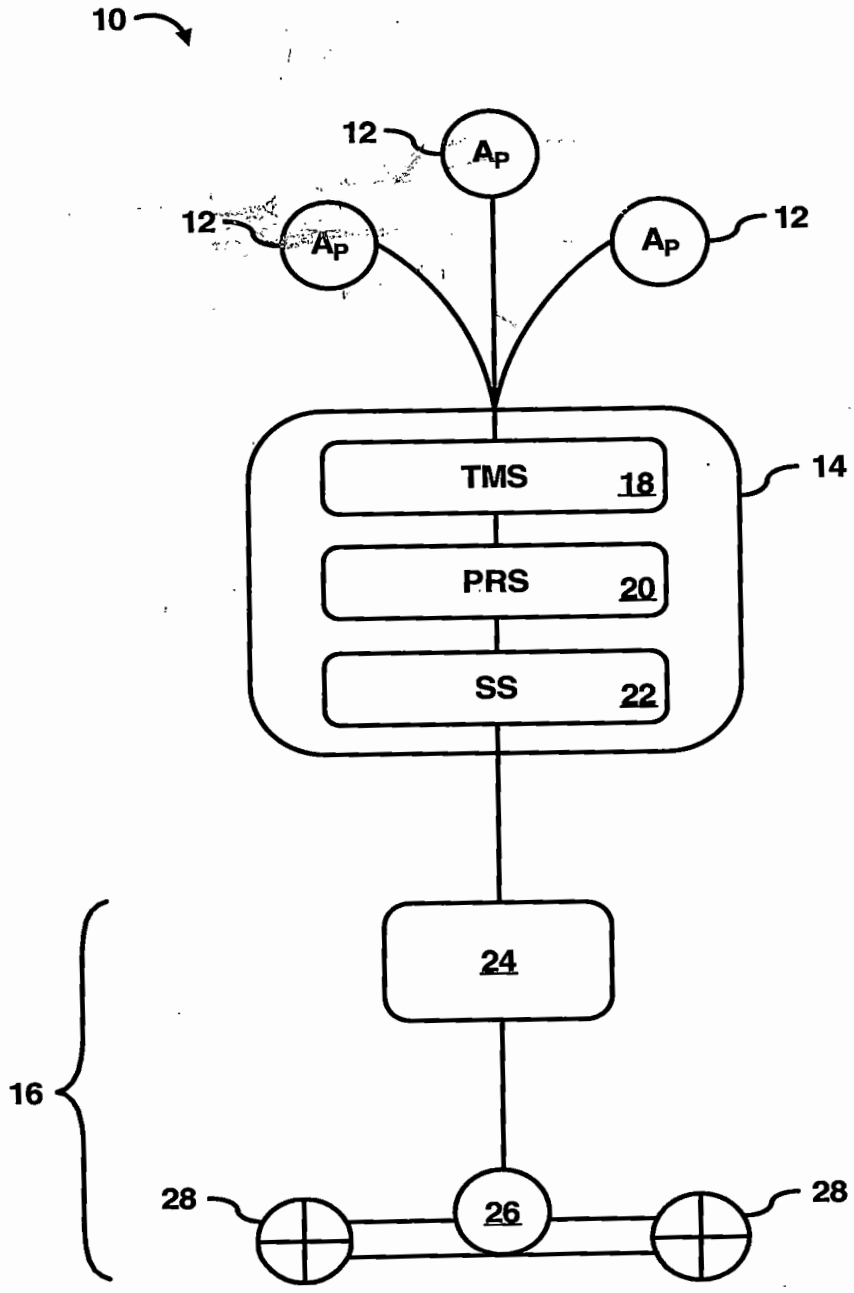


FIG. 1

Vertiv Ex. 1003
Vertiv v. Valtrus

CLAIMS ONLY

SERIAL NO. 10123403

FILING DATE

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
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Vertiv v. Valtrus

ISSUE SLIP STAPLE AREA (for additional cross-references)

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)	
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)
702	192	165	80.03
INTERNATIONAL CLASSIFICATION		236	13 / 49.3
		361	695
G06F	15100	454	229
F24F	71007	700	41
G05D	15100		
	1		
	1		^ Continued on Issue Slip Inside File Jacket

INDEX OF CLAIMS

✓ ..... Rejected – (Through numeral) ... Canceled N ..... Non-elected A ..... Appeal
= ..... Allowed ÷ ..... Restricted I ..... Interference O ..... Objected

