



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
12/491,773	7939967	2836	9200



Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 56436 on 03/06/2015

- Correspondence Address
- Maintenance Fee Address

The address of record for Customer Number 56436 is:

56436
HP Company
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
Fort Collins, CO 80528



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
12/491,773	7939967	2836	9200



Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 56436 on 02/26/2015

- Correspondence Address
- Maintenance Fee Address

The address of record for Customer Number 56436 is:

56436
HP Company
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
Fort Collins, CO 80528



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/491,773	05/10/2011	7939967	200900008-1	6021

22879 7590 04/20/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 208 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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) WEB site (<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 (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

DANIEL HUMPHREY, Houston, TX;
Amin Bemat, Cypress, TX;
Reynaldo Domingo, Spring, TX;

7/10/09

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12491773
	Filing Date		2009-06-25
	First Named Inventor	Humphrey, Daniel	
	Art Unit	N/A	
	Examiner Name	N/A	
	Attorney Docket Number	200900008-1	

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	~~20080191552~~ 20080191552	A1	2008-08-14	Suzuki	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Robert Deberadinis/	Date Considered	03/09/2011
--------------------	----------------------	-----------------	------------

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

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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 (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 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: Use Block 1 for any change of address)

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.

22879 7590 03/21/2011
HEWLETT-PACKARD COMPANY
 Intellectual Property Administration
 3404 E. Harmony Road
 Mail Stop 35
 FORT COLLINS, CO 80528

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 (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/491,773	06/25/2009	DANIEL HUMPHREY	200900008-1	6021

TITLE OF INVENTION: MULTIPLE POWER SUPPLY CONTROL

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/21/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
DEBRADINIS, ROBERT L.	2836	397-065000

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. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Hewlett-Packard Development Company, L.P.

(B) RESIDENCE (CITY and STATE OR COUNTRY)

Houston, TX U.S.A.

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 submitted:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed
- ☐ Payment by credit card. Form PTO-2030 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 08-2025 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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.

Authorized Signature /Scott K. Gallert/ Reg. No. 51,715

Date 28-MAR-2011

Typed or printed name Scott K. Gallert

Registration No. 51715

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, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	12491773			
Filing Date:	25-Jun-2009			
Title of Invention:	MULTIPLE POWER SUPPLY CONTROL			
First Named Inventor/Applicant Name:	DANIEL HUMPHREY			
Filer:	Scott K. Gallert/kubai hymer			
Attorney Docket Number:	200900008-1			
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1810

Electronic Acknowledgement Receipt

EFS ID:	9767335
Application Number:	12491773
International Application Number:	
Confirmation Number:	6021
Title of Invention:	MULTIPLE POWER SUPPLY CONTROL
First Named Inventor/Applicant Name:	DANIEL HUMPHREY
Customer Number:	22879
Filer:	Scott K. Gallert/kubai hymer
Filer Authorized By:	Scott K. Gallert
Attorney Docket Number:	200900008-1
Receipt Date:	29-MAR-2011
Filing Date:	25-JUN-2009
Time Stamp:	18:50:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IssueFee200900008.pdf	737419 eba501b429923496c9f48f6caae38808437f846e	no	1

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	32106 2ab305e0f7a264436c7cb4346b514b3c37134d55	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				769525	
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. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
 or **Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 5 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: Use Block 1 for any change of address.)

22879 7790 03/21/2011
HEWLETT-PACKARD COMPANY
 Intellectual Property Administration
 3404 E. Harmony Road
 Mail Stop 35
 FORT COLLINS, CO 80528



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 (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12491773	06/25/2009	DANIEL HUMPHREY	200900008-1	6021

TITLE OF INVENTION: MULTIPLE POWER SUPPLY CONTROL

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/23/2011

EXAMINER	ART UNIT	CLASS SUBCLASS	03/30/2011	HVUONG2	00000004	002025	12491773
DEBERADINIS, ROBERT L.	2836	307-065000	01 FC:1501	1510.00	DA		

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:

(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.

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. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Hewlett-Packard Development Company, L.P.

(B) RESIDENCE (CITY and STATE OR COUNTRY)

Houston, TX U.S.A.

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 submitted:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order: # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2036 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s); any deficiency; or credit any overpayment, to Deposit Account Number 08-2025 (enclose an exact copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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.

Authorized Signature: /Scott K. Gallert/ Reg. No. 51,715

Date: 28-MAR-2011

Typed or printed name: Scott K. Gallert

Registration No: 51715

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, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22879 7590 03/21/2011
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER

DEBERADINIS, ROBERT L

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 03/21/2011

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

12/491,773

06/25/2009

DANIEL HUMPHREY

200900008-1

6021

TITLE OF INVENTION: MULTIPLE POWER SUPPLY CONTROL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/21/2011

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 DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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 above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, 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 box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). 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. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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.

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 **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 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: Use Block 1 for any change of address)

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.

22879 7590 03/21/2011
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

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 (571) 273-2885, on the date indicated below.

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

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

12/491,773

06/25/2009

DANIEL HUMPHREY

200900008-1

6021

TITLE OF INVENTION: MULTIPLE POWER SUPPLY CONTROL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
-------------	--------------	---------------	---------------------	----------------------	------------------	----------

nonprovisional

NO

\$1510

\$300

\$0

\$1810

06/21/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
----------	----------	----------------

DEBERADINIS, ROBERT L

2836

307-065000

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,

1 _____

(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.

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. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. 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 submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

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

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

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, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/491,773	06/25/2009	DANIEL HUMPHREY	200900008-1	6021

22879 7590 03/21/2011
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER

DEBERADINIS, ROBERT L

ART UNIT	PAPER NUMBER
----------	--------------

2836

DATE MAILED: 03/21/2011

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 208 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 208 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) WEB site (<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 (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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.

Notice of Allowability	Application No.	Applicant(s)	
	12/491,773	HUMPHREY ET AL.	
	Examiner	Art Unit	
	Robert DeBeradinis	2836	

-- 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 6/25/09.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ 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: ____.

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.

4. ☐ 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.
5. ☐ 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./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- 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 header according to 37 CFR 1.121(d).**
6. ☐ 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)

- | | |
|---|---|
| <p>1. ☒ Notice of References Cited (PTO-892)</p> <p>2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>7/10/09</u></p> <p>4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material</p> | <p>5. ☐ Notice of Informal Patent Application</p> <p>6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.</p> <p>7. ☐ Examiner's Amendment/Comment</p> <p>8. ☒ Examiner's Statement of Reasons for Allowance</p> <p>9. ☐ Other ____.</p> |
|---|---|

DETAILED ACTION

Conclusion

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

FERGUSON 5,894,413 discloses during normal operating conditions a primary supply delivers most of the current, because it operates in a remote sense configuration

PERPER et al. 20090224603 discloses energy conserving mode wherein high power and low power, power supplies are turned on/off based on real time power consumption.

