AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22cv354	9/12/2022	Eastern District of Texas

PLAINTIFF	DEFENDANT
Daedalus Prime LLC	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung Semiconductor, Inc., and Samsung Austin Semiconductor, LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,996,135	6/12/2018	Daedalus Prime LLC
2	10,705,960	7/7/2020	Daedalus Prime LLC
3	10,372,197	8/6/2019	Daedalus Prime LLC
4	9,887,838	2/6/2018	Daedalus Prime LLC
5	8,359,629	1/22/2013	Daedalus Prime LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

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☐ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22cv354	9/12/2022	Eastern District of Texas

PLAINTIFF	DEFENDANT
Daedalus Prime LLC	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung Semiconductor, Inc., and Samsung Austin Semiconductor, LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,432,840	8/30/2016	Daedalus Prime LLC
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

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.
15/367,330	08/06/2019	10372197	ITL.2490C3US (P38402C3)	3403

47795 7590 07/17/2019

TROP, PRUNER & HU, P.C.
PO Box 41790
HOUSTON, TX 77241

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 0 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):

Krishnakanth V. Sistla, Beaverton, OR;
Intel Corporation, Santa Clara, CA;
Jeremy Shrall, Portland, OR;
Stephen H. Gunther, Beaverton, OR;
Efraim Rotem, Haifa, ISRAEL;
Alon Naveh, Ramat Hasharon, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Anil Aggarwal, Portland, OR;
Martin T. Rowland, Beaverton, OR;
Ankush Varma, Hillsboro, OR;
Ian M. Steiner, Hillsboro, OR;
Matthew Bace, North Andover, MA;
Avinash N. Ananthakrishnan, Hillsboro, OR;

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Petitioner Samsung Ex-1004, 0003

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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.
15/367,330	08/06/2019	10372197	ITL.2490C3US (P38402C3)	3403

47795 7590 07/17/2019

TROP, PRUNER & HU, P.C.
PO Box 41790
HOUSTON, TX 77241

ISSUE NOTIFICATION

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The Patent Term Adjustment is 0 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).

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Stephen H. Gunther, Beaverton, OR;
Efraim Rotem, Haifa, ISRAEL;
Alon Naveh, Ramat Hasharon, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Anil Aggarwal, Portland, OR;
Martin T. Rowland, Beaverton, OR;
Ankush Varma, Hillsboro, OR;
Ian M. Steiner, Hillsboro, OR;
Matthew Bace, North Andover, MA;
Avinash N. Ananthakrishnan, Hillsboro, OR;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Petitioner Samsung Ex-1004, 0004

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490 C2 US

	17	20010044909		2001-11-22	Oh, et al.	
	18	20050022038		2005-01-27	Kaushik, et al.	
	19	20070156992		2007-07-05	Jahagirdar	
	20	20050033881		2005-02-10	Yao	
	21	20040064752		2004-04-01	Kazachinsky, et al.	
	22	20040139356		~~2007-07-15~~ 07/2004	Ma	
	23	20070239398		2007-10-11	Song, et al.	
	24	20060069936		2006-03-30	Lint, et al.	
	25	20020194509		2002-12-19	Plante, et al.	
	26	20050132238		2005-06-16	Nanja	
	27	20070245163		2007-10-18	Lu, et al.	

Change(s) applied to document, /S.D./ 4/25/2019

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

U.S.PATENTS Remove

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					

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	20080288894		~~2005-12-29~~ 11/2008	~~Vorenkamp, et al.~~ Han et al.	

Change(s) applied to document, /S.D/ 4/25/~~2019~~

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	1728023	CN		2006-02-01	Vorenkamp, et al.		X

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

NON-PATENT LITERATURE DOCUMENTS Remove

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]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

Petitioner Samsung Ex-1004, 0006

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. 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	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C1USUS (P38402C2)

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

U.S.PATENTS						Remove
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					
If you wish to add additional U.S. Patent citation information please click the Add button.						Add

U.S.PATENT APPLICATION PUBLICATIONS						Remove
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	20080289369	A1	~~2005-12-29~~ 11/2008	~~Chung, et al.~~ Noguchi	
	2	20090327785	A1	2009-12-29	Chang, et al.	
If you wish to add additional U.S. Published Application citation information please click the Add button.						Add

Change(s) applied to document, /S.D./ 4/25/2019

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	201001157	TW	A	2010-01-01	ACER INC		☒
	2	200301025	TW	A	2006-01-01	VIA TECHNOLOGOLIES, INC		☒

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

Petitioner Samsung Ex-1004, 0007

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UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

47795 7590 06/27/2019

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

EXAMINER	
ELAMIN, ABDELMONIEM I	

ART UNIT	PAPER NUMBER
2115	

NOTIFICATION DATE	DELIVERY MODE
06/27/2019	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Inteldocs_docketing@cpaglobal.com
tphpto@tphm.com

Petitioner Samsung Ex-1004, 0008

Response to Rule 312 Communication	Application No.	Applicant(s)	
	15/367,330	Sistla et al.	
	Examiner	Art Unit	AIA Status
	ABDELMONIEM I ELAMIN	2115	No

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

1. ☑ The amendment filed on 17 June 2019 under 37 CFR 1.312 has been considered, and has been:
   a) ☑ entered.
   b) ☐ entered as directed to matters of form not affecting the scope of the invention.
   c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
      Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.
   d) ☐ disapproved. See explanation below.
   e) ☐ entered in part. See explanation below.

/ABDELMONIEM I ELAMIN/
Primary Examiner, Art Unit 2115

Petitioner Samsung Ex-1004, 0009

OK TO ENTER: /A.I.E/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	2115
		§		
Serial No.:	15/367,330	§		
		§	Examiner:	Abdelmoniem I. Elamin
Filed:	December 2, 2016	§		
		§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. § 1.312

Sir:

Please amend the above-referenced patent application as follows.

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

OK TO ENTER: /A.I.E/

Petitioner Samsung Ex-1004, 0010

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
15367330	02-Dec-2016	Krishnakanth Sistla	ITL.2490C3US (P38402C3)	3403

TITLE OF INVENTION :

User Level Control Of Power Management Policies

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2115	310000	ABDELMONIEM ELAMIN

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$1000	$0	$1000	27-Jun-2019	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
47795 TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON TX 77057-2620 UNITED STATES 713-468-8880 Inteldocs_docketing@cpaglobal.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☒ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

○ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

◉ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Petitioner Samsung Ex-1004, 0011

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:

☒ Issue Fee	☐ I authorize USPTO to apply my previously paid issue fee to the current fees due
☐ Publication Fee	☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____
☐ Advance Order - # of copies _____	☐ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number _____ . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1. Trop, Pruner & Hu, P.C.
2.
3.

5.Assignee Name(s) and Residence Data To Be Printed

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.

Name	City	State	Country	Category
Intel Corporation	Santa Clara	CALIFORNIA	united states	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Mark J. Rozman/	**Date**	06-17-2019
Name	Mark J. Rozman	**Registration Number**	42117

WEB IFEE 1.0

Doc Code: MFEE.C.AD PTO/SB/47-EFS

Document Description: Maintenance Fee Address Change

FEE ADDRESS INDICATION FORM			
Application Number	15367330	Art Unit	2115
Filing Date	02-Dec-2016	Examiner Name	ABDELMONIEM ELAMIN
First Name Inventor	Krishnakanth Sistla	Attorney Doc. Number	ITL.2490C3US (P38402C3)

INSTRUCTIONS: In order for the fee address identified on this form to be effective, the issue fee must have been paid for the application listed on this form. Only an address represented by a customer number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. For more information on customer numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

Please recognize as the Fee Address under the provisions of 37 CFR 1.363 the address associated with:

Customer Number:	00197 CPA GLOBAL LIMITED 2318 Mill Road 12th Floor ALEXANDRIA VA 22314 UNITED STATES 7037392234

Signature :

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application.

Signature	/Mark J. Rozman/	**Date**	06-17-2019
Name	Mark J. Rozman	**Registration Number**	42117

Electronic Patent Application Fee Transmittal

Application Number:	15367330
Filing Date:	02-Dec-2016
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Filer:	Mark J. Rozman/David Hopper
Attorney Docket Number:	ITL.2490C3US (P38402C3)

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1000**

Electronic Acknowledgement Receipt	
EFS ID:	36317323
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/David Hopper
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	17-JUN-2019
Filing Date:	02-DEC-2016
Time Stamp:	15:41:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	061819INTEFSW15413900
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	ITL_2490C3US-312.pdf	31589 0039fd8e01b184815a2a387243f8ba7c622e007f	no	6
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	Web85b.pdf	46145 6a4948b40c09414226269ef451e8e38c432f6822	no	2
Warnings:					
Information:					
3	Maintenance Fee Address Change	web85feeaddress.pdf	32748 542e254da88f0f6ae562a0bc7bda81c55e7c72ea	no	1
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32459 a544a59e697067daa3e21910bda459efbb6e2c08	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	142941		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	2115
		§		
Serial No.:	15/367,330	§		
		§	Examiner:	Abdelmoniem I. Elamin
Filed:	December 2, 2016	§		
		§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)
		§		

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. § 1.312

Sir:

Please amend the above-referenced patent application as follows.

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Petitioner Samsung Ex-1004, 0019

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A processor comprising:

a plurality of cores;

a cache memory;

an interconnect to couple the plurality of cores and the cache memory; and

a power controller to control a plurality of power management features of the processor, wherein the power controller includes a tuning circuit to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

Claim 2 (original): The processor of claim 1, wherein the power controller is to access a power-performance tuning table based on the workload configuration input and the global EPB value, and use information from the power-performance tuning table to update the at least one setting.

Claim 3 (previously presented): The processor of claim 2, wherein the tuning circuit is to update the at least one setting of the at least one power management feature responsive to the global EPB value.

Claim 4 (original): The processor of claim 3, wherein the tuning circuit includes a sampler to receive the plurality of EPB values from at least some of the plurality of cores and a combiner to generate the global EPB value from the EPB value from the plurality of cores.

Claim 5 (original): The processor of claim 4, wherein the sampler is to receive the EPB value from a plurality of threads to execute on the at least some of the plurality of cores.

Petitioner Samsung Ex-1004, 0020

Claim 6 (original): The processor of claim 4, wherein the power controller is to generate a bin value from the global EPB value and to access the power-performance tuning table using the bin value.

Claim 7 (original): The processor of claim 3, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by the power controller, and send a message to an interconnect that couples the processor to a second component of a system to update at least one setting of a second power management feature controlled by the interconnect.

Claim 8 (original): The processor of claim 2, wherein the power-performance tuning table includes a plurality of entries each having a plurality of fields each associated with a range of the EPB value and including a setting for a power management feature.

Claim 9 (original): The processor of claim 1, wherein the processor is to receive at least one EPB value from a baseboard management controller.