Claim Final	Claim Original	Date 06/07/05	Date 12/16/03
1	(1)	✓	=
2	2	✓	=
3	3	✓	=
4	4	✓	=
5	5	✓	=
6	6	✓	=
7	7	✓	=
8	8	✓	=
9	9	✓	=
12	10	✓	=
13	11	✓	=
14	12	✓	=
15	13	✓	=
16	14	✓	=
17	15	✓	=
18	16	✓	=
19	17	✓	=
22	18	✓	=
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24	20	✓	=
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Claim Final	Claim Original	Date
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SEARCH

Class	Sub.	Date	Exmr.
702	132	06/06/03	JL
700	41 70 117 205		
62	180 205 253 263		
236	49.3		
454	187 229 256		
73	31.01 31.02		
361	695		
Update search of the above		12/17/03	JL

SEARCH NOTES

(List databases searched. Attach search strategy inside.)

	Date	Exmr.
EAST SEARCH TEXT SEARCH	06/06/03	JL
AU 2835 No search in Class 361 (See Terminal request)	05/14/02	JL

INTERFERENCE SEARCHED

Class	Sub.	Date	Exmr.

Vertiv Ex. 1003
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L Number	Hits	Search Text	DB	Time stamp
22	1	(atmospheric with map with software)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:35
23	1	(thermal with map) and (software with input with data with point)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:38
24	1	(atmospheric with map) and (software with input with data with point)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:38
25	1	(atmospheric with map) and (software with data with point)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:38
26	8	(atmospheric with map) and (software with input)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 12:05
27	2	(atmospheric with map) and (software with input) and empirical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:51
28	2	((atmospheric with map) and (software with input)) and empirical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:51
32	1	(((computational with fluid with dynamic$1) or CFD) with software) and (thermal with map) and empirical	USPAT; US-PGPUB	2003/12/18 11:59
33	2	(atmospheric with map) and (software with input) and (pattern with different$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 12:07
34	2	((atmospheric with map) and (software with input) and (pattern with different$4)) and empirical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 12:08
35	1	(((atmospheric with map) and (software with input) and (pattern with different$4)) and empirical) and (empirical with thermal)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 12:08
36	1	(((atmospheric with map) and (software with input) and (pattern with different$4)) and empirical) and (empirical with atmospheric)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 12:08
-	0	10/123403	USPAT; US-PGPUB	2003/06/06 15:06
-	1	702/132 and (control$3 with atmospheric)	USPAT; US-PGPUB	2003/12/15 12:46
-	8	("4117527" | "5168439" | "5237338" | "5253613" | "5446362" | "5491610" | "5497288" | "5600575").PN.	USPAT	2003/06/06 15:17
-	11	("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.	USPAT	2003/06/06 15:23
-	106	control$3 same atmospheric same condition same building	USPAT; US-PGPUB	2003/06/06 15:28
-	1	(control$3 same atmospheric same condition same building) and (supply with fluid with condition)	USPAT; US-PGPUB	2003/06/06 16:22

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-	0	((control$3 same atmospheric same condition same building) and (supply with fluid with condition)) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:15
-	25	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:20
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and (empirical with atmospheric with map)	USPAT; US-PGPUB	2003/06/06 15:32
-	6	("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.	USPAT; US-PGPUB	2003/06/06 15:46
-	17	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)	USPAT; US-PGPUB	2003/12/15 13:19
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4) and software	USPAT; US-PGPUB	2003/06/06 15:55
-	0	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4) and software	USPAT; US-PGPUB	2003/06/06 17:09
-	3	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4)	USPAT; US-PGPUB	2003/06/06 17:19
-	166	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)	USPAT; US-PGPUB	2003/06/06 16:00
-	1	(((atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)) and empirical) and template	USPAT; US-PGPUB	2003/06/06 16:01
-	5	((atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)) and empirical	USPAT; US-PGPUB	2003/06/06 16:34
-	0	(empirical with atmospheric with map) and (template with atmospheric with map)	USPAT; US-PGPUB	2003/12/15 11:16
-	25	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:15
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and map$4	USPAT; US-PGPUB	2003/06/06 16:16
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and empirical	USPAT; US-PGPUB	2003/06/06 16:16
-	10	(control$3 same atmospheric same condition same building) and (fluid with condition)	USPAT; US-PGPUB	2003/06/06 17:06
-	0	((control$3 same atmospheric same condition same building) and (fluid with condition)) and empirical	USPAT; US-PGPUB	2003/06/06 16:23
-	0	((control$3 same atmospheric same condition same building) and (fluid with condition)) and template	USPAT; US-PGPUB	2003/06/06 16:23
-	0	(control$3 same atmospheric same condition same building) and (empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:25
-	0	(control$3 same atmospheric same condition) and (empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:26
-	0	(empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:26
-	0	(control$3 same atmospheric same condition) and empirical and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:27
-	9	(control$3 same atmospheric same condition) and empirical and template	USPAT; US-PGPUB	2003/12/15 16:44