SHIMIZU 7,701,089 discloses power supply circuit for changing the voltage input from the first power supply to a first constant voltage and outputting the first constant voltage to the load, a first switch part for controlling the input of the first constant voltage to the load, a second power supply for supplying second power to the load, a second constant voltage circuit part for changing the voltage input from the second constant voltage to the load, and a second switch part for controlling the input of the second constant voltage to the load.

Allowable Subject Matter

Claims 1-15 allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record does not disclose or suggest, inter alia, the first power supply configured to issue an alert signal upon failure of the first source and a second power supply configured to transition from a lesser output level to a greater output level.

Art Unit: 2836

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."

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (571) 272-2049. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Jared Fureman can be reached on (571) 272-2391. The Fax phone number for this Group is (571) 272-8300.

RLD

MARCH 9, 2011

/Robert DeBeradinis/

Primary Examiner, Art Unit 2836

Notice of References Cited	Application/Control No. 12/491,773		Applicant(s)/Patent Under Reexamination HUMPHREY ET AL.	
	Examiner Robert DeBeradinis		Art Unit 2836	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,701,089	04-2010	Shimizu, Shinya	307/80
*	B	US-5,894,413	04-1999	Ferguson, Bruce R.	363/65
*	C	US-2009/0224603	09-2009	Perper et al.	307/43
	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.

Search Notes

Application/Control No.

12/491,773

Examiner

Robert DeBeradinis

Applicant(s)/Patent under
Reexamination

HUMPHREY ET AL.

Art Unit

2836

SEARCHED

Class	Subclass	Date	Examiner
307	65	3/9/2011	RLD

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
INTERFERENCE		3/9/2011	RLD

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
TEXT	3/9/2011	RLD

Issue Classification 	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/491,773	HUMPHREY ET AL.	
	Examiner	Art Unit	
	Robert DeBeradinis	2836	

ISSUE CLASSIFICATION												
ORIGINAL					CROSS REFERENCE(S)							
CLASS		SUBCLASS			CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
307		65										
INTERNATIONAL CLASSIFICATION												
H	0	2	J	9/00								
				/								
				/								
				/								
				/								
NONE (Assistant Examiner) (Date)					/ROBERT L. DEBERADINIS/ 3/9/11 (Primary Examiner) (Date)					Total Claims Allowed: 15		
(Legal Instruments Examiner) (Date)										O.G. Print Claim(s) 1	O.G. Print Fig. 1	

☒ Claims renumbered in the same order as presented by applicant												☐ CPA		☐ T.D.		☐ R.1.47	
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original				
	1		31		61		91		121		151		181				
	2		32		62		92		122		152		182				
	3		33		63		93		123		153		183				
	4		34		64		94		124		154		184				
	5		35		65		95		125		155		185				
	6		36		66		96		126		156		186				
	7		37		67		97		127		157		187				
	8		38		68		98		128		158		188				
	9		39		69		99		129		159		189				
	10		40		70		100		130		160		190				
	11		41		71		101		131		161		191				
	12		42		72		102		132		162		192				
	13		43		73		103		133		163		193				
	14		44		74		104		134		164		194				
	15		45		75		105		135		165		195				
	16		46		76		106		136		166		196				
	17		47		77		107		137		167		197				
	18		48		78		108		138		168		198				
	19		49		79		109		139		169		199				
	20		50		80		110		140		170		200				
	21		51		81		111		141		171		201				
	22		52		82		112		142		172		202				
	23		53		83		113		143		173		203				
	24		54		84		114		144		174		204				
	25		55		85		115		145		175		205				
	26		56		86		116		146		176		206				
	27		57		87		117		147		177		207				
	28		58		88		118		148		178		208				
	29		59		89		119		149		179		209				
	30		60		90		120		150		180		210				

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	48	(FIRST SAME POWER ADJ SUPPLY SAME RESPONSE SAME SECOND SAME OUTPUT ADJ LEVEL). CLM.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/09 10:32
L5	13	(FIRST ADJ POWER ADJ SUPPLY SAME RESPONSE SAME SECOND ADJ POWER ADJ SUPPLY SAME SECOND SAME OUTPUT ADJ LEVEL). CLM.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/09 10:34
S82	177	backup same supply same transition same power	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/06 14:47
S88	12	standby adj power adj supply same alert	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/06 14:56
S94	19	first adj source same second adj source same electrical adj energy and alarm	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 10:38
S95	4	first adj source same second adj source same electrical adj energy and sleep	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 10:46

S96	26	first adj source same second adj source and electrical adj energy and sleep	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 10:46
S97	54	first adj source same second adj source and sleep same energy	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 10:52
S101	515	standby and alert adj signal	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 11:26
S102	77	standby same alert adj signal	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 11:26
S103	245	failure same first adj source	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 11:34
S104	23	failure same first adj source and standby	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 11:34
S105	367	failure and first adj source and standby	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 12:22
S116	114	standby same ac same efficiency	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 18:28
S117	2	standby same ac same efficiency and first adj source	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 18:28

S118	8	standby same ac and efficiency and first adj source	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 18:44
S120	32	power adj supply same sleep same voltage same run same voltage	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 19:25
S121	270	power adj supply same sleep same ac	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/07 19:36

3/ 9/ 11 10:37:16 AM

C:\ Documents and Settings\ RDEBERADI NI S\ My Documents\ EAST\ \ default.wsp

7/10/09

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12491773	
	Filing Date		2009-06-25	
	First Named Inventor	Humphrey, Daniel		
	Art Unit	N/A		
	Examiner Name	N/A		
	Attorney Docket Number	200900008-1		

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20008019155	A1	2008-08-14	Suzuki	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Robert Deberadinis/	Date Considered	03/09/2011
--------------------	----------------------	-----------------	------------

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

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (04-09)

Approved for use through 05/31/2009. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12491773
	Filing Date		2009-06-25
	First Named Inventor	Humphrey, Daniel	
	Art Unit	N/A	
	Examiner Name	N/A	
	Attorney Docket Number	200900008-1	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	7082042	B2	2006-07-25	Harris	
	2	7436950	B2	2008-10-14	Chheda	
	3	7368832	B2	2008-05-06	Peck	
	4	5675480	A	1997-10-07	Sanford	
	5	5200643	A	1993-04-06	Brown	
	6	4860188	A	1989-08-22	Bailey	
	7	5894413	A	1999-04-13	Ferguson	
If you wish to add additional U.S. Patent citation information please click the Add button.						
U.S.PATENT APPLICATION PUBLICATIONS						