Claims 10-11 (canceled)

Claim 12 (previously presented): The processor of claim 1, wherein the at least one EPB value is to be provided based at least in part on a time of day policy.

Claim 13 (previously presented): A non-transitory machine-readable medium having stored thereon instructions, which if performed by a machine cause the machine to perform a method comprising:

receiving an energy performance bias (EPB) value in a tuning circuit of a power control logic of a processor from a plurality of threads executing on the processor and determining a global EPB value based at least in part on the EPB value received from the plurality of threads, the EPB value to indicate a preference of a user for a tradeoff between power optimization and performance optimization;

accessing a table based on the global EPB value; and

Petitioner Samsung Ex-1004, 0021

updating at least one setting of a power management feature controlled by the power control logic based on information obtained from the table.

Claim 14 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises selecting a bin of a plurality of bins, each associated with a power-performance profile using the global EPB value.

Claim 15 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises providing an interface to enable a user, an operating system or a baseboard management controller to set the EPB value, and controlling a plurality of power management features via input of the EPB value.

Claim 16 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises receiving the EPB value with a first value for a first portion of a day and with a second value for a second portion of the day, wherein the first value is to configure a system for first performance during the first portion of the day corresponding to peak user hours, and the second value to configure the system for higher power savings during the second portion of the day corresponding to non-peak user hours.

Claim 17 (currently amended): A system comprising:

a multicore processor including a plurality of cores, at least one cache memory and a memory controller;

a tuning circuit to dynamically select a balance between power consumption and performance based on an energy performance bias (EPB) value, wherein the tuning circuit is to access an entry of a tuning table based at least in part on the EPB value and a workload configuration value and update a setting for a power management feature responsive to a value stored in a field of the entry, wherein the workload configuration value is to indicate a predominant workload type to be executed on the system, the tuning table including a first set of entries associated with a first workload type and a second set of entries associated with a second workload type; and

a system memory coupled to the multicore processor via a memory interconnect.

Petitioner Samsung Ex-1004, 0022

Claim 18 (previously presented): The system of claim 17, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by a power control logic of the multicore processor, the at least one setting obtained from a field of an entry of the tuning table associated with a bin in which the EPB value is included.

Claim 19 (original): The system of claim 18, wherein multicore processor comprises the tuning circuit.

Claim 20 (original): The system of claim 17, wherein the multicore processor comprises a power control logic, the power control logic comprising the tuning circuit, wherein the tuning circuit is to generate a bin value from the EPB value and access the tuning table using the bin value.

Claim 21 (previously presented): The processor of claim 1, wherein the power controller is to enable a first power management feature based on the updated at least one setting.

Claim 22 (previously presented): The processor of claim 1, wherein the power controller is to send an update message to a destination agent of the processor to cause the destination agent to control a first power management feature based on the updated at least one setting.

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REMARKS/ARGUMENTS

Claim 17 has been amended to correct a potential antecedent basis issue. Applicant respectfully submits that amended claim 17 continues to be patentable, as no substantive amendment has been made to the claim.

In view of these remarks, the application remains in condition for issuance and the Examiner's prompt action in accordance therewith is respectfully requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504.

Respectfully submitted,

Date: June 17, 2019

/Mark J. Rozman/

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Petitioner Samsung Ex-1004, 0024

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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NOTICE OF ALLOWANCE AND FEE(S) DUE

47795 7590 03/27/2019

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

EXAMINER
ELAMIN, ABDELMONIEM I

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 03/27/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

TITLE OF INVENTION: User Level Control Of Power Management Policies

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	06/27/2019

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

Petitioner Samsung Ex-1004, 0025

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
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Alexandria, Virginia 22313-1450

By fax, send to: (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)

47795 7590 03/27/2019
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

TITLE OF INVENTION: User Level Control Of Power Management Policies

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	06/27/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ELAMIN, ABDELMONIEM I	2115	713-310000

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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Petitioner Samsung Ex-1004, 0026

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

47795 7590 03/27/2019

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

EXAMINER	
ELAMIN, ABDELMONIEM I	
ART UNIT	**PAPER NUMBER**
2115	

DATE MAILED: 03/27/2019

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

Petitioner Samsung Ex-1004, 0027

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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. 15/367,330	Applicant(s) Sistla et al.	
	Examiner ABDELMONIEM I ELAMIN	Art Unit 2115	AIA (FITF) Status No

-- 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 amendment filed on 11/02/2018.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-9 and 12-22 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   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 areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ABDELMONIEM I ELAMIN/
Primary Examiner, Art Unit 2115

Petitioner Samsung Ex-1004, 0029

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

IN THE SPECIFICATION:

Please amend specification as follows:

In page 2, please delete paragraph [0001] and replace it with the following paragraph:

— [0001] This application is a continuation of United States Patent Application Serial No. 14/855,553, filed September 16, 2015, now U.S. Patent No. 9,535,487, issued January 3, 2017, which is a continuation of U.S. Patent Application Serial No. 13/782,473, filed March 1, 2013, now U.S. Patent No. 9,170,624, issued October 27, 2015, which is a continuation of U.S. Patent Application Serial No. 13/326,586, filed December 15, 2011, now U.S. Patent No. 9,098,261, issued August 4, 2015, the content of which is hereby incorporated by reference.—

Allowable Subject Matter

3. Claims 1-9, 12-22 are allowed.

Reasons for Allowance

4. The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or fairly suggest the following:

a power controller to control a plurality of power management features of the processor, wherein the power controller includes a tuning circuit to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

For these reasons, claims 1, 13 and 17 are deemed to be allowable over the prior art of record and claims 2-9, 12, 14-16, 18-22 allowed by dependency.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDELMONIEM I ELAMIN whose telephone number is (571)272-3674. The examiner can normally be reached on 9:00 AM -6:00 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 5712723667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABDELMONIEM I ELAMIN/
Primary Examiner, Art Unit 2115

Notice of References Cited	Application/Control No. 15/367,330	Applicant(s)/Patent Under Reexamination Sistla et al.	
	Examiner ABDELMONIEM I ELAMIN	Art Unit 2115	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20090254660-A1	10-2009	Hanson; James E.	H04L12/10	709/226
	B					
	C					
	D					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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NON-PATENT DOCUMENTS

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*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.

Petitioner Samsung Ex-1004, 0033

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	**Art Unit**
	ABDELMONIEM I ELAMIN	2115

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F1/266	02/18/2019	AE
G06F1/3203	02/18/2019	AE
G06F1/3206	02/18/2019	AE
G06F1/3234	02/18/2019	AE
G06F1/3275	02/18/2019	AE

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
WEST	12/26/2017	AE
WEST	08/09/2018	AE
CLASS/SUBCLASS WITH TEXT	02/18/2019	AE
WEST	02/18/2019	AE
INVENTOR'S NAME SEARCH	02/18/2019	AE

	/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115

Petitioner Samsung Ex-1004, 0034

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	Art Unit
	ABDELMONIEM I ELAMIN	2115

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
G06F	1/266; 1/3203; 1/3206; 1/3234; 1/3275	02/18/2019	AE

	/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115

Petitioner Samsung Ex-1004, 0035

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	**Art Unit**
	ABDELMONIEM I ELAMIN	2115

CPC							
Symbol						**Type**	**Version**
G06F	/	1	/	3275		F	2013-01-01
G06F	/	1	/	3203		I	2013-01-01
G06F	/	1	/	3206		I	2013-01-01
G06F	/	1	/	266		I	2013-01-01
G06F	/	1	/	3234		I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115	18 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20190218

Petitioner Samsung Ex-1004, 0036

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	**Art Unit**
	ABDELMONIEM I ELAMIN	2115

INTERNATIONAL CLASSIFICATION					
CLAIMED					
	/		/		

NON-CLAIMED				
G06F	/	1	/	26
G06F	/	1	/	32

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 20	
/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115 (Primary Examiner) 18 February 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office Part of Paper No.: 20190218

Petitioner Samsung Ex-1004, 0037

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	**Art Unit**
	ABDELMONIEM I ELAMIN	2115

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	-	10	17	19										
2	2	-	11	18	20										
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7	7	14	16												
8	8	15	17												
9	9	16	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115	18 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20190218

Petitioner Samsung Ex-1004, 0038

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Inventor Name Search Result

Your Search was:

Last Name = NAVEH
First Name = ALON

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
09991128	6904504	20030093641	150	11/14/2001	METHOD AND APPARATUS FOR SOFTWARE SELECTION OF PROTECTED REGISTER SETTINGS	MCLEAN MAYO,KIMBERLY	NAVEH, ALON
10133908	6842831	20030204668	150	04/25/2002	LOW LATENCY BUFFER CONTROL SYSTEM AND METHOD	TRUONG,BAO	NAVEH, ALON
10272149	7076672	20040071184	150	10/14/2002	METHOD AND APPARATUS FOR PERFORMANCE EFFECTIVE	BAE,JI	NAVEH, ALON

Petitioner Samsung Ex-1004, 0039

					POWER THROTTLING		
10272154	7013406	20040073821	150	10/14/2002	METHOD AND APPARATUS TO DYNAMICALLY CHANGE AN OPERATING FREQUENCY AND OPERATING VOLTAGE OF AN ELECTRONIC DEVICE	PATEL,ANAND	NAVEH, ALON
10330622	7191349	20040128563	150	12/26/2002	MECHANISM FOR PROCESSOR POWER STATE AWARE DISTRIBUTION OF LOWEST PRIORITY INTERRUPT	TRUJILLO,JAMES	NAVEH, ALON
10335111	7137018	20040128576	150	12/31/2002	ACTIVE STATE LINK POWER MANAGEMENT	PATEL,ANAND	NAVEH, ALON
10402252	7350087	20040210778	150	03/31/2003	SYSTEM AND METHOD OF MESSAGE-BASED POWER MANAGEMENT	BAE,JI	NAVEH, ALON
10410261	7412569	20040205303	150	04/10/2003	SYSTEM AND METHOD TO	CHERY,MARDOCHEE	NAVEH, ALON

Petitioner Samsung Ex-1004, 0040

					TRACK CHANGES IN MEMORY		
10698175	7197651	20050097370	250	10/30/2003	POWER MODE CALIBRATION FOR ADD-ON CARDS ON MOBILE PLATFORMS	TRAN,VINCENT	NAVEH, ALON
10850775	7360103	20050262365	150	05/21/2004	P-STATE FEEDBACK TO OPERATING SYSTEM WITH HARDWARE COORDINATION	SURYAWANSHI,SURESH	NAVEH, ALON
10855268	7237128	20060156040	150	05/26/2004	METHOD AND APPARATUS TO DYNAMICALLY CHANGE AN OPERATING FREQUENCY AND OPERATING VOLTAGE OF AN ELECTRONIC DEVICE	PATEL,ANAND	NAVEH, ALON
10875005	7401241	20050283625	150	06/22/2004	CONTROLLING STANDBY POWER OF LOW POWER DEVICES	SURYAWANSHI,SURESH	NAVEH, ALON
10899674	7966511	20060026447	150	07/27/2004	POWER MANAGEMENT COORDINATION	CHANG,ERIC	NAVEH, ALON