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-	0	((control$3 same atmospheric same condition) and empirical and template) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:29
-	2	09/970707	USPAT; US-PGPUB	2003/06/06 16:34
-	6	("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.	USPAT	2003/06/06 16:49
-	1	(("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.) and atmospheric	USPAT	2003/06/06 17:02
-	0	desinging with layout with internet with cooling	USPAT; US-PGPUB	2003/06/06 17:03
-	7	data with center with energy with management	USPAT; US-PGPUB	2003/06/06 17:04
-	25	(control$3 same atmospheric) and (cooling with system) and (data with center)	USPAT; US-PGPUB	2003/06/06 17:08
-	1	((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:11
-	23	((control$3 same atmospheric) and (cooling with system) and (data with center)) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:11
-	1	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3)with atmospheric) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:12
-	1	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3)with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:13
-	3	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3)with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:13
-	0	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (template with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:19
-	10	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/12/15 11:21
-	12	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software	USPAT; US-PGPUB	2003/06/07 16:18
-	1	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and ((thermal or temperature) with software)	USPAT; US-PGPUB	2003/06/07 16:43
-	1	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and (pattern with recognition with software)	USPAT; US-PGPUB	2003/06/07 16:47
-	1	((((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and (pattern with recognition with software)) and (pattern with recognition)	USPAT; US-PGPUB	2003/06/07 16:47

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-	1	(template with atmospheric with map)	USPAT; US-PGPUB	2003/12/15 11:15
-	1	(template with atmospheric with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 11:15
-	3	(empirical with atmospheric with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 13:25
-	1	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric) and (CPU or microcomputer or computer or microprocessor or processor and controller) and empirical	USPAT; US-PGPUB	2003/12/15 11:32
-	1	((empirical with atmospheric with map)) and building	USPAT; US-PGPUB	2003/12/15 11:27
-	0	software with map with atmosheric	USPAT; US-PGPUB	2003/12/15 11:32
-	1	software with map with atmospheric	USPAT; US-PGPUB	2003/12/15 11:33
-	1	software with map with atmospheric	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 11:33
-	1	((empirical with atmospheric with map)) and software	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:09
-	0	((empirical with atmospheric with map)) and program$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 11:34
-	2	(control$3 same atmospheric same condition) and empirical and template and building	USPAT; US-PGPUB	2003/12/16 13:09
-	5	(control$3 same atmospheric) and empirical and template and map and building	USPAT; US-PGPUB	2003/12/15 12:07
-	6	09/970707	USPAT; US-PGPUB	2003/12/15 12:08
-	1	09/970707 and empirical	USPAT; US-PGPUB	2003/12/15 12:09
-	1	empirical with thermal with map	USPAT; US-PGPUB	2003/12/15 12:10
-	1	(empirical with atmospheric) and (template with atmospheric)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:42
-	56	(empirical with atmospheric)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 12:13
-	8	((empirical with atmospheric)) and (control$3 with atmospheric)	USPAT; US-PGPUB	2003/12/15 12:19
-	4	(((empirical with atmospheric)) and (control$3 with atmospheric)) and thermal	USPAT; US-PGPUB	2003/12/15 12:45
-	12	thermal with map$4 with software	USPAT; US-PGPUB	2003/12/15 12:46
-	1	(thermal with map$4 with software) and (control$3 with atmospheric)	USPAT; US-PGPUB	2003/12/15 12:47
-	2	(thermal with map$4 with software) and atmospheric and (data with point)	USPAT; US-PGPUB	2003/12/15 13:20