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6021

SERIAL NUMBER 12/491,773	FILING or 371(c) DATE 06/25/2009 RULE	CLASS 307	GROUP ART UNIT 2836	ATTORNEY DOCKET NO. 200900008-1	
APPLICANTS DANIEL HUMPHREY, Houston, TX; Amin Bemat, Cypress, TX; Reynaldo Domingo, Spring, TX; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 07/06/2009					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and /ROBERT L DEBERADINIS/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY TX	SHEETS DRAWINGS 3	TOTAL CLAIMS 15	INDEPENDENT CLAIMS 3
ADDRESS HEWLETT-PACKARD COMPANY Intellectual Property Administration 3404 E. Harmony Road Mail Stop 35 FORT COLLINS, CO 80528 UNITED STATES					
TITLE MULTIPLE POWER SUPPLY CONTROL					
FILING FEE RECEIVED 1090	FEES: Authority has been given in Paper 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		



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/491,773	06/25/2009	DANIEL HUMPHREY	200900008-1

CONFIRMATION NO. 6021

PUBLICATION NOTICE



OC000000045208539

22879
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

Title:MULTIPLE POWER SUPPLY CONTROL

Publication No.US-2010-0327656-A1

Publication Date:12/30/2010

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Acknowledgement Receipt

EFS ID:	5681628
Application Number:	12491773
International Application Number:	
Confirmation Number:	6021
Title of Invention:	MULTIPLE POWER SUPPLY CONTROL
First Named Inventor/Applicant Name:	DANIEL HUMPHREY
Customer Number:	22879
Filer:	Scott K. Gallert/kubai hymer
Filer Authorized By:	Scott K. Gallert
Attorney Docket Number:	200900008-1
Receipt Date:	10-JUL-2009
Filing Date:	25-JUN-2009
Time Stamp:	16:13:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS200900008.pdf	1305790 3678749227240094623aea55aa6bf627e1175eac	yes	4

Multipart Description/PDF files in .zip description			
Document Description		Start	End
Transmittal Letter		1	1
Information Disclosure Statement (IDS) Filed (SB/08)		2	4

Warnings:

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

Information:

Total Files Size (in bytes):	1305790
-------------------------------------	---------

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 a 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12491773
	Filing Date		2009-06-25
	First Named Inventor	Humphrey, Daniel	
	Art Unit	N/A	
	Examiner Name	N/A	
	Attorney Docket Number	200900008-1	

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20008019155	A1	2008-08-14	Suzuki	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

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

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (04-09)

Approved for use through 05/31/2009. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12491773
	Filing Date		2009-06-25
	First Named Inventor	Humphrey, Daniel	
	Art Unit	N/A	
	Examiner Name	N/A	
	Attorney Docket Number	200900008-1	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	7082042	B2	2006-07-25	Harris	
	2	7436950	B2	2008-10-14	Chheda	
	3	7368832	B2	2008-05-06	Peck	
	4	5675480	A	1997-10-07	Sanford	
	5	5200643	A	1993-04-06	Brown	
	6	4860188	A	1989-08-22	Bailey	
	7	5894413	A	1999-04-13	Ferguson	
If you wish to add additional U.S. Patent citation information please click the Add button.						
U.S.PATENT APPLICATION PUBLICATIONS						

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12491773
Filing Date	2009-06-25
First Named Inventor	Humphrey, Daniel
Art Unit	N/A
Examiner Name	N/A
Attorney Docket Number	200900008-1

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- ☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

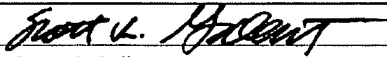
OR

- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☐ See attached certification statement.
- ☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- ☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	2009-07-10
Name/Print	Scott K. Gallert	Registration Number	51715

This collection of information is required by 37 CFR 1.97 and 1.98. 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 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: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

PATENT APPLICATION

ATTORNEY DOCKET NO. 200900008-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Daniel Humphrey et al

Confirmation No.: 6021

Application No.: 12/491773

Examiner: N/A

Filing Date: Jun 25, 2009

Group Art Unit: N/A

Title: MULTIPLE POWER SUPPLY CONTROL

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

This Information Disclosure Statement is submitted:

- ☒ 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 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 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)(1) or (2), and
☐ a \$180 fee set forth in 37 CFR 1.17 (p)
(Filed after final action, a notice of allowance, on or before payment of the issue fee)

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 over payment to Deposit Account **08-2025** pursuant to 37 CFR 1.25.

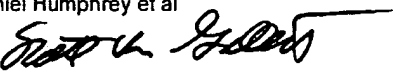
Applicant(s) submit herewith form PTO/SB/08B - Information Disclosure Statement together with any required copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may 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/SB/08B, as presently understood by the individual(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/SB/08B and is enclosed.

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

Respectfully submitted,

Daniel Humphrey et al

By: 

Scott K. Gallert

Attorney/Agent for Applicant(s)

Reg No.: 51715

Date: July - 10 - 2009

Telephone: 360 212 4903



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
12/491,773	06/25/2009	2115	1090	200900008-1	15	3

CONFIRMATION NO. 6021

22879

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

FILING RECEIPT



OC000000036799559

Date Mailed: 07/09/2009

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

DANIEL HUMPHREY, Houston, TX;
Amin Bemat, Cypress, TX;
Reynaldo Domingo, Spring, TX;

Power of Attorney: The patent practitioners associated with Customer Number 022879

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 07/06/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/491,773**

Projected Publication Date: 12/30/2010

Non-Publication Request: No

Early Publication Request: No

Title

MULTIPLE POWER SUPPLY CONTROL

Preliminary Class

713

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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

PATENT APPLICATION

ATTORNEY DOCKET NO. 200900008-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Patent Application Letter

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

Transmitted herewith for filing under 37 CFR 1.53(b) is a(n):

- ☒ Utility ☐ Design
☒ original patent application
☐ continuation-in-part application

INVENTOR(S): Daniel Humphrey et al

TITLE: MULTIPLE POWER SUPPLY CONTROL

Enclosed are:

- ☒ The Declaration and Power of Attorney ☒ Signed ☐ Unsigned or partially signed
☒ 3 Sheets of drawings (one set) ☐ Information Disclosure Statement
☐ Form PTO/SB/08a and/or PTO/SB/08b
☐ 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	15 — 20	0	X \$52	\$ 0
INDEPENDENT CLAIMS	3 — 3	0	X \$220	\$ 0
ANY MULTIPLE DEPENDENT CLAIMS			\$390	\$ 0
BASIC FILING FEE:				\$ 1,090
OTHER FEES:				\$
TOTAL CHARGES TO DEPOSIT ACCOUNT:				\$ 1,090

Charge \$ 1,090 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 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.