Petitioner Samsung Ex-1004, 0041

					IN MULTI-CORE PROCESSORS		
10931565	7363523	20060047986	150	08/31/2004	METHOD AND APPARATUS FOR CONTROLLING POWER MANAGEMENT STATE TRANSITIONS	SURYAWANSHI,SURESH	NAVEH, ALON
10934034	7451333	20060053326	150	09/03/2004	COORDINATING IDLE STATE TRANSITIONS IN MULTI-CORE PROCESSORS	CHANG,ERIC	NAVEH, ALON
10994027	Not Issued	20050086420	161	11/19/2004	Low latency buffer control system and method	HASSAN,AURANGZEB	NAVEH, ALON
11024538	Not Issued	20060143485	161	12/28/2004	Techniques to manage power for a mobile device	ABBASZADEH,JAWEED	NAVEH, ALON
11026705	7502948	20060149975	150	12/30/2004	METHOD, SYSTEM, AND APPARATUS FOR SELECTING A MAXIMUM OPERATION POINT BASED ON NUMBER OF ACTIVE CORES AND PERFORMANCE	ABBASZADEH,JAWEED	NAVEH, ALON

Petitioner Samsung Ex-1004, 0042

					LEVEL OF EACH OF THE ACTIVE CORES		
11074233	7523327	20060200690	150	03/05/2005	SYSTEM AND METHOD OF COHERENT DATA TRANSFER DURING PROCESSOR IDLE STATES	YANCHUS III,PAUL	NAVEH, ALON
11170115	8281083	20070005910	150	06/30/2005	DEVICE, SYSTEM AND METHOD OF GENERATING AN EXECUTION INSTRUCTION BASED ON A MEMORY-ACCESS INSTRUCTION	LO,KENNETH	NAVEH, ALON
11208935	Not Issued	20070043965	161	08/22/2005	Dynamic memory sizing for power reduction	YANCHUS III,PAUL	NAVEH, ALON
11443140	7225350	20060248364	150	05/26/2006	ACTIVE STATE LINK POWER MANAGEMENT	PATEL,ANAND	NAVEH, ALON
11443141	7584375	20060218426	150	05/26/2006	ACTIVE STATE LINK POWER MANAGEMENT	CHEN,TSE	NAVEH, ALON
11642128	7725745	20080148076	250	12/19/2006	POWER AWARE SOFTWARE PIPELINING FOR	SURYAWANSHI,SURESH	NAVEH, ALON

Petitioner Samsung Ex-1004, 0043

					HARDWARE ACCELERATORS		
11704760	7761720	20070143514	250	02/09/2007	MECHANISM FOR PROCESSOR POWER STATE AWARE DISTRIBUTION OF LOWEST PRIORITY INTERRUPTS	CHEN,TSE	NAVEH, ALON
11906008	7908496	20090089607	150	09/29/2007	SYSTEMS AND METHODS FOR COMMUNICATING VOLTAGE REGULATION INFORMATION BETWEEN A VOLTAGE REGULATOR AND AN INTEGRATED CIRCUIT	CAO,CHUN	NAVEH, ALON
11966806	9081687	20090172284	150	12/28/2007	METHOD AND APPARATUS FOR MONITOR AND MWAIT IN A DISTRIBUTED CACHE ARCHITECTURE	SIMONETTI,NICHOLAS	NAVEH, ALON
11967799	7962771	20090172423	150	12/31/2007	METHOD, SYSTEM, AND APPARATUS FOR	MYERS,PAUL	NAVEH, ALON

Petitioner Samsung Ex-1004, 0044

					REROUTING INTERRUPTS IN A MULTI-CORE PROCESSOR		
11968056	7932639	20090167092	150	12/31/2007	SIMULTANEOUS MULTI-VOLTAGE RAIL VOLTAGE REGULATION MESSAGES	KAPLAN,HAL	NAVEH, ALON
12401538	8650424	20090172375	150	03/10/2009	METHOD AND APPARATUS TO CONTROL POWER CONSUMPTION OF A PLURALITY OF PROCESSOR CORES	ABBASZADEH,JAWEED	NAVEH, ALON
12419090	Not Issued	20090193274	161	04/06/2009	System And Method of Coherent Data Transfer During Processor Idle States	YANCHUS III,PAUL	NAVEH, ALON
12704015	8166320	20100146314	150	02/11/2010	POWER AWARE SOFTWARE PIPELINING FOR HARDWARE ACCELERATORS	SURYAWANSHI,SURESH	NAVEH, ALON
12706631	8707062	20100146311	150	02/16/2010	METHOD AND APPARATUS FOR POWERED OFF PROCESSOR CORE MODE	STOYNOV,STEFAN	NAVEH, ALON

Petitioner Samsung Ex-1004, 0045

12890652	9026829	20120079304	150	09/25/2010	PACKAGE LEVEL POWER STATE OPTIMIZATION	NGUYEN,PHIL	NAVEH, ALON
12980532	9619009	20110099397	150	12/29/2010	OPERATING POINT MANAGEMENT IN MULTI-CORE ARCHITECTURES	CHEN,XUXING	NAVEH, ALON
13094599	8222766	20110199153	150	04/26/2011	SIMULTANEOUS MULTI-VOLTAGE RAIL VOLTAGE REGULATION MESSAGES	KAPLAN,HAL	NAVEH, ALON
13165415	8726048	20110252267	150	06/21/2011	POWER MANAGEMENT COORDINATION IN MULTI-CORE PROCESSORS	CHANG,ERIC	NAVEH, ALON
13220413	Not Issued	20120072750	161	08/29/2011	METHOD AND APPARATUS FOR A ZERO VOLTAGE PROCESSOR SLEEP STATE	STOYNOV,STEFAN	NAVEH, ALON
13247564	9074947	20130080803	150	09/28/2011	Estimating Temperature Of A Processor Core In A Low Power State without thermal sensor information	CHAN,DANNY	NAVEH, ALON

Petitioner Samsung Ex-1004, 0046

13285465	9158693	20130111121	150	10/31/2011	Dynamically Controlling Cache Size To Maximize Energy Efficiency	TSENG,CHENG YUAN	NAVEH, ALON
13307529	9092210	20120166854	150	11/30/2011	Controlling Current Transients In A Processor	NEVELN,JOSHUA	NAVEH, ALON
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	NAVEH, ALON
13327692	9075610	20120185709	150	12/15/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING THREAD CONSOLIDATION	REHMAN,MOHAMMED	NAVEH, ALON
13335738	9400545	20120179927	150	12/22/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING AUTONOMOUS HARDWARE-	TRAN,VINCENT	NAVEH, ALON

Petitioner Samsung Ex-1004, 0047

					BASED DEEP POWER DOWN IN DEVICES		
13335831	9122464	20120166839	150	12/22/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING ENERGY EFFICIENT PROCESSOR THERMAL THROTTLING USING DEEP POWER DOWN MODE	CHOUDHURY,ZAHID	NAVEH, ALON
13335880	8819461	20120166852	250	12/22/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING IMPROVED PROCESSOR CORE DEEP POWER DOWN EXIT	CHOUDHURY,ZAHID	NAVEH, ALON

Petitioner Samsung Ex-1004, 0048

					LATENCY BY USING REGISTER SECONDARY UNINTERRUPTED POWER SUPPLY		
13339284	8799687	20130097437	250	12/28/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING OPTIMIZING C-STATE SELECTION UNDER VARIABLE WAKEUP RATES	STOYNOV,STEFAN	NAVEH, ALON
13340433	Not Issued	20130173946	161	12/29/2011	CONTROLLING POWER CONSUMPTION THROUGH MULTIPLE POWER LIMITS OVER MULTIPLE TIME INTERVALS	NGUYEN,TANH	NAVEH, ALON
13422476	9069555	20120254643	150	03/16/2012	Managing Power Consumption In A Multi-Core Processor	YEN,PAUL	NAVEH, ALON
13538252	9361101	20140006758	150	06/29/2012	Extension of CPU Context-State	ABAD,FARLEY	NAVEH, ALON

Petitioner Samsung Ex-1004, 0049

					Management for Micro-Architecture State			

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Petitioner Samsung Ex-1004, 0050

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Inventor Name Search Result

Your Search was:

Last Name = ANANTHAKRISHNAN
First Name = AVINASH

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
13889785	9377841	20140337646	150	05/08/2013	Adaptively Limiting A Maximum Operating Frequency In A Multicore Processor	DU,THUAN	ANANTHAKRISHNAN, AVINASH
15720222	Not Issued	0	30	09/29/2017	THREAD SCHEDULING USING PROCESSING ENGINE INFORMATION	WU,BENJAMIN	ANANTHAKRISHNAN, AVINASH
15859265	Not Issued	0	30	12/29/2017	ENERGY-AWARE POWER SHARING CONTROL	ABBASZADEH,JAWEED	ANANTHAKRISHNAN, AVINASH
16136440	Not Issued	20190041967	30	09/20/2018	System, Apparatus And Method For Power Budget Distribution For A Plurality Of Virtual Machines To Execute On A Processor	ABBASZADEH,JAWEED	ANANTHAKRISHNAN, AVINASH
16144919	Not Issued	20190041971	30	09/27/2018	THROTTLING OF COMPONENTS	ABBASZADEH,JAWEED	ANANTHAKRISHNAN, AVINASH

Petitioner Samsung Ex-1004, 0051

					USING PRIORITY ORDERING		
16147285	Not Issued	20190041962	30	09/28/2018	PER-CORE OPERATING VOLTAGE AND/OR OPERATING FREQUENCY DETERMINATION BASED ON EFFECTIVE CORE UTILIZATION	ABBASZADEH,JAWEED	ANANTHAKRISHNAN, AVINASH
13077618	8539269	20120254641	150	03/31/2011	APPARATUS AND METHOD FOR HIGH CURRENT PROTECTION	WANG,ALBERT	ANANTHAKRISHNAN, AVINASH N.
13225677	8769316	20130061064	150	09/06/2011	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR	STOYNOV,STEFAN	ANANTHAKRISHNAN, AVINASH N.
13247564	9074947	20130080803	150	09/28/2011	Estimating Temperature Of A Processor Core In A Low Power State without thermal sensor information	CHAN,DANNY	ANANTHAKRISHNAN, AVINASH N.
13282896	8832478	20130111120	150	10/27/2011	Enabling A Non-Core Domain To Control Memory Bandwidth In A Processor	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.
13282947	9026815	20130111236	150	10/27/2011	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.