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-	11	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)	USPAT; US-PGPUB	2003/12/15 13:27
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and (thermal with software) and atmospheric and (data with point)	USPAT; US-PGPUB	2003/12/15 13:21
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and (thermal with software)	USPAT; US-PGPUB	2003/12/15 13:24
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and (thermal with program$6)	USPAT; US-PGPUB	2003/12/15 13:22
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and (template with atmospheric)	USPAT; US-PGPUB	2003/12/15 13:23
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and template	USPAT; US-PGPUB	2003/12/15 13:23
-	4	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and (empirical with atmospheric)) and thermal	USPAT; US-PGPUB	2003/12/15 13:24
-	17	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)	USPAT; US-PGPUB	2003/12/15 13:27
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and (empirical with atmospheric)	USPAT; US-PGPUB	2003/12/15 13:28
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and empirical and atmospheric	USPAT; US-PGPUB	2003/12/15 13:28
-	1	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and empirical	USPAT; US-PGPUB	2003/12/15 13:43
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and empirical and map and thermal and atmospheric	USPAT; US-PGPUB	2003/12/15 13:46
-	52	building and location and empirical and map and thermal and atmospheric	USPAT; US-PGPUB	2003/12/15 13:47

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-	45	(building and location and empirical and map and thermal and atmospheric) and sens$3 and compar$3	USPAT; US-PGPUB	2003/12/15 13:50
-	41	((building and location and empirical and map and thermal and atmospheric) and sens$3 and compar$3) and (CPU or processor or computer)	USPAT; US-PGPUB	2003/12/15 14:39
-	34	(((building and location and empirical and map and thermal and atmospheric) and sens$3 and compar$3) and (CPU or processor or computer)) and software	USPAT; US-PGPUB	2003/12/15 13:56
-	12	((((building and location and empirical and map and thermal and atmospheric) and sens$3 and compar$3) and (CPU or processor or computer)) and software) and (air with condition$4)	USPAT; US-PGPUB	2003/12/15 14:17
-	111	((computational with fluid with dynamic$1) or CFD) with software	USPAT; US-PGPUB	2003/12/15 16:11
-	1	(((computational with fluid with dynamic$1) or CFD) with software) and (template with map) and (thermal with map)	USPAT; US-PGPUB	2003/12/15 14:20
-	1	(((computational with fluid with dynamic$1) or CFD) with software) and (template with map)	USPAT; US-PGPUB	2003/12/15 14:19
-	2	(((computational with fluid with dynamic$1) or CFD) with software) and (thermal with map)	USPAT; US-PGPUB	2003/12/18 11:59
-	1	(((computational with fluid with dynamic$1) or CFD) with software) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:37
-	5	building and (control$6 with atmospheric) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:35
-	1	(data with center with (house or building)) and (control$6 with atmospheric) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:42
-	1	(((computational with fluid with dynamic$1) or CFD) with software) and (atmospheric same map)	USPAT; US-PGPUB	2003/12/15 14:37
-	1	(((computational with fluid with dynamic$1) or CFD) with software) and atmospheric and map	USPAT; US-PGPUB	2003/12/15 14:37
-	6	(location with atmospheric with sensor) and (control$6 with atmospheric) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:43
-	1	(((location with atmospheric with sensor) and (control$6 with atmospheric) and (atmospheric with map)) and (CPU or processor or computer)) and thermal	USPAT; US-PGPUB	2003/12/15 14:39
-	6	((location with atmospheric with sensor) and (control$6 with atmospheric) and (atmospheric with map)) and (CPU or processor or computer)	USPAT; US-PGPUB	2003/12/15 14:40
-	1	(location with atmospheric with sensor) and (house or building) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:43
-	4	(atmospheric with sensor) and (house or building) and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:45
-	7	(atmospheric with sensor) and empirical and (atmospheric with map)	USPAT; US-PGPUB	2003/12/15 14:45
-	8	empirical and template and atmospheric and (atmospheric with sensor)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:06
-	8	(empirical and template and atmospheric and (atmospheric with sensor)) and compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:38
-	1	empirical same template same atmospheric same compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:13
-	1	(empirical same atmospheric same compar$3) and template	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:38