07/06/2009 HNGUYEN 00000008 082025 12491773

01 FC:1011 330.00 DA
02 FC:1111 540.00 DA
03 FC:1311 220.00 DA

Respectfully submitted,

Daniel Humphrey et al

By:

Scott K. Gallert
Scott K. Gallert

Attorney/Agent for Applicant(s)

Reg No. : 51715

Date : June-25-2009

Telephone : 360 212 4903

1/3

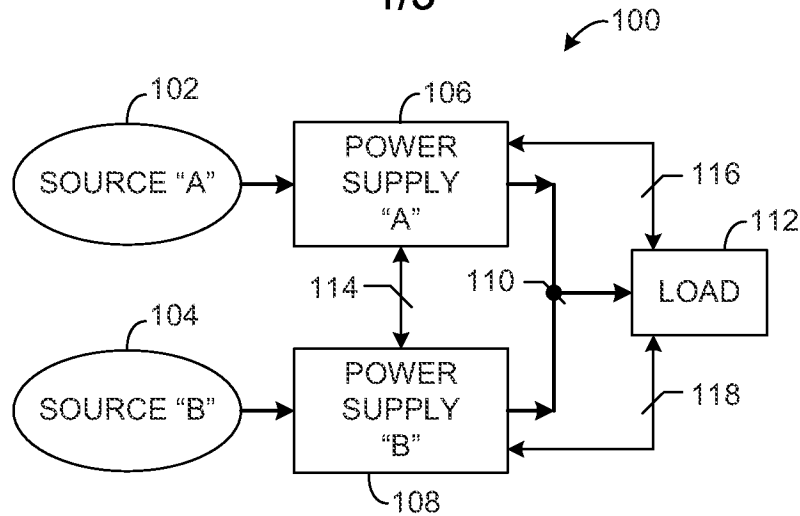


FIG. 1

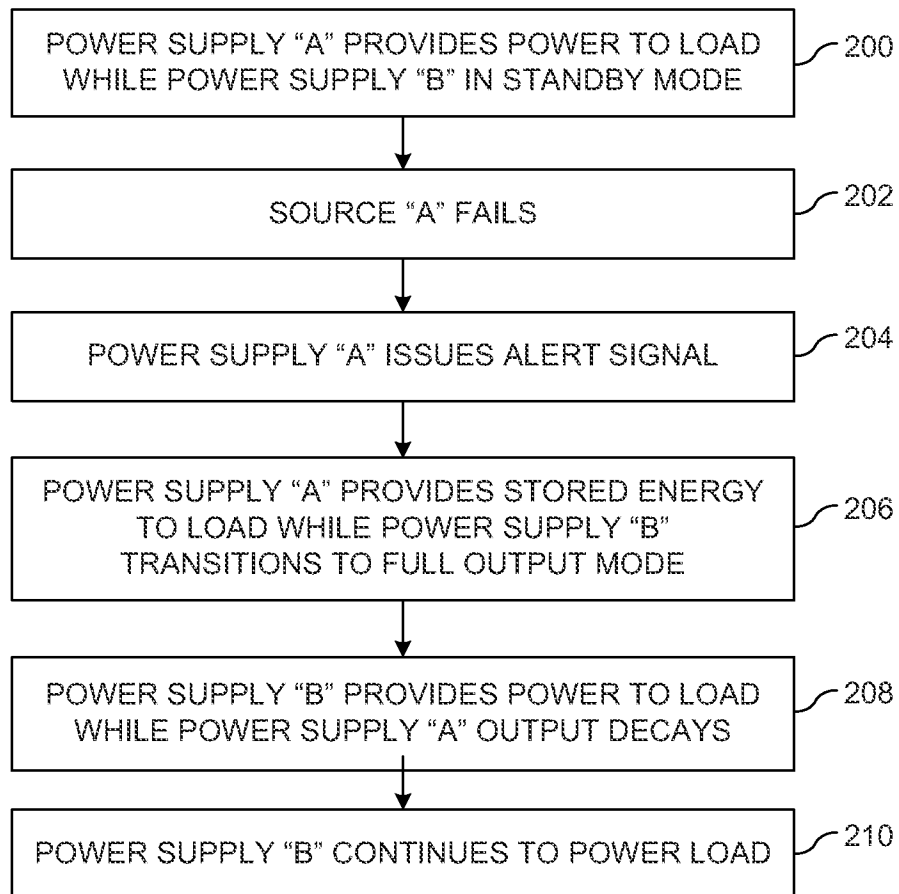


FIG. 2

2/3

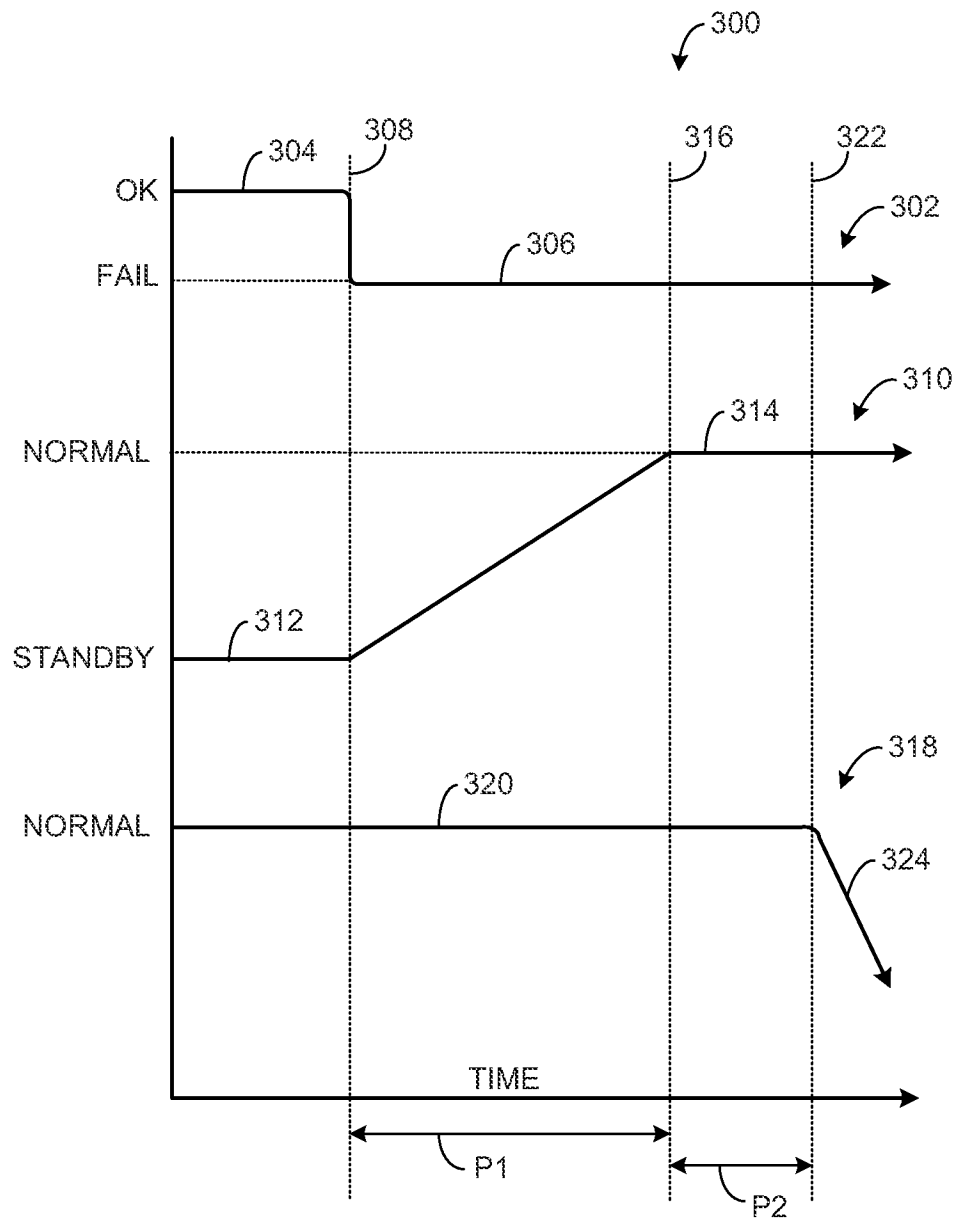


FIG. 3

3/3

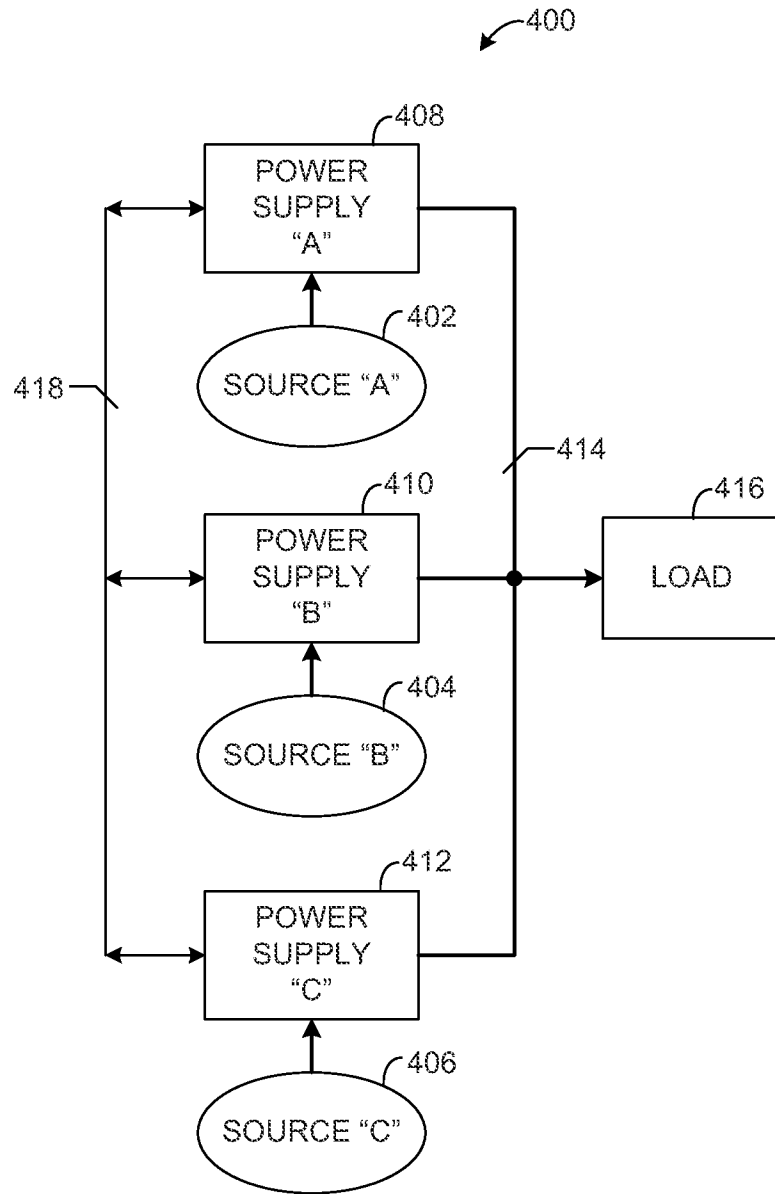


FIG. 4

Electronic Acknowledgement Receipt

EFS ID:	5589147
Application Number:	12491773
International Application Number:	
Confirmation Number:	6021
Title of Invention:	MULTIPLE POWER SUPPLY CONTROL
First Named Inventor/Applicant Name:	DANIEL HUMPHREY
Customer Number:	22879
Filer:	Scott K. Gallert/kubai hymer
Filer Authorized By:	Scott K. Gallert
Attorney Docket Number:	200900008-1
Receipt Date:	25-JUN-2009
Filing Date:	
Time Stamp:	16:27:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		200900008TransPkg.pdf	1103189 a471d6ed934dec080b83db1eb83543742659d69	yes	23

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal of New Application	1	1
	Oath or Declaration filed	2	3
	Specification	4	15
	Claims	16	19
	Abstract	20	20
	Drawings-only black and white line drawings	21	23
Warnings:			
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing			
Information:			
Total Files Size (in bytes):		1103189	
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. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.			

Filing Date: 06/25/09

Approved for use through 7/31/2006. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number

12/491,773**APPLICATION AS FILED – PART I**

(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(i))	15 minus 20 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))		

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE (\$)	FEE (\$)
N/A	
N/A	
N/A	
x\$26	
x\$110	
195	
TOTAL	

RATE (\$)	FEE (\$)
N/A	330
N/A	540
N/A	220
x\$52	
x\$220	
390	
TOTAL	1090