Petitioner Samsung Ex-1004, 0052

					Multi-Domain Processor		
13285414	8943340	20130111226	150	10/31/2011	Controlling A Turbo Mode Frequency Of A Processor	HUYNH,KIM	ANANTHAKRISHNAN, AVINASH N.
13285465	9158693	20130111121	150	10/31/2011	Dynamically Controlling Cache Size To Maximize Energy Efficiency	TSENG,CHENG YUAN	ANANTHAKRISHNAN, AVINASH N.
13324932	9141166	20120185706	150	12/13/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING DYNAMIC CONTROL OF ENERGY CONSUMPTION IN POWER DOMAINS	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
13326605	9372524	20120144217	150	12/15/2011	Dynamically Modifying A Power/Performance Tradeoff Based On Processor Utilization	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
13327692	9075610	20120185709	150	12/15/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY	REHMAN,MOHAMMED	ANANTHAKRISHNAN, AVINASH N.

Petitioner Samsung Ex-1004, 0053

					CONSERVATION INCLUDING THREAD CONSOLIDATION		
13335628	9753516	20120221873	150	12/22/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY MITIGATING PERFORMANCE VARIATIONS BETWEEN INTEGRATED CIRCUIT DEVICES	HICKS,AUSTIN	ANANTHAKRISHNAN, AVINASH N.
13335638	Not Issued	20120095607	161	12/22/2011	Method, Apparatus, and System for Energy Efficiency and Energy Conservation Through Dynamic Management of Memory and Input/Output Subsystems	LOPEZ ALVAREZ,OLVIN	ANANTHAKRISHNAN, AVINASH N.
13340433	Not Issued	20130173946	161	12/29/2011	CONTROLLING POWER CONSUMPTION THROUGH MULTIPLE POWER LIMITS OVER MULTIPLE TIME INTERVALS	NGUYEN,TANH	ANANTHAKRISHNAN, AVINASH N.
13341657	8984311	20120173907	150	12/30/2011	METHOD, APPARATUS, AND SYSTEM FOR	BROWN,MICHAEL	ANANTHAKRISHNAN, AVINASH N.

Petitioner Samsung Ex-1004, 0054

					ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING DYNAMIC C0-STATE CACHE RESIZING		
13538546	9037840	20140006761	150	06/29/2012	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	ANANTHAKRISHNAN, AVINASH N.
13628172	9423858	20140089688	150	09/27/2012	SHARING POWER BETWEEN DOMAINS IN A PROCESSOR PACKAGE USING ENCODED POWER CONSUMPTION INFORMATION FROM A SECOND DOMAIN TO CALCULATE AN AVAILABLE POWER BUDGET FOR A FIRST DOMAIN	CASSITY,ROBERT	ANANTHAKRISHNAN, AVINASH N.
13631679	9037889	20140095904	150	09/28/2012	APPARATUS AND METHOD FOR DETERMINING THE NUMBER OF EXECUTION CORES	WANG,ALBERT	ANANTHAKRISHNAN, AVINASH N.

Petitioner Samsung Ex-1004, 0055

					TO KEEP ACTIVE IN A PROCESSOR		
13780066	8775833	20130179704	150	02/28/2013	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor	STOYNOV,STEFAN	ANANTHAKRISHNAN, AVINASH N.
13780087	9235254	20130173941	150	02/28/2013	CONTROLLING TEMPERATURE OF MULTIPLE DOMAINS OF A MULTI-DOMAIN PROCESSOR USING A CROSS-DOMAIN MARGIN	CHAN,DANNY	ANANTHAKRISHNAN, AVINASH N.
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
13782539	9292068	20130179705	150	03/01/2013	Controlling A Turbo Mode Frequency Of A Processor	HUYNH,KIM	ANANTHAKRISHNAN, AVINASH N.
13782578	9176565	20130179709	150	03/01/2013	Controlling Operating Frequency Of A Core Domain Based On Operating Condition Of A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.
13783978	9189046	20140068293	150	03/04/2013	PERFORMING CROSS-DOMAIN THERMAL CONTROL IN A PROCESSOR	SURYAWANSHI,SURESH	ANANTHAKRISHNAN, AVINASH N.

Petitioner Samsung Ex-1004, 0056

13844815	9513688	20140281612	150	03/16/2013	MEASUREMENT OF PERFORMANCE SCALABILITY IN A MICROPROCESSOR	SAMPATH,GAYATHRI	ANANTHAKRISHNAN, AVINASH N.
13994065	9606595	20130339777	150	06/13/2013	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	BROWN,MICHAEL	ANANTHAKRISHNAN, AVINASH N.
13997295	9268393	20140157021	150	06/24/2013	ENFORCING A POWER CONSUMPTION DUTY CYCLE IN A PROCESSOR	CHEN,XUXING	ANANTHAKRISHNAN, AVINASH N.
14039151	9594560	20150095620	150	09/27/2013	ESTIMATING SCALABILITY VALUE FOR A SPECIFIC DOMAIN OF A MULTICORE PROCESSOR BASED ON ACTIVE STATE RESIDENCY OF THE DOMAIN, STALL DURATION OF THE DOMAIN, MEMORY BANDWIDTH OF THE DOMAIN, AND A PLURALITY OF COEFFICIENTS BASED ON A WORKLOAD TO EXECUTE ON THE DOMAIN	WANG,ZHIPENG	ANANTHAKRISHNAN, AVINASH N.
14039193	9405345	20150095666	150	09/27/2013	CONSTRAINING PROCESSOR OPERATION BASED	WANG,ZHIPENG	ANANTHAKRISHNAN, AVINASH N.

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					ON POWER ENVELOPE INFORMATION		
14143939	9081557	20140115351	150	12/30/2013	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR	STOYNOV,STEFAN	ANANTHAKRISHNAN, AVINASH N.
14306014	9501299	20150363212	150	06/16/2014	MINIMIZING PERFORMANCE LOSS ON WORKLOADS THAT EXHIBIT FREQUENT CORE WAKE-UP ACTIVITY	PRIFTI,AUREL	ANANTHAKRISHNAN, AVINASH N.
14451807	9354692	20140344598	150	08/05/2014	Enabling A Non-Core Domain To Control Memory Bandwidth In A Processor	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.
14565723	9618997	20150095673	150	12/10/2014	CONTROLLING A TURBO MODE FREQUENCY OF A PROCESSOR	PATEL,NITIN	ANANTHAKRISHNAN, AVINASH N.
14658021	9734116	20150269108	150	03/13/2015	METHOD, APPARATUS AND SYSTEM FOR CONFIGURING A PROTOCOL STACK OF AN INTEGRATED CIRCUIT CHIP	FRANKLIN,RICHARD	ANANTHAKRISHNAN, AVINASH N.
14697541	9417681	20150241949	150	04/27/2015	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE	SURYAWANSHI,SURESH	ANANTHAKRISHNAN, AVINASH N.

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					DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS		
14697553	Not Issued	20150241954	161	04/27/2015	Apparatus and Method for Determining the Number of Execution Units to Keep Active in a Processor	WANG,ALBERT	ANANTHAKRISHNAN, AVINASH N.
14840639	9471490	20160011975	150	08/31/2015	DYNAMICALLY CONTROLLING CACHE SIZE TO MAXIMIZE ENERGY EFFICIENCY	TSENG,CHENG YUAN	ANANTHAKRISHNAN, AVINASH N.
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
14875930	9939879	20160026229	150	10/06/2015	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.
15138505	10037067	20160313778	150	04/26/2016	Enabling A Non-Core Domain To Control Memory Bandwidth In A Processor	PHAN,RAYMOND	ANANTHAKRISHNAN, AVINASH N.
15162709	9760409	20160266941	150	05/24/2016	Dynamically Modifying A Power/Performance Tradeoff Based On A Processor Utilization	ELAMIN,ABDELMONIEM	ANANTHAKRISHNAN, AVINASH N.
15238717	Not Issued	20170115716	89	08/16/2016	MECHANISM TO PROVIDE WORKLOAD AND	SURYAWANSHI,SURESH	ANANTHAKRISHNAN, AVINASH N.

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					CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS		
15252511	Not Issued	20180060123	30	08/31/2016	Controlling A Performance State Of A Processor Using A Combination Of Package And Thread Hint Information	SWIFT,CHARLES	ANANTHAKRISHNAN, AVINASH N.
15252529	Not Issued	20180060085	41	08/31/2016	Processor To Pre-Empt Voltage Ramps For Exit Latency Reductions	PRIFTI,AUREL	ANANTHAKRISHNAN, AVINASH N.

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Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
12890434	9015415	20120079186	150	09/24/2010	MULTI-PROCESSOR COMPUTING SYSTEM HAVING FAST PROCESSOR RESPONSE TO CACHE AGENT REQUEST CAPACITY LIMIT WARNING	TSUI,DANIEL	VARMA, ANKUSH
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
13326605	9372524	20120144217	150	12/15/2011	Dynamically Modifying A Power/Performance Tradeoff Based On Processor Utilization	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
13536852	9053244	20140006673	150	06/28/2012	UTILIZATION-AWARE LOW-OVERHEAD LINK-	PATEL,NIMESH	VARMA, ANKUSH

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					WIDTH MODULATION FOR POWER REDUCTION IN INTERCONNECTS		
13538546	9037840	20140006761	150	06/29/2012	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	VARMA, ANKUSH
13631824	9846463	20140095905	150	09/28/2012	Computing System and Processor With Fast Power Surge Detection And Instruction Throttle Down To Provide For Low Cost Power Supply Unit	JOHNSON,TERRELL	VARMA, ANKUSH
13716712	9405351	20140173297	150	12/17/2012	PERFORMING FREQUENCY COORDINATION IN A MULTIPROCESSOR SYSTEM	BROWN,MICHAEL	VARMA, ANKUSH
13716801	9292468	20140173248	150	12/17/2012	Performing Frequency Coordination In A Multiprocessor System Based On Response Timing Optimization	ABAD,FARLEY	VARMA, ANKUSH
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL	ELAMIN,ABDELMONIEM	VARMA,

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					CONTROL OF POWER MANAGEMENT POLICIES		ANKUSH
13843855	9494996	20140281445	150	03/15/2013	PROCESSOR HAVING FREQUENCY OF OPERATION INFORMATION FOR GUARANTEED OPERATION UNDER HIGH TEMPERATURE EVENTS	SAMPATH,GAYATHRI	VARMA, ANKUSH
13844815	9513688	20140281612	150	03/16/2013	MEASUREMENT OF PERFORMANCE SCALABILITY IN A MICROPROCESSOR	SAMPATH,GAYATHRI	VARMA, ANKUSH
13889785	9377841	20140337646	150	05/08/2013	Adaptively Limiting A Maximum Operating Frequency In A Multicore Processor	DU,THUAN	VARMA, ANKUSH
13972569	9495001	20150058650	150	08/21/2013	Forcing Core Low Power States In A Processor	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
13976687	9158351	20130332753	150	08/06/2013	DYNAMIC POWER LIMIT SHARING IN A PLATFORM	STOYNOV,STEFAN	VARMA, ANKUSH
13992706	9977482	20140129858	150	06/07/2013	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR	NEVELN,JOSHUA	VARMA, ANKUSH