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-	1	(empirical same template same atmospheric) and (atmospheric with sensor) and compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:39
-	1	empirical same atmospheric same template	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 12:34
-	0	empirical same themal same template	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:45
-	9	empirical same thermal same template	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:45
-	1	empirical same thermal same template same compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:45
-	0	(empirical same thermal same template) and (compar$3 with emperical with template)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:46
-	1	(empirical same thermal same template) and (compar$3 with empirical with template)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 15:46
-	0	empirical same (predetermin$3 with atmospheric) same atmospheric same compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:00
-	55	empirical and (predetermin$3 with atmospheric) and atmospheric and compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:09
-	4	(empirical and (predetermin$3 with atmospheric) and atmospheric and compar$3) and ((predetermin$3 with atmospheric) same compar$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:09
-	139	empirical and (samp$3 with atmospheric) and atmospheric and compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:09
-	3	(empirical and (samp$3 with atmospheric) and atmospheric and compar$3) and (empirical same (sample$3 with atmospheric) same compar$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 16:09
-	0	(((computational with fluid with dynamic$1) or CFD) with software) and (empirical same (sample$3 with atmospheric) same compar$3)	USPAT; US-PGPUB	2003/12/15 16:11
-	0	(((computational with fluid with dynamic$1) or CFD)) and (empirical same (sample$3 with atmospheric) same compar$3)	USPAT; US-PGPUB	2003/12/15 16:12
-	1	(atmospheric with sensor) and (empirical same (sample$3 with atmospheric) same compar$3)	USPAT; US-PGPUB	2003/12/15 16:12
-	3	empirical same sample same atmospheric same compar$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:08
-	1	5290200.pn.	USPAT; US-PGPUB	2003/12/15 16:44

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-	3	(empirical with atmospheric with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 12:11
-	1	(empirical with atmospheric with map) and thermal	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:15
-	30	(computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:21
-	1	((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (thermal with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:21
-	10	((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (atmospheric with condition)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:25
-	25	((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (air with condition)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:30
-	1	(((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (air with condition)) and (hot with spot)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:26
-	9	(((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (air with condition)) and vent	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:26
-	11	((computer or CPU or microprocessor or processor) and empirical and (atmospheric with map)) and (air with condition) and (fluid with condition$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/15 17:31
-	0	165/$.ccls. and (empirical with atmospheric with map$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 12:35
-	1	6574104.pn.	USPAT; US-PGPUB	2003/12/16 13:10
-	1	(empirical with thermal with map)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 13:31
-	1	(thermal near2 map near2 software)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 13:32
-	9	(thermal with map with software)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:35
-	6	("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.	USPAT	2003/12/16 17:02
-	0	(("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.) and correct$3 and (quantity or quality)	USPAT	2003/12/16 17:03
-	0	(("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.) and correct$3 and (quantity or quality)	USPAT	2003/12/16 17:03

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-	1	(thermal with map with software) and correct$3 and (quality or quantity) and (cooling with fluid)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 17:05
-	10	(thermal with map) and correct$3 and (quality or quantity) and (cooling with fluid)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/18 11:36
-	29	(thermal with map) and (pattern with recognition)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/17 12:08
-	6	(thermal with map) and (pattern with recognition with software)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/16 17:23
-	10	(thermal with map) and (pattern with recognition) and software and cool$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/17 12:11
-	7	(thermal with map) and ((pattern with recognition) same software) and cool$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/17 12:22
-	7	(thermal with map) and ((pattern with recogni$5) same software) and cool$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/17 12:24
-	2	(thermal with map) and ((pattern with recogni$5) same software) and (hot with spot)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/17 12:24