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

APPLICATION AS AMENDED – PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(i))	*		Minus	**	=
Independent (37 CFR 1.16(h))	*		Minus	***	=
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL	
ADD'T FEE	

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL	
ADD'T FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total (37 CFR 1.16(i))	*		Minus	**	=
Independent (37 CFR 1.16(h))	*		Minus	***	=
Application Size Fee (37 CFR 1.16(s))					
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL	
ADD'T FEE	

OR

RATE (\$)	ADDITIONAL FEE (\$)
X =	
X =	
N/A	
TOTAL	
ADD'T 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.

This collection of information is required by 37 CFR 1.16. 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, 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.**

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

PATENT APPLICATION

ATTORNEY DOCKET NO. 200900008-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Patent Application Letter

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

Transmitted herewith for filing under 37 CFR 1.53(b) is a(n):

- ☒ Utility ☐ Design
☒ original patent application
☐ continuation-in-part application

INVENTOR(S): Daniel Humphrey et al

TITLE: MULTIPLE POWER SUPPLY CONTROL

Enclosed are:

- ☒ The Declaration and Power of Attorney ☒ Signed ☐ Unsigned or partially signed
☒ 3 Sheets of drawings (one set) ☐ Information Disclosure Statement
☐ Form PTO/SB/08a and/or PTO/SB/08b
☐ Priority document(s) ☐ Other _____ Fee\$ _____

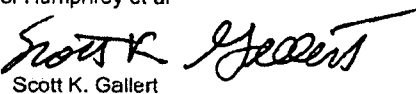
CLAIMS AS FILED BY OTHER THAN A SMALL ENTITY				
(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) TOTALS
TOTAL CLAIMS	15 — 20	0	X \$52	\$ 0
INDEPENDENT CLAIMS	3 — 3	0	X \$220	\$ 0
ANY MULTIPLE DEPENDENT CLAIMS			\$390	\$ 0
BASIC FILING FEE:				\$ 1,090
OTHER FEES:				\$
TOTAL CHARGES TO DEPOSIT ACCOUNT:				\$ 1,090

Charge \$ 1,090 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 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.