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					FREQUENCY FLOOR		
13994065	9606595	20130339777	150	06/13/2013	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	BROWN,MICHAEL	VARMA, ANKUSH
13996266	9547027	20140195828	150	06/20/2013	DYNAMICALLY MEASURING POWER CONSUMPTION IN A PROCESSOR	SAMPATH,GAYATHRI	VARMA, ANKUSH
13997295	9268393	20140157021	150	06/24/2013	ENFORCING A POWER CONSUMPTION DUTY CYCLE IN A PROCESSOR	CHEN,XUXING	VARMA, ANKUSH
13997386	9323316	20140208141	150	06/24/2013	DYNAMICALLY CONTROLLING INTERCONNECT FREQUENCY IN A PROCESSOR	CHOUDHURY,ZAHID	VARMA, ANKUSH
14450482	9961478	20150381227	150	08/04/2014	INTERNET OF THINGS ELECTRONIC SIGNAL AGGREGATOR AND REPEATER	SOBUTKA,PHILIP	VARMA, ANKUSH
14623764	9874922	20160239068	150	02/17/2015	PERFORMING DYNAMIC POWER CONTROL OF	ERDMAN,CHAD	VARMA, ANKUSH

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					PLATFORM DEVICES		
14633438	9766673	20160252942	150	02/27/2015	SUPERCAPACITOR-BASED POWER SUPPLY PROTECTION FOR MULTI-NODE SYSTEMS	NGUYEN,PHIL	VARMA, ANKUSH
14633455	9842082	20160252943	150	02/27/2015	DYNAMICALLY UPDATING LOGICAL IDENTIFIERS OF CORES OF A PROCESSOR	NGUYEN,PHIL	VARMA, ANKUSH
14697541	9417681	20150241949	150	04/27/2015	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	VARMA, ANKUSH
14732693	9336175	20150269105	150	06/06/2015	UTILIZATION-AWARE LOW-OVERHEAD LINK-WIDTH MODULATION FOR POWER REDUCTION IN INTERCONNECTS	PATEL,NIMESH	VARMA, ANKUSH
14750212	9841997	20160378486	150	06/25/2015	METHOD AND APPARATUS FOR	COLEMAN,ERIC	VARMA, ANKUSH

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					EXECUTION MODE SELECTION		
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
14867490	9557804	20160018883	150	09/28/2015	DYNAMIC POWER LIMIT SHARING IN A PLATFORM	STOYNOV,STEFAN	VARMA, ANKUSH
15162709	9760409	20160266941	150	05/24/2016	Dynamically Modifying A Power/Performance Tradeoff Based On A Processor Utilization	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
15182990	Not Issued	20170364132	140	06/15/2016	CURRENT CONTROL FOR A MULTICORE PROCESSOR	MAZYAD,ALYAA	VARMA, ANKUSH
15197083	Not Issued	20180004269	93	06/29/2016	Management of System Current Constraints with Current Limits for Individual Engines	JOHNSON,TERRELL	VARMA, ANKUSH
15238717	Not Issued	20170115716	89	08/16/2016	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	VARMA, ANKUSH
15281806	Not Issued	20180095520	95	09/30/2016	PROCESSOR VOLTAGE CONTROL	HICKS,AUSTIN	VARMA, ANKUSH

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					USING RUNNING AVERAGE VALUE		
15296096	Not Issued	20170102752	93	10/18/2016	Forcing Core Low Power States In A Processor	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
15352460	Not Issued		160	11/15/2016	PROCESSOR HAVING FREQUENCY OF OPERATION INFORMATION FOR GUARANTEED OPERATION UNDER HIGH TEMPERATURE EVENTS	,	VARMA, ANKUSH
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	VARMA, ANKUSH
15381611	Not Issued	20180173298	61	12/16/2016	AVERAGE CURRENT PROTECTION MECHANISM	YEN,PAUL	VARMA, ANKUSH
15472113	Not Issued		160	03/28/2017	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	,	VARMA, ANKUSH
15625423	Not Issued	20180365022	41	06/16/2017	DYNAMIC OFFLINING AND ONLINING OF PROCESSOR CORES	CHAN,DANNY	VARMA, ANKUSH
15668771	Not Issued	20170329377	30	08/04/2017	SUPERCAPACITOR-BASED POWER SUPPLY	NGUYEN,PHIL	VARMA, ANKUSH

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					PROTECTION FOR MULTI-NODE SYSTEMS		
15719481	Not Issued	20180356868	30	09/28/2017	ADAPTIVE PARAMETERIZATION FOR MAXIMUM CURRENT PROTECTION	STOYNOV,STEFAN	VARMA, ANKUSH
15720296	Not Issued	0	30	09/29/2017	THREAD SCHEDULING USING PROCESSING ENGINE INFORMATION	ZHAO,BING	VARMA, ANKUSH
15720801	Not Issued	0	41	09/29/2017	Control Blocks for Processor Power Management	DEROSE,VOLVICK	VARMA, ANKUSH
15721314	Not Issued	0	30	09/29/2017	VOLTAGE REGULATOR CIRCUITRY INCLUDING MODULE FOR SWITCHING FREQUENCY SELF-OPTIMIZATION	AMAYA,CARLOS	VARMA, ANKUSH
15721822	Not Issued	20180101502	30	09/30/2017	MULTIPLE DIES HARDWARE PROCESSORS AND METHODS	GOODWIN,SCHQUITA	VARMA, ANKUSH
15811848	Not Issued	20180067892	30	11/14/2017	DYNAMICALLY UPDATING LOGICAL IDENTIFIERS OF	NGUYEN,PHIL	VARMA, ANKUSH

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					CORES OF A PROCESSOR		
15846161	Not Issued	20180232024	93	12/18/2017	COMPUTING SYSTEM AND PROCESSOR WITH FAST POWER SURGE DETECTION AND INSTRUCTION THROTTLE DOWN TO PROVIDE FOR LOW COST POWER SUPPLY UNIT	JOHNSON,TERRELL	VARMA, ANKUSH
15849995	Not Issued	0	30	12/21/2017	System, Apparatus And Method For Processor-External Override Of Hardware Performance State Control Of A Processor	ABBASZADEH,JAWEED	VARMA, ANKUSH
15866425	Not Issued	20190041949	30	01/09/2018	HYBRID PRIORITIZED RESOURCE ALLOCATION in THERMALLY- or POWER-CONSTRAINED COMPUTING DEVICES	ABBASZADEH,JAWEED	VARMA, ANKUSH
15956994	Not Issued		160	04/19/2018	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR	,	VARMA, ANKUSH

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Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
13889785	9377841	20140337646	150	05/08/2013	Adaptively Limiting A Maximum Operating Frequency In A Multicore Processor	DU,THUAN	STEINER, IAN
16215978	Not Issued	0	30	12/11/2018	Controlling Average Power Limits Of A Processor	HUYNH,KIM NGOC	STEINER, IAN
11965953	8429367	20090172681	150	12/28/2007	SYSTEMS, METHODS AND APPARATUSES FOR CLOCK ENABLE (CKE) COORDINATION	SIMONETTI,NICHOLAS	STEINER, IAN M.
11965955	7885914	20090171875	150	12/28/2007	SYSTEMS, METHODS AND APPARATUSES	HOLMES,MICHAEL	STEINER, IAN M.

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					FOR RANK COORDINATION		
12006326	7991963	20090172295	150	12/31/2007	IN-MEMORY, IN-PAGE DIRECTORY CACHE COHERENCY SCHEME	BRADLEY,MATTHEW	STEINER, IAN M.
13196637	Not Issued		160	08/02/2011	IN-MEMORY, IN-PAGE DIRECTORY CACHE COHERENCY SCHEME	,	STEINER, IAN M.
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	STEINER, IAN M.
13326605	9372524	20120144217	150	12/15/2011	Dynamically Modifying A Power/Performance Tradeoff Based On Processor Utilization	ELAMIN,ABDELMONIEM	STEINER, IAN M.
13631831	9141426	20140096137	150	09/28/2012	Processor Having Per Core and Package Level P0 Determination Functionality	HUARACHA,WILLY	STEINER, IAN M.
13716712	9405351	20140173297	150	12/17/2012	PERFORMING FREQUENCY COORDINATION IN A	BROWN,MICHAEL	STEINER, IAN M.

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					MULTIPROCESSOR SYSTEM		
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	STEINER, IAN M.
13868003	Not Issued		160	04/22/2013	SYSTEMS, METHODS AND APPARATUSES FOR CLOCK ENABLE (CKE) COORDINATION	,	STEINER, IAN M.
13972569	9495001	20150058650	150	08/21/2013	Forcing Core Low Power States In A Processor	ELAMIN,ABDELMONIEM	STEINER, IAN M.
13992706	9977482	20140129858	150	06/07/2013	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR FREQUENCY FLOOR	NEVELN,JOSHUA	STEINER, IAN M.
14306014	9501299	20150363212	150	06/16/2014	MINIMIZING PERFORMANCE LOSS ON WORKLOADS THAT EXHIBIT FREQUENT CORE	PRIFTI,AUREL	STEINER, IAN M.

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					WAKE-UP ACTIVITY		
14554384	10048744	20160147291	150	11/26/2014	APPARATUS AND METHOD FOR THERMAL MANAGEMENT IN A MULTI-CHIP PACKAGE	STEWART,KEVIN	STEINER, IAN M.
14554585	Not Issued	20160147280	61	11/26/2014	CONTROLLING AVERAGE POWER LIMITS OF A PROCESSOR	STEWART,KEVIN	STEINER, IAN M.
14582741	9880601	20160187952	150	12/24/2014	METHOD AND APPARATUS TO CONTROL A LINK POWER STATE	TRAN,VINCENT	STEINER, IAN M.
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	STEINER, IAN M.
15088531	10146287	20170285710	150	04/01/2016	PROCESSOR POWER MONITORING AND CONTROL WITH DYNAMIC LOAD BALANCING	YEN,PAUL	STEINER, IAN M.
15162709	9760409	20160266941	150	05/24/2016	Dynamically Modifying A Power/Performance Tradeoff Based On A	ELAMIN,ABDELMONIEM	STEINER, IAN M.

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					Processor Utilization		
15296096	Not Issued	20170102752	93	10/18/2016	Forcing Core Low Power States In A Processor	ELAMIN,ABDELMONIEM	STEINER, IAN M.
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	STEINER, IAN M.
15388146	Not Issued	20180181474	41	12/22/2016	Systems and Methods for In-Field Core Failover	LEIBOVICH,YAIR	STEINER, IAN M.
15860300	Not Issued	20180196488	41	01/02/2018	METHOD AND APPARATUS TO CONTROL A LINK POWER STATE	TRAN,VINCENT	STEINER, IAN M.
15866425	Not Issued	20190041949	30	01/09/2018	HYBRID PRIORITIZED RESOURCE ALLOCATION in THERMALLY- or POWER-CONSTRAINED COMPUTING DEVICES	ABBASZADEH,JAWEED	STEINER, IAN M.
15956994	Not Issued		160	04/19/2018	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR	,	STEINER, IAN M.