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L Number	Hits	Search Text	DB	Time stamp
3	12	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software	USPAT; US-PGPUB	2003/06/07 16:18
4	1	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and ((thermal or temperature) with software)	USPAT; US-PGPUB	2003/06/07 16:43
5	1	(((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and (pattern with recognition with software)	USPAT; US-PGPUB	2003/06/07 16:47
6	1	((((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.) and software) and (pattern with recognition with software)) and (pattern with recognition)	USPAT; US-PGPUB	2003/06/07 16:47
-	0	10/123403	USPAT; US-PGPUB	2003/06/06 15:06
-	1	702/132 and (control$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 15:40
-	8	("4117527" | "5168439" | "5237338" | "5253613" | "5446362" | "5491610" | "5497288" | "5600575").PN.	USPAT	2003/06/06 15:17
-	11	("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.	USPAT	2003/06/06 15:23
-	106	control$3 same atmospheric same condition same building	USPAT; US-PGPUB	2003/06/06 15:28
-	1	(control$3 same atmospheric same condition same building) and (supply with fluid with condition)	USPAT; US-PGPUB	2003/06/06 16:22
-	0	((control$3 same atmospheric same condition same building) and (supply with fluid with condition)) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:15
-	25	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:20
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and (empirical with atmospheric with map)	USPAT; US-PGPUB	2003/06/06 15:32
-	6	("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.	USPAT; US-PGPUB	2003/06/06 15:46
-	17	(("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)	USPAT; US-PGPUB	2003/06/07 16:17
-	0	((("2991405" "4737917" "4823290" "5372426" "5506768" "5177972" "5249741" "5326028" "5331825" "5478276" "5687079").pn.) or (("5709100" "5828572" "6296193" "6009939" "6080060" "6283380").pn.)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4) and software	USPAT; US-PGPUB	2003/06/06 15:55

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-	0	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4) and software	USPAT; US-PGPUB	2003/06/06 17:09
-	3	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (thermal with map$4)	USPAT; US-PGPUB	2003/06/06 17:19
-	166	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)	USPAT; US-PGPUB	2003/06/06 16:00
-	1	(((atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)) and empirical) and template	USPAT; US-PGPUB	2003/06/06 16:01
-	5	((atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (atmospheric with map$4)) and empirical	USPAT; US-PGPUB	2003/06/06 16:34
-	0	(empirical with atmospheric with map) and (template with atmospheric with map)	USPAT; US-PGPUB	2003/06/06 16:06
-	25	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:15
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and map$4	USPAT; US-PGPUB	2003/06/06 16:16
-	0	((control$3 same atmospheric same condition same building) and (sens$3 with atmospheric)) and empirical	USPAT; US-PGPUB	2003/06/06 16:16
-	10	(control$3 same atmospheric same condition same building) and (fluid with condition)	USPAT; US-PGPUB	2003/06/06 17:06
-	0	((control$3 same atmospheric same condition same building) and (fluid with condition)) and empirical	USPAT; US-PGPUB	2003/06/06 16:23
-	0	((control$3 same atmospheric same condition same building) and (fluid with condition)) and template	USPAT; US-PGPUB	2003/06/06 16:23
-	0	(control$3 same atmospheric same condition same building) and (empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:25
-	0	(control$3 same atmospheric same condition) and (empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:26
-	0	(empirical near5 atmospheric) and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:26
-	0	(control$3 same atmospheric same condition) and empirical and (template near5 atmospheric)	USPAT; US-PGPUB	2003/06/06 16:27
-	9	(control$3 same atmospheric same condition) and empirical and template	USPAT; US-PGPUB	2003/06/06 16:29
-	0	((control$3 same atmospheric same condition) and empirical and template) and (sens$3 with atmospheric)	USPAT; US-PGPUB	2003/06/06 16:29
-	2	09/970707	USPAT; US-PGPUB	2003/06/06 16:34
-	6	("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.	USPAT	2003/06/06 16:49
-	1	(("5467609" | "5718628" | "5956228" | "6142866" | "6374627" | "6412292").PN.) and atmospheric	USPAT	2003/06/06 17:02
-	0	desinging with layout with internet with cooling	USPAT; US-PGPUB	2003/06/06 17:03
-	7	data with center with energy with management	USPAT; US-PGPUB	2003/06/06 17:04

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-	25	(control$3 same atmospheric) and (cooling with system) and (data with center)	USPAT; US-PGPUB	2003/06/06 17:08
-	1	((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:11
-	23	((control$3 same atmospheric) and (cooling with system) and (data with center)) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:11
-	1	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3) with atmospheric) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:12
-	1	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3) with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:13
-	3	(((control$3 same atmospheric) and (cooling with system) and (data with center)) and (CPU or microcomputer or computer or microprocessor or processor and controller)) and ((sens$3 or detect$3) with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:13
-	0	(atmospheric with sensor) and (CPU or microcomputer or computer or microprocessor or processor and controller) and (template with atmospheric)	USPAT; US-PGPUB	2003/06/06 17:19
-	10	(control$3 same atmospheric same condition same building) and (sens$3 with atmospheric) and (CPU or microcomputer or computer or microprocessor or processor and controller)	USPAT; US-PGPUB	2003/06/06 17:21

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