Respectfully submitted,

Daniel Humphrey et al

By:


Scott K. Gallert

Attorney/Agent for Applicant(s)

Reg No. : 51715

Date : June-25-2009

Telephone : 360 212 4903

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION**

PATENT APPLICATION

ATTORNEY DOCKET NO. 200900008-1

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:

MULTIPLE POWER SUPPLY CONTROL

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

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

I hereby state that I have reviewed and understand 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 information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

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

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor(s) rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?
			☐	YES: ☐ NO: ☐
			☐	YES: ☐ NO: ☐
			☐	YES: ☐ NO: ☐

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:

Send Correspondence to:	Direct Telephone Calls to:
Customer Number 022879	Scott K. Gallert
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, Colorado 80527-2400	360 212 4903 Even though the attorney is listed, please associate HP's Customer Number 022879 with this case.

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.

Daniel Humphrey

US

Full Name of Sole or First Inventor (first, middle [if any], last)

Citizenship

Inventor's Signature

Date

Houston TX US 77070

Inventor's Residence (City, State/Province, Country, Postal Code)

11445 Compaq Center Drive West
Houston, TX 77070

Business/Mailing Address

Page 1 of 2

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION (continued)**

PATENT APPLICATION

ATTORNEY DOCKET NO. 200900008-1

Amin Bemat

IN

Full Name of Sole or Second Inventor (first, middle [if any], last)

Citizenship



06/24/09

Inventor's Signature

Date

Cypress Texas US 77429

Inventor's Residence (City, State/Province, Country, Postal Code)

20555 Tomball Parkway Houston Texas 77070 US

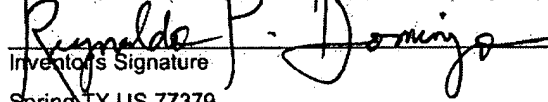
Business/Mailing Address

Reynaldo Domingo

PH

Full Name of Sole or Third Inventor (first, middle [if any], last)

Citizenship



06/24/09

Inventor's Signature

Date

Spring TX US 77379

Inventor's Residence (City, State/Province, Country, Postal Code)

20555 Tomball Parkway Houston Texas 77070 US

Business/Mailing Address

Full Name of Sole or Fourth Inventor (first, middle [if any], last)

Citizenship

Inventor's Signature

Date

Inventor's Residence (City, State/Province, Country, Postal Code)

Business/Mailing Address

Full Name of Sole or Fifth Inventor (first, middle [if any], last)

Citizenship

Inventor's Signature

Date

Inventor's Residence (City, State/Province, Country, Postal Code)

Business/Mailing Address

MULTIPLE POWER SUPPLY CONTROL

BACKGROUND

[0001] Various devices and systems use multiple power supplies in order to increase reliability or “up time” through redundancy. In a typical scenario, each operating power supply bears an approximately equal share of the load. However, such a balanced load sharing approach often results in each power supply operating with less than optimum efficiency. The present teachings address the foregoing and other concerns.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] The present embodiments will now be described, by way of example, with reference to the accompanying drawings, in which:

[0003] FIG. 1 depicts a block diagram of a system according to one embodiment;

[0004] FIG. 2 depicts a flow diagram of a method according to one embodiment;

[0005] FIG. 3 depicts a signal timing diagram according to an embodiment;

[0006] FIG. 4 depicts a block diagram of a system according to another embodiment.

DETAILED DESCRIPTION

INTRODUCTION

[0007] Means and methods for providing redundant power supplies are described. An illustrative system includes two or more power supplies each coupled to electrical energy at respective independent source. One of the power supplies detects an anomalous condition in the associated energy source and provides an alert signal. At least one of the other power supplies transitions from a standby mode to a normal output mode in response to the alert signal. The failing power supply provides operating level energy to an electrical load while the one or more respondent power supplies transition from standby to normal output levels.

[0008] In one embodiment, an apparatus includes a first power supply coupled to an electrical load and a first source of electrical energy. The first power supply is configured to issue an alert signal indicative of a failure condition of the first source of electrical energy. The apparatus also includes a second power supply coupled to the electrical load and a second source of electrical energy. The second power supply is configured to transition from a lesser output level to a greater output level in response to an activation signal.

[0009] In another embodiment, a system includes an electrical load and a first power supply. The first power supply is coupled to a first independent source of electricity and to the electrical load. The first power supply is configured to provide a first alert signal indicative of an anomalous condition of the first

independent source of electricity. The system also includes a second power supply coupled to a second independent source of electricity and to the electrical load. The second power supply is configured to provide a second alert signal indicative of an anomalous condition of the second independent source of electricity. The first power supply is further configured to transition from a lesser output level to a greater output level in response to a first activation signal. The second power supply is further configured to transition from a lesser output level to a greater output level in response to a second activation signal.

[0010] In yet another embodiment, a method includes asserting a signal responsive to an anomalous condition of a first independent source of electrical energy. The first independent source of electrical energy is coupled to energize a first power supply. The method also includes transitioning a second power supply from a standby output level to a normal output level responsive to the signal. The second power supply is energized by a second independent source of electrical energy. The method further includes providing operating power from the first power supply to an electrical load during the transitioning.

FIRST ILLUSTRATIVE EMBODIMENT

[0011] Reference is now directed to FIG. 1, which depicts a block diagrammatic view of a system 100. The system 100 is illustrative and non-limiting with respect to the present teachings. Thus, other systems can be configured and operated in accordance with the present teachings.

[0012] The system 100 includes two independent sources of electrical energy (sources) 102 and 104, respectively. The source 102 is also designated source "A", while the source 104 is designated source "B" for purposes of

simplicity. Each source 102 and 104 is autonomous and operates without dependence or interaction with the other. For purpose of non-limiting example, each of the sources 102 and 104 can be defined by a respective power distribution utility, a generator set, an inverter powered by solar or wind energy, etc. Other configurations or definitions of the independent energy sources 102 and 104 are also possible. A failure of one of the sources 102 and 104 is presumed, in and of itself, to have no affect on the other. Thus, the sources 102 and 104 are redundant with respect to the balance of the system 100.

[0013] The system 100 also includes a first power supply 106, also designated as power supply "A". The system 100 further includes a second power supply 108, also designated as power supply "B". The power supplies 106 and 108 are energized by the sources 102 and 104, respectively. Each of the power supplies is coupled to provide conditioned power 110 to a load 112. Thus, each power supply "A" and "B" (106 and 108) is configured to perform voltage regulation, current limiting, or other operations.