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					FREQUENCY FLOOR		
16052375	Not Issued	20180335831	40	08/01/2018	APPARATUS AND METHOD FOR THERMAL MANAGEMENT IN A MULTI-CHIP PACKAGE	STEWART,KEVIN	STEINER, IAN M.

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☐	L65	L64 or ((trade$1off or trade off) same (energy or power) same performance)	2360
☐	L64	(power or energy) near3 performance near5 (bias or plan or policy or mode)	1738
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☐	L62	L60 and l49	136
☐	L61	L60 and l52	12
☐	L60	L59 or l58 or l57	45153
☐	L59	((713/3$2).CCLS.)	22403
☐	L58	((G06F1/26 | G06F1/32).IPCR.)	29486
☐	L57	((G06F1/266 | G06F1/3203 | G06F1/3206 | G06F1/3234 | G06F1/3275).CPC.)	23224
☐	L56	L55 not l54	75
☐	L55	L49 same (load or workload)	78
☐	L54	L52 same (load or workload)	26
☐	L53	L52 same user	34
☐	L52	L48 same ((parameter or value) with (universal or single or global))	105
☐	L51	L49 same ((parameter or value) with (universal or single or global))	3
☐	L50	L49.ti,ab,clm.	18
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☐	L48	L47 or l46	15652
☐	L47	(trade$1off or trade off) same (energy or power) same performance	11386
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☐	L42	L41 and l36	0
☐	L41	(20090248976 | 20030055969 | 7219241 | 20040260489 | 7688746 | 20080301473 | 7228441 | 20050076253 | 7174467 | 6938184 | 7174471 | 5651006)![PN]	12
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☐	L34	l31 and ((performance with consum$7) same user)	2
☐	L33	L32 and user	9
☐	L32	l31 and (performance with consum$7)	10
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☐	L29	l28 and (trade$1off or trade off)	1
☐	L28	(20080209247 | 20090094473 | 6710578 | 20060136793 | 7508169 | 20080104430 | 20040123172 | 6049879 | 20040268166 | 20080158390 | 7058480 | 20040041538)![PN]	12
☐	L27	("20090327785" | "8117467")[PN]	2
☐	L26	l25 and (trade$1off or trade off)	3
DB=USPT; PLUR=YES; OP=ADJ			
☐	L25	("2009/0327785" | "8117467" | "20090327785")[URPN]	16
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
☐	L24	8117467.pn.	1
☐	L23	20090327785	2
☐	L22	20050066206	1
☐	L21	L8 with select$5 with (value or parameter or point)	9
☐	L20	L8 with select$5	50
☐	L19	L16 with operat$4 point	14

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☐	L18	L16 with (set$1point or set point)	2
☐	L17	L16 with ((one or single) near3 (parameter or value))	24
☐	L16	(power or consumption) with performance with (trade$1off or trade off)	4381
☐	L15	20170083076 and epb	1
☐	L14	20090254660 and (trade$1off or trade off)	2
☐	L13	20090254660 and user	2
☐	L12	20090254660 and ((trade$1off or trade off) with user)	2
☐	L11	20080307238 and unified	2
☐	L10	L9 not L7	21
☐	L9	L8.ti,ab,clm.	25
☐	L8	(power or consumption) with performance with (trade$1off or trade off) with user	342
☐	L7	L6 and(((multiple or plural$5) near3 core) or multi$1core)	31
☐	L6	L5 same (work$1load or load)	107
☐	L5	(power or consumption) with performance with (value or parameter or ratio) with (global or universal or single)	1198
☐	L4	(power or consumption) with performance with (value)	16699
☐	L3	20050066206	1
☐	L2	20170083076 and global	1
☐	L1	20170083076	1

END OF SEARCH HISTORY

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Inventor Name Search Result

Your Search was:

Last Name = AGGARWAL
First Name = ANIL

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
09965295	7194540	20030065775	250	09/28/2001	MECHANISM FOR ALLOWING MULTIPLE ENTITIES ON THE SAME HOST TO HANDLE MESSAGES OF SAME SERVICE CLASS IN A CLUSTER	OSMAN,RAMY	AGGARWAL, ANIL
10608708	7213093	20040267996	150	06/27/2003	QUEUED LOCKS USING MONITOR-MEMORY WAIT	CERULLO,JEREMY	AGGARWAL, ANIL
10631522	8984199	20050027914	150	07/31/2003	INTER-PROCESSOR INTERRUPTS	ZAMAN,FAISAL	AGGARWAL, ANIL
11026597	7810083	20060150183	250	12/30/2004	MECHANISM TO EMULATE USER-LEVEL MULTITHREADING ON AN OS-	TECKLU,ISAAC	AGGARWAL, ANIL

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					SEQUESTERED SEQUENCER		
11134687	7849465	20060294347	150	05/19/2005	PROGRAMMABLE EVENT DRIVEN YIELD MECHANISM WHICH MAY ACTIVATE SERVICE THREADS	TRUONG,CAMQUY	AGGARWAL, ANIL
11173326	8719819	20070006231	150	06/30/2005	Mechanism for instruction set based thread execution on a plurality of instruction sequencers	HUARACHA,WILLY	AGGARWAL, ANIL
11239475	8028295	20070079301	150	09/30/2005	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	AGGARWAL, ANIL
11638700	7818596	20080148027	150	12/14/2006	Method and apparatus of power management of processor	ABBASZADEH,JAWEED	AGGARWAL, ANIL
11716377	7328293	20070162774	150	03/09/2007	QUEUED LOCKS USING MONITOR-MEMORY WAIT	CERULLO,JEREMY	AGGARWAL, ANIL
11864800	7917789	20090089598	150	09/28/2007	SYSTEM AND METHOD FOR SELECTING OPTIMAL PROCESSOR PERFORMANCE LEVELS BY USING PROCESSOR HARDWARE FEEDBACK MECHANISMS	CHOUDHURY,ZAHID	AGGARWAL, ANIL

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11903249	7640384	20080022141	150	09/20/2007	QUEUED LOCKS USING MONITOR-MEMORY WAIT	CERULLO,JEREMY	AGGARWAL, ANIL
11967799	7962771	20090172423	150	12/31/2007	METHOD, SYSTEM, AND APPARATUS FOR REROUTING INTERRUPTS IN A MULTI-CORE PROCESSOR	MYERS,PAUL	AGGARWAL, ANIL
12342919	8458498	20100162023	150	12/23/2008	METHOD AND APPARATUS OF POWER MANAGEMENT OF PROCESSOR	REHMAN,MOHAMMED	AGGARWAL, ANIL
13221119	8479217	20110314480	150	08/30/2011	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	AGGARWAL, ANIL
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	AGGARWAL, ANIL
13608970	9720697	20130054940	150	09/10/2012	MECHANISM FOR INSTRUCTION SET BASED THREAD EXECUTION ON A PLURALITY OF INSTRUCTION SEQUENCERS	HUARACHA,WILLY	AGGARWAL, ANIL
13683748	10007528	20130151569	150	11/21/2012	COMPUTING PLATFORM INTERFACE WITH MEMORY MANAGEMENT	VU,BAI	AGGARWAL, ANIL

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13730906	9081707	20140189285	150	12/29/2012	APPARATUS AND METHOD FOR TRACKING TLB FLUSHES ON A PER THREAD BASIS	NGUYEN,THAN	AGGARWAL, ANIL
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	AGGARWAL, ANIL
13893846	8874947	20140040643	150	05/14/2013	METHOD AND APPARATUS OF POWER MANAGMENT OF PROCESSOR	REHMAN,MOHAMMED	AGGARWAL, ANIL
13914830	9383997	20130275735	150	06/11/2013	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	AGGARWAL, ANIL
13976507	9442739	20130275796	150	06/27/2013	COLLABORATIVE PROCESSOR AND SYSTEM PERFORMANCE AND POWER MANAGEMENT	CHEN,XUXING	AGGARWAL, ANIL
13976520	9454379	20130275737	150	06/27/2013	COLLABORATIVE PROCESSOR AND SYSTEM PERFORMANCE AND POWER MANAGEMENT	CHEN,XUXING	AGGARWAL, ANIL
13977531	10108433	20130283032	150	06/28/2013	COLLABORATIVE PROCESSOR AND SYSTEM	ELAMIN,ABDELMONIEM	AGGARWAL, ANIL

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					PERFORMANCE AND POWER MANAGEMENT		
13924142	10185566	20140129808	150	06/14/2013	MIGRATING TASKS BETWEEN ASYMMETRIC COMPUTING ELEMENTS OF A MULTI-CORE PROCESSOR	NGUYEN,WILLIAM	AGGARWAL, ANIL
13995994	9720730	20140082630	150	11/22/2013	PROVIDING AN ASYMMETRIC MULTICORE PROCESSOR SYSTEM TRANSPARENTLY TO AN OPERATING SYSTEM	ARCOS,CAROLINE	AGGARWAL, ANIL
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	AGGARWAL, ANIL
15166469	9766891	20160274910	150	05/27/2016	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	AGGARWAL, ANIL
15262816	Not Issued	20170003724	93	09/12/2016	COLLABORATIVE PROCESSOR AND SYSTEM PERFORMANCE AND POWER MANAGEMENT	CHEN,XUXING	AGGARWAL, ANIL
15276290	Not Issued	20170010895	71	09/26/2016	MECHANISM FOR INSTRUCTION SET BASED THREAD	HUARACHA,WILLY	AGGARWAL, ANIL

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					EXECUTION ON A PLURALITY OF INSTRUCTION SEQUENCERS		
15284377	Not Issued	20170249008	161	10/03/2016	TECHNIQUES FOR ENTERING A LOW POWER STATE	DEROSE,VOLVICK	AGGARWAL, ANIL
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	AGGARWAL, ANIL
15386615	9875102	20170102944	150	12/21/2016	Apparatus, System, And Method For Persistent User-Level Thread	LEE,TAMMY	AGGARWAL, ANIL
60640425	Not Issued		159	12/30/2004	Mechanism for instruction set based thread execution on a plurality of instruction sequencers	,	AGGARWAL, ANIL
61563030	Not Issued		159	11/22/2011	CPPC, RASF, MPST, FPDT, AND EINJ TECHNOLOGY	,	AGGARWAL, ANIL
09693646	Not Issued		161	10/21/2000	REAL-TIME REWARDING OF ACCOUNT INFORMATION HAVING ACTUAL MONETARY VALUE IN RESPONSE TO PERFORMANCE OF INCENTIVE-RELATED ACTIVITIES	CARLSON,JEFFREY	AGGARWAL, ANIL D.
12718971	Not Issued	20100228683	161	03/06/2010	ISSUING SYSTEMS, ACQUIRING	WILSON,CANDICE	AGGARWAL, ANIL DATT

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					SYSTEMS, AND PAYMENT NETWORKS/SYSTEMS DEVELOPMENT		
10108593	6726360	20030185274	250	03/28/2002	INTENSITY MODULATED FIBER OPTIC TEMPERATURE SWITCHING IMMERSION PROBE	DEJESUS,LYDIA	AGGARWAL, ANIL KUMAR
10725173	Not Issued	20040222893	161	12/01/2003	Method for temperature measurement using intensity modulated fiber optic temperature switching immersion probe	VAUGHN,MEGANN	AGGARWAL, ANIL KUMAR
10813425	7130061	20040262550	250	03/31/2004	SYSTEM AND METHOD FOR MONITORING PROPERTIES OF A MEDIUM BY FIBER OPTICS	AKANBI,ISIAKA	AGGARWAL, ANIL KUMAR
10814108	Not Issued	20050219669	161	03/31/2004	Method of forming a rainbow security hologram	ANGEBRANNDT,MARTIN	AGGARWAL, ANIL KUMAR
60458448	Not Issued		159	03/31/2003	System and method for monitoring properties of a medium by fiber optics	,	AGGARWAL, ANIL KUMAR

Inventor Search Completed: No Records to Display.

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Inventor Name Search Result

Your Search was:

Last Name = ROTEM
First Name = EFRAIM

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
10331610	7069189	20040128100	250	12/31/2002	METHOD AND APPARATUS FOR CONTROLLING MULTIPLE RESOURCES USING THERMAL RELATED PARAMETERS	DESTA,ELIAS	ROTEM, EFRAIM
10331611	Not Issued	20040128663	161	12/31/2002	Method and apparatus for thermally managed resource allocation	TRUJILLO,JAMES	ROTEM, EFRAIM
10442595	Not Issued	20050046400	161	05/21/2003	Controlling operation of a voltage supply according to the activity of a multi-core integrated circuit	SUGENT,JAMES	ROTEM, EFRAIM

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					component or of multiple IC components		
10875005	7401241	20050283625	150	06/22/2004	CONTROLLING STANDBY POWER OF LOW POWER DEVICES	SURYAWANSHI,SURESH	ROTEM, EFRAIM
10899674	7966511	20060026447	150	07/27/2004	POWER MANAGEMENT COORDINATION IN MULTI-CORE PROCESSORS	CHANG,ERIC	ROTEM, EFRAIM
10912977	7656635	20060034343	150	08/06/2004	OVERHEAT DETECTION IN THERMALLY CONTROLLED DEVICES	THOMAS,LUCY	ROTEM, EFRAIM
10931565	7363523	20060047986	150	08/31/2004	METHOD AND APPARATUS FOR CONTROLLING POWER MANAGEMENT STATE TRANSITIONS	SURYAWANSHI,SURESH	ROTEM, EFRAIM
10973396	7430672	20060090086	150	10/27/2004	METHOD AND APPARATUS TO MONITOR POWER CONSUMPTION OF PROCESSOR	REHMAN,MOHAMMED	ROTEM, EFRAIM
10978362	7386737	20060095798	150	11/02/2004	METHOD AND APPARATUS TO	REHMAN,MOHAMMED	ROTEM, EFRAIM

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					CONTROL TEMPERATURE OF PROCESSOR		
11016917	7461272	20060136076	250	12/21/2004	DEVICE, SYSTEM AND METHOD OF THERMAL CONTROL	JIANG,CHEN WEN	ROTEM, EFRAIM
11024538	Not Issued	20060143485	161	12/28/2004	Techniques to manage power for a mobile device	ABBASZADEH,JAWEED	ROTEM, EFRAIM
11025140	7878016	20060149974	150	12/30/2004	DEVICE AND METHOD FOR ON-DIE TEMPERATURE MEASUREMENT	JIANG,CHEN WEN	ROTEM, EFRAIM
11025171	Not Issued	20060143486	161	12/28/2004	System and method to profile an unconstrained power of a processor	REHMAN,MOHAMMED	ROTEM, EFRAIM
11026705	7502948	20060149975	150	12/30/2004	METHOD, SYSTEM, AND APPARATUS FOR SELECTING A MAXIMUM OPERATION POINT BASED ON NUMBER OF ACTIVE CORES AND PERFORMANCE LEVEL OF EACH	ABBASZADEH,JAWEED	ROTEM, EFRAIM

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					OF THE ACTIVE CORES		
11125769	7463993	20060254296	150	05/10/2005	ADAPTIVE THERMAL-BASED FREQUENCY-BOUNDS CONTROL	JIANG,CHEN WEN	ROTEM, EFRAIM
11172110	7529955	20070006004	150	06/30/2005	DYNAMIC BUS PARKING	BROWN,MICHAEL	ROTEM, EFRAIM
11173146	7501699	20070023892	250	06/30/2005	METHOD AND APPARATUS FOR ELECTRICAL ISOLATION OF SEMICONDUCTOR DEVICE	NGUYEN,CUONG	ROTEM, EFRAIM
11173993	Not Issued	20070005152	161	06/30/2005	Method and apparatus for monitoring power in integrated circuits	SWEENEY,PATRICK	ROTEM, EFRAIM
11220913	7181357	20070055469	150	09/08/2005	METHOD AND APPARATUS TO CALIBRATE THERMOMETER	WALLING,MEAGAN	ROTEM, EFRAIM
11536541	7563024	20080112463	150	09/28/2006	METHOD AND APPARATUS FOR MEASUREMENT OF ELECTRONICS DEVICE SKIN TEMPERATURE	JAGAN,MIRELLYS	ROTEM, EFRAIM
11638700	7818596	20080148027	150	12/14/2006	Method and apparatus of power	ABBASZADEH,JAWEED	ROTEM, EFRAIM

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					management of processor		
11641952	7757103	20080155281	250	12/20/2006	METHOD AND APPARATUS TO ESTIMATE ENERGY CONSUMED BY CENTRAL PROCESSING UNIT CORE	SURYAWANSHI,SURESH	ROTEM, EFRAIM
11861186	7934110	20090083551	150	09/25/2007	DYNAMICALLY MANAGING THERMAL LEVELS IN A PROCESSING SYSTEM	ABBASZADEH,JAWEED	ROTEM, EFRAIM
12205317	9032223	20100064162	150	09/05/2008	TECHNIQUES TO MANAGE OPERATIONAL PARAMETERS FOR A PROCESSOR	YANCHUS III,PAUL	ROTEM, EFRAIM
12215289	Not Issued	20090322409	161	06/26/2008	Power reduction apparatus and method	RICHARDSON,JANY	ROTEM, EFRAIM
12242000	8386807	20100083009	150	09/30/2008	POWER MANAGEMENT FOR PROCESSING UNIT	LEE,THOMAS	ROTEM, EFRAIM
12263421	8402290	20100115304	150	10/31/2008	POWER MANAGEMENT FOR MULTIPLE	KNOLL,CLIFFORD	ROTEM, EFRAIM

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					PROCESSOR CORES		
12263431	8707060	20100115293	150	10/31/2008	DETERMINISTIC MANAGEMENT OF DYNAMIC THERMAL RESPONSE OF PROCESSORS	REHMAN,MOHAMMED	ROTEM, EFRAIM
12317845	8245070	20100169609	150	12/30/2008	METHOD FOR OPTIMIZING VOLTAGE-FREQUENCY SETUP IN MULTI-CORE PROCESSOR SYSTEMS	DU,THUAN	ROTEM, EFRAIM
12342919	8458498	20100162023	150	12/23/2008	METHOD AND APPARATUS OF POWER MANAGEMENT OF PROCESSOR	REHMAN,MOHAMMED	ROTEM, EFRAIM
12401538	8650424	20090172375	150	03/10/2009	METHOD AND APPARATUS TO CONTROL POWER CONSUMPTION OF A PLURALITY OF PROCESSOR CORES	ABBASZADEH,JAWEED	ROTEM, EFRAIM
12435784	Not Issued	20090217070	161	05/05/2009	DYNAMIC BUS PARKING	BROWN,MICHAEL	ROTEM, EFRAIM
12650831	8184422	20100102949	150	12/31/2009	OVERHEAT DETECTION IN	THOMAS,LUCY	ROTEM, EFRAIM

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					THERMALLY CONTROLLED DEVICES		
12651435	Not Issued	20100205464	163	12/31/2009	METHOD AND APPARATUS FOR ON-DIE TEMPERATURE SENSING AND CONTROL	ORTIZ RODRIGUEZ,CARLOS	ROTEM, EFRAIM
12872988	8441639	20110069312	150	08/31/2010	METROLOGY SYSTEMS AND METHODS	STOCK JR,GORDON	ROTEM, EFRAIM
13077618	8539269	20120254641	150	03/31/2011	APPARATUS AND METHOD FOR HIGH CURRENT PROTECTION	WANG,ALBERT	ROTEM, EFRAIM
13165415	8726048	20110252267	150	06/21/2011	POWER MANAGEMENT COORDINATION IN MULTI-CORE PROCESSORS	CHANG,ERIC	ROTEM, EFRAIM
13188623	9164397	20120033226	150	07/22/2011	OPTICS SYMMETRIZATION FOR METROLOGY	DECENZO,SHAWN	ROTEM, EFRAIM
13221152	9098561	20130054179	150	08/30/2011	DETERMINING AN EFFECTIVE STRESS LEVEL ON A PROCESSOR	BHAT,ADITYA	ROTEM, EFRAIM
13225677	8769316	20130061064	150	09/06/2011	DYNAMICALLY	STOYNOV,STEFAN	ROTEM,

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					ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		EFRAIM
13247564	9074947	20130080803	150	09/28/2011	Estimating Temperature Of A Processor Core In A Low Power State without thermal sensor information	CHAN,DANNY	ROTEM, EFRAIM
13247580	8954770	20130080804	150	09/28/2011	CONTROLLING TEMPERATURE OF MULTIPLE DOMAINS OF A MULTI-DOMAIN PROCESSOR USING A CROSS DOMAIN MARGIN	CHAN,DANNY	ROTEM, EFRAIM
13282896	8832478	20130111120	150	10/27/2011	Enabling A Non-Core Domain To Control Memory Bandwidth In A Processor	PHAN,RAYMOND	ROTEM, EFRAIM
13282947	9026815	20130111236	150	10/27/2011	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	ROTEM, EFRAIM
13285414	8943340	20130111226	150	10/31/2011	Controlling A Turbo	HUYNH,KIM	ROTEM,