[0014] Each power supply 106 and 108 is configured to provide for at least a portion of the electrical needs of the load 112. In one embodiment, each of the power supplies 106 and 108 is capable of providing all operating power 110 to the load 112, such that complete redundancy is provided within the system 100.

[0015] Additionally, the power supplies 106 and 108 can be respectively configured and coupled to one another so as to bidirectionally exchange signals 114. Such signals 114 can includes status information, alerts and other signals as various events occur making such communications relevant. In the alternative, power supply 106 can be coupled to the load 112 so as to

communicate signals 116, while power supply 108 can be coupled to the load 112 so as to communicate signals 118. In this alternative way, each power supply 106 and 108 can communicate respective signals 116 and 118 to the load 112. In turn, the load 112 is configured to respond by relaying the same signal or another corresponding signal to the other power supply 106 or 108.

[0016] Power supplies 106 and 108 can respectively include any circuitry, processor(s) or other resources as needed in order to perform in accordance with the present teachings. Such resources can include, for purposes of non-limiting illustration, one or more state machines, digital logic, analog circuitry, digital/analog hybrid circuitry, one or more processors or microcontrollers, lookup tables, voltage or current sensing elements, etc. One having ordinary skill in the electrical and related arts will appreciate that sensing and signaling instrumentation is well known, and that further particular elaboration is not required for an understanding of the present teachings.

[0017] Illustrative operation of the system 100 is described below with respect to FIG. 2.

FIRST ILLUSTRATIVE METHOD

[0018] FIG. 2 is a flow diagram depicting a method according to one embodiment of the invention. The method of FIG. 2 includes particular operations and order of execution. However, other methods including other operations, omitting one or more of the depicted operations, and/or proceeding in other orders of execution can also be used according to the present teachings. Thus, the method of FIG. 2 is illustrative and non-limiting in nature.

[0019] At 200, a first power supply provides all needed operating power to a load, while a second power supply operates in a standby mode. For purpose of illustrative example, it is assumed that the power supply "A" 106 provides all needed conditioned power 110 to a load 112. It is also assumed that the power supply "B" 108 operates in a standby mode, providing no power output to the load 112.

[0020] At 202, a first independent source of energy fails. For purposes of the ongoing example, it is assumed that independent source "A" 102 fails in a low-voltage or no-voltage condition. Other anomalous conditions of the source 102 can also occur.

[0021] At 204, the first power supply detects the anomalous (failed) condition of the first independent energy source and issues a corresponding input fault signal. For purposes of example, it is assumed that power supply "A" 106 detects the failed condition of source 102 and issues an input fault signal 114 to power supply "B" 108. The input fault signal can also be referred to as an alert signal 114.

[0022] At 206, the first power supply continues to provide energy from storage to the load while the second power supply transitions to a full (i.e., normal) output mode. For purposes of the example, it is assumed that the power supply 106 includes capacitors or other internal storage (not shown) sufficient to provide conditioned power 110 to the load 112, while the power supply 108 transitions from standby (i.e., no output) to full power output mode. One of ordinary skill in the electrical arts will appreciate that the use of output filtering,

buffering or energy storage capacitors within power supplies is a common practice, and no additional elaboration is required in this regard.

[0023] At 208, the second power supply provides full, normal operating power to the load while the first power supply output decays. For purposes of the example, it is assumed that the power supply "B" 108 is now operating at full output, sufficient to provide all needed power to the load 112. Additionally, the power supply "A" 106 output is presumed to decay below useful levels as the internal storage capacitors are discharged.

[0024] At 210, the second power supply continues to provide for the needs of the load despite the failed or anomalous condition of the first independent energy source. For purposes of the example, power supply "B" 108 powers the load 112, by virtue of the second independent energy source 104.

[0025] The method described is just one of any number of methods contemplated by the present teachings. In general, anticipated failure of a power supply results in the provision of a corresponding alert (or activation) signal or message. Another power supply, operating in a no-output (i.e., standby) mode responds to the signal by transitioning as quickly as possible to a full output operating mode. The soon-to-fail power supply can provide a brief period of normal operating power to a load or loads, by virtue of internal or external energy storage, while the other power supply is in transition.

[0026] In this way, a brief period occurs during which the two power supplies are providing respective fractions of the required load power. The responding or "take over" power supply assumes full duty prior to and during the decay and failure of the other power supply. The method allows for each of the

power supplies to operate at or near optimum efficiency while providing for the electrical demands of the load being served.

[0027] Additionally, the system 100 can, but not necessarily, be further configured such that the power supply "A" 106 is designated as a primary supply, while the power supply "B" 108 is designated as a backup supply. In such a further configuration, restoration of the first independent source of energy 102 results in the power supply "A" 106 issuing a standby signal to the power supply "B" 108. In response, the power supply "B" 108 transitions from full output mode to the standby mode, while the power supply "A" 106 assumes full output operation and provides for the needs of the load 112. It is noted that the "A" and "B" designations of system 100 are arbitrary, and do not necessarily correspond to a hierarchical operating scheme.

[0028] The present teachings contemplate various systems in which multiple power supplies of essentially identical output and signaling capabilities are used to provide for redundancy within the respective systems. The method of FIG. 2 is performed in the context of a two source/two power supply system (e.g., system 100). However, the present teachings contemplate substantially equivalent methods that are performed in the context of respective systems having any practical number of independent energy sources and power supplies.

[0029] For non-limiting example, a system (not shown) can be provided having a total of four power supplies energized by a total of two independent electrical sources. The power supplies of such a system can be arranged as cooperative pairs coupled to the two respective sources. Thus, the failure of one independent source leaves two power supplies still operational by virtue of the

other independent source. Alternatively, two power supplies, each coupled to a respective source, can operate in the interest of load balancing. In this alternative, two standby power supplies are present and coupled to the respective sources. Such a four power supply, two independent source configuration is referred to as a "2+2" scheme. Other redundancy schemes (i.e., N+N) are also contemplated by the present teachings, wherein communication signaling between respective power supplies allows for primary/standby operation at or near optimum efficiency.

ILLUSTRATIVE SIGNAL DIAGRAM

[0030] FIG. 3 is a signal timing diagram 300 according to one illustrative and non-limiting embodiment. The diagram 300 is provided for purposes of clarity.

[0031] The diagram 300 includes a voltage 302 corresponding to a particular independent source of electrical energy. As depicted, the voltage 302 drops from a normal ("OK") operating level 304 to an insufficient ("FAIL") level 306 at a time 308.

[0032] The diagram 300 also includes an output voltage 310 provided by a "standby" power supply "B" of an illustrative redundant system. The voltage 310 is initially at a standby (zero) output level 312. Then, the voltage 310 begins to transition toward a full operating level 314 starting at time 308. It is assumed that the transition from standby level 312 toward full output level 314 is triggered by an alert, activation or other signal provided to power supply "B". The transition of the voltage 310 occurs during a time period P1 from time 308 to a time 316.