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					Mode Frequency Of A Processor		EFRAIM
13285465	9158693	20130111121	150	10/31/2011	Dynamically Controlling Cache Size To Maximize Energy Efficiency	TSENG,CHENG YUAN	ROTEM, EFRAIM
13307529	9092210	20120166854	150	11/30/2011	Controlling Current Transients In A Processor	NEVELN,JOSHUA	ROTEM, EFRAIM
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ROTEM, EFRAIM
13327692	9075610	20120185709	150	12/15/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING THREAD CONSOLIDATION	REHMAN,MOHAMMED	ROTEM, EFRAIM
13335628	9753516	20120221873	150	12/22/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY MITIGATING	HICKS,AUSTIN	ROTEM, EFRAIM

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					PERFORMANCE VARIATIONS BETWEEN INTEGRATED CIRCUIT DEVICES		

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Inventor Name Search Result

Your Search was:

Last Name = BRANDT
First Name = JASON

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
10814569	7356735	20050240819	150	03/30/2004	PROVIDING SUPPORT FOR SINGLE STEPPING A VIRTUAL MACHINE IN A VIRTUAL MACHINE ENVIRONMENT	WILSON,YOLANDA	BRANDT, JASON
10882813	7305592	20060005084	150	06/30/2004	SUPPORT FOR NESTED FAULTS IN A VIRTUAL MACHINE ENVIRONMENT	LE,DIEU MINH	BRANDT, JASON
12890292	Not Issued	20120079248	161	09/24/2010	Aliased Parameter Passing Between Microcode Callers and Microcode Subroutines	FAHERTY,COREY	BRANDT, JASON
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of	ELAMIN,ABDELMONIEM	BRANDT,

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					Power Management Policies		JASON
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	BRANDT, JASON
13992712	9235417	20140019733	150	06/07/2013	REAL TIME INSTRUCTION TRACING COMPRESSION OF RET INSTRUCTIONS	TSENG,CHENG YUAN	BRANDT, JASON
14039663	9684511	20150095617	150	09/27/2013	USING SOFTWARE HAVING CONTROL TRANSFER TERMINATION INSTRUCTIONS WITH SOFTWARE NOT HAVING CONTROL TRANSFER TERMINATION INSTRUCTIONS	NAM,HYUN	BRANDT, JASON
14076341	9898330	20150135195	150	11/11/2013	COMPACTED CONTEXT STATE MANAGEMENT	HUARACHA,WILLY	BRANDT, JASON
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	BRANDT, JASON
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management	ELAMIN,ABDELMONIEM	BRANDT, JASON

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					Policies		
15853640	Not Issued	20190042448	30	12/22/2017	SYSTEMS, METHODS, AND APPARATUSES UTILIZING CPU STORAGE WITH A MEMORY REFERENCE	KIM,HONG	BRANDT, JASON
15859016	Not Issued	0	30	12/29/2017	DEVICE, SYSTEM AND METHOD FOR IDENTIFYING A SOURCE OF LATENCY IN PIPELINE CIRCUITRY	TRUONG,LECHI	BRANDT, JASON
15899664	Not Issued	20180276027	41	02/20/2018	COMPACTED CONTEXT STATE MANAGEMENT	HUARACHA,WILLY	BRANDT, JASON
06012531	4236193		150	02/15/1979	LIGHTING EQUIPMENT	,	BRANDT, JASON M.
13708547	8788790	20130097360	150	12/07/2012	MAINTAINING PROCESSOR RESOURCES DURING ARCHITECTURAL EVENTS	RUTZ,JARED	BRANDT, JASON W
14791203	10075296	20170063547	150	07/02/2015	Loading and Virtualizing Cryptographic Keys	CHAO,MICHAEL	BRANDT, JASON W
10630286	7552254	0	250	07/30/2003	ASSOCIATING	PATEL,NIKETA	BRANDT,

Petitioner Samsung Ex-1004, 0100

					ADDRESS SPACE IDENTIFIERS WITH ACTIVE CONTEXTS		JASON W.
10630287	7552255	0	250	07/30/2003	DYNAMICALLY PARTITIONING PIPELINE RESOURCES	PATEL,NIKETA	BRANDT, JASON W.
10903704	7562179	20060026384	150	07/30/2004	MAINTAINING PROCESSOR RESOURCES DURING ARCHITECTURAL EVENTS	RUTZ,JARED	BRANDT, JASON W.
11100032	7743233	20060224858	150	04/05/2005	SEQUENCER ADDRESS MANAGEMENT	COLEMAN,ERIC	BRANDT, JASON W.
11173312	8312452	20070006230	150	06/30/2005	METHOD AND APPARATUS FOR A GUEST TO ACCESS A PRIVILEGED REGISTER	LEE,ADAM	BRANDT, JASON W.
11239475	8028295	20070079301	150	09/30/2005	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	BRANDT, JASON W.
12413655	7904694	20090193222	150	03/30/2009	MAINTAINING PROCESSOR RESOURCES DURING	RUTZ,JARED	BRANDT, JASON W.

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					ARCHITECTURAL EVENTS		
12483519	7899972	20090248951	150	06/12/2009	MAINTAINING PROCESSOR RESOURCES DURING ARCHITECTURAL EVENTS	RUTZ,JARED	BRANDT, JASON W.
12644440	8447962	20110153983	150	12/22/2009	GATHERING AND SCATTERING MULTIPLE DATA ELEMENTS	FAHERTY,COREY	BRANDT, JASON W.
12646762	9952864	20110153990	150	12/23/2009	SYSTEM, APPARATUS, AND METHOD FOR SUPPORTING CONDITION CODES	PETRANEK,JACOB	BRANDT, JASON W.
13020161	8543793	20110125952	150	02/03/2011	MAINTAINING PROCESSOR RESOURCES DURING ARCHITECTURAL EVENTS	RUTZ,JARED	BRANDT, JASON W.
13221119	8479217	20110314480	150	08/30/2011	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	BRANDT, JASON W.
13629395	9804870	20130117743	150	09/27/2012	Instruction-Set Support for Invocation of VMM-Configured	AYERS,MICHAEL	BRANDT, JASON W.

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					Services without VMM Intervention		
13690221	9703567	20140156972	150	11/30/2012	Control Transfer Termination Instructions Of An Instruction Set Architecture (ISA)	PARTRIDGE,WILLIAM	BRANDT, JASON W.
13730834	9262163	20140189314	150	12/29/2012	Real Time Instruction Trace Processors, Methods, and Systems	NAM,HYUN	BRANDT, JASON W.
13795338	9250901	20140281380	150	03/12/2013	EXECUTION CONTEXT SWAP BETWEEN HETEROGENEOUS FUNCTIONAL HARDWARE UNITS	PARTRIDGE,WILLIAM	BRANDT, JASON W.
13837997	9086958	20130212314	150	03/15/2013	MAINTAINING PROCESSOR RESOURCES DURING ARCHITECTURAL EVENTS	ROSSITER,SEAN	BRANDT, JASON W.
13843337	9804871	20140013326	150	03/15/2013	Instruction-Set Support for Invocation of VMM-Configured Services without VMM Intervention	AYERS,MICHAEL	BRANDT, JASON W.
13843601	8806172	20130232316	150	03/15/2013	MAINTAINING PROCESSOR RESOURCES DURING	RUTZ,JARED	BRANDT, JASON W.

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					ARCHITECTURAL EVENS		
13854001	9727345	20140281457	150	03/29/2013	METHOD FOR BOOTING A HETEROGENEOUS SYSTEM AND PRESENTING A SYMMETRIC CORE VIEW	KINSEY,BRANDON	BRANDT, JASON W.
13895595	9612938	20140344552	150	05/16/2013	PROVIDING STATUS OF A PROCESSING DEVICE WITH PERIODIC SYNCHRONIZATION POINT IN INSTRUCTION TRACING SYSTEM	NAM,HYUN	BRANDT, JASON W.
13898189	10175990	20180150301	150	05/20/2013	GATHERING AND SCATTERING MULTIPLE DATA ELEMENTS	NAM,HYUN	BRANDT, JASON W.
13910333	9239801	20140365742	150	06/05/2013	SYSTEMS AND METHODS FOR PREVENTING UNAUTHORIZED STACK PIVOTING	NGUYEN,HIEP	BRANDT, JASON W.
13914830	9383997	20130275735	150	06/11/2013	APPARATUS, SYSTEM, AND METHOD FOR PERSISTENT USER-LEVEL THREAD	LEE,TAMMY	BRANDT, JASON W.
13918940	9189360	20140372987	150	06/15/2013	Processor That	GU,SHAWN	BRANDT,

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					Records Tracing Data In Non Contiguous System Memory Slices		JASON W.
13922421	9342433	20140380027	150	06/20/2013	ELAPSED CYCLE TIMER IN LAST BRANCH RECORDS	TSENG,CHENG YUAN	BRANDT, JASON W.
13929945	8955144	20150006968	150	06/28/2013	PROTECTING INFORMATION PROCESSING SYSTEM SECRETS FROM DEBUG ATTACKS	PATEL,HARESH	BRANDT, JASON W.
13931657	Not Issued	20150007196	161	06/28/2013	PROCESSORS HAVING HETEROGENEOUS CORES WITH DIFFERENT INSTRUCTIONS AND/OR ARCHITECURAL FEATURES THAT ARE PRESENTED TO SOFTWARE AS HOMOGENEOUS VIRTUAL CORES	CHEN,ZHI	BRANDT, JASON W.
13931887	9367325	20150006861	150	06/29/2013	COMMON ARCHITECTURE STATE PRESENTATION FOR PROCESSOR	SUN,MICHAEL	BRANDT, JASON W.

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					HAVING PROCESSING CORES OF DIFFERENT TYPES		
13976175	9544139	20150055778	150	08/29/2014	METHOD AND APPARATUS FOR A NON-DETERMINISTIC RANDOM BIT GENERATOR (NRBG)	SHOLEMAN,ABU	BRANDT, JASON W.
13976230	9804852	20130275723	150	06/26/2013	CONDITIONAL EXECUTION SUPPORT FOR ISA INSTRUCTIONS USING PREFIXES	METZGER,MICHAEL	BRANDT, JASON W.
13976261	9811338	20130297915	150	06/26/2013	FLAG NON-MODIFICATION EXTENSION FOR ISA INSTRUCTIONS USING PREFIXES	METZGER,MICHAEL	BRANDT, JASON W.
13993477	9003375	20130263093	150	06/12/2013	OPTIONAL LOGGING OF DEBUG ACTIVITIES IN A REAL TIME INSTRUCTION TRACING LOG	DUNCAN,TIMOTHY	BRANDT, JASON W.
13996453	9135450	20140157002	150	06/20/2013	SYSTEMS AND METHODS FOR PROTECTING SYMMETRIC	PALIWAL,YOGESH	BRANDT, JASON W.

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Last Name = SHRALL
First Name = JEREMY

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
11864886	8949635	20090089543	150	09/28/2007	INTEGRATED CIRCUIT PERFORMANCE IMPROVEMENT ACROSS