[0033] The timing diagram 300 further includes an output voltage 318 provided by a "primary" power supply "A" of the illustrative redundant system. It is assumed that the power supply "A" is energized by the independent source of voltage 302. As such, the power supply "A" is deprived of normal input electrical energy beginning at time 308 and thereafter as depicted in FIG. 3.

[0034] The voltage 318 is initially at full output (normal operating) level 320. This normal (i.e., regulated) output level 320 continues until time 322, at which point the voltage 318 assumes a rate of decay 324 as the energy storage (not shown) is discharged below controllable output levels. However, it is noted that there is an overlap period P2 between times 316 and 322 in which voltages 310 and 318 are both at full output level. As a result, the load served by voltages 310 and 318 is not subject to an interruption in operating power, despite the failure of independent voltage 302.

SECOND ILLUSTRATIVE EMBODIMENT

[0035] Reference is now directed to FIG. 4, which depicts a block diagrammatic view of a system 400 in accordance with another embodiment. The system 400 is illustrative and non-limiting with respect to the present teachings. Thus, other systems can be configured and/or operated in accordance with the present teachings.

[0036] The system 400 includes three independent sources of electrical energy 402, 404 and 406 (inclusive). The sources 402-406 are coupled to provide electrical energy to three power supplies 408, 410 and 412, respectively. In turn, the power supplies 408-412 are each configured to provide some or all of the electrical energy 414 required by a load 416.

[0037] The power supplies 408-412 are further respectively configured to communicate signals 418 pertaining to individual operating status, status of the respective independent energy sources 402-406, etc. In this way, the power supplies 408-412 can operate in respective standby and full (normal) output modes, and provide signals 418 to one another when a failure is imminent.

[0038] For non-limiting example, power supply "A" 408 can provide for the full energy needs of the load 416, while power supply "B" 410 and power supply "C" 412 operate in standby mode. If power supply "A" 408 detects a failure – that is, any predefined and detectable anomaly - of the energy source 402, then power supply "A" 408 can provide a signal 418 requesting power supply "B" 410 to assume full output operating status. In the event that power supply "B" 410 cannot or does not respond, power supply "A" 408 can provide a signal 418 requesting power supply "C" 412 to assume full operating status. Power supply "A" 408 can provide a brief period of full output power while the responding power supply "B" 410 or "C" 412 completes the transition period from standby to normal (i.e., full) output.

[0039] In another non-limiting example, power supplies "A" 408 and "B" 410 provide for respective (e.g., balanced, or fifty percent) portions of the electrical energy 414 required by the load 416, while power supply "C" 412 operates in standby mode. In the event that power supply "B" 410 detects an anomalous condition of the independent power source 404, power supply "B" 410 can provide a signal 418 requesting that power supply "C" 412 assume normal operating mode. The power supply "B" 410 can continue to provide a brief period

of normal (full) output, by virtue of energy storage, while power supply "C" 412 completes the transition period from standby to full output mode.

[0040] In general, the foregoing description is intended to be illustrative and not restrictive. Many embodiments and applications other than the examples provided would be apparent to those of skill in the art upon reading the above description. The scope of the invention should be determined, not with reference to the above description, but should instead be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. It is anticipated and intended that future developments will occur in the arts discussed herein, and that the disclosed systems and methods will be incorporated into such future embodiments. In sum, it should be understood that the invention is capable of modification and variation and is limited only by the following claims.

CLAIMS

What is claimed is:

1. An apparatus, comprising:
a first power supply coupled to an electrical load and a first source of electrical energy, the first power supply configured to issue an alert signal indicative of a failure condition of the first source of electrical energy; and
a second power supply coupled to the electrical load and a second source of electrical energy, the second power supply configured to transition from a lesser output level to a greater output level in response to an activation signal.
2. The apparatus according to claim 1, the first power supply further configured to provide operating power to the electrical load while the second power supply transitions from the lesser output level to the greater output level.
3. The apparatus according to claim 1, the first and second power supplies being coupled such that the activation signal is defined by the alert signal.
4. The apparatus according to claim 1, the electrical load being configured to provide the activation signal to the second power supply in response to the alert signal from the first power supply.

5. The apparatus according to claim 1, the first power supply further configured to transition from a lesser output level to a greater output level in response to a signal indicative of an anomaly in the second source of electrical energy.

6. The apparatus according to claim 1, at least the first or second power supply configured to operate at a lesser output level in response to a standby signal, the first power supply further configured to transition from the lesser output level to a greater output level in response to a respective activation signal.

7. The apparatus according to claim 1 further comprising a third power supply configured to transition from a lesser output level to a greater output level in response to an activation signal.

8. The apparatus according to claim 1, the first power supply further configured to provide operating level power from internal energy storage to an electrical load while the second power supply transitions from the lesser output level to the greater output level in response to the activation signal.

9. A system, comprising:

an electrical load;

a first power supply coupled to a first independent source of electricity and to the electrical load, the first power supply configured to provide a first alert signal indicative of an anomalous condition of the first independent source of electricity; and

a second power supply coupled to a second independent source of electricity and to the electrical load, the second power supply configured to provide a second alert signal indicative of an anomalous condition of the second independent source of electricity, the first power supply further configured to transition from a lesser output level to a greater output level in response to a first activation signal, the second power supply further configured to transition from a lesser output level to a greater output level in response to a second activation signal.

10. The system according to claim 9, at least the first or second power supply further configured to operate at a lesser output level in response to a standby signal.

11. The system according to claim 9, the first and second power supplies respectively configured to provide operating level power to the electrical load for an amount of time sufficient for the other of the first and second power supplies to transition from the lesser output level to the greater output level.

12. The system according to claim 9, the second activation signal defined by the first alert signal, the first activation signal defined by the second alert signal.

13. The system according to claim 9, the electrical load configured to provide the second activation signal in response to the first alert signal, the electrical load further configured to provide the first activation signal in response to the second alert signal.

14. A method, comprising:

asserting a signal responsive to an anomalous condition of a first independent source of electrical energy, the first independent source of electrical energy coupled to energize a first power supply;

transitioning a second power supply from a standby output level to a normal output level responsive to the signal, the second power supply energized by a second independent source of electrical energy; and

providing operating power from the first power supply to an electrical load during the transitioning.

15. The method according to claim 14 further comprising communicating the signal from the first power supply to the second power supply, the second power supply providing operating power to the electrical load after the transitioning to normal output level.

ABSTRACT

Apparatus and methods are provided. A system includes two or more power supplies receiving electrical energy from respective independent sources. One of the power supplies detects an anomalous condition of the associated energy source and provides an alert signal. At least one of the other power supplies transitions from a standby mode to a normal output mode in response to the alert signal. The failing power supply provides operating level energy to an electrical load while the one or more other power supplies transition from standby to normal output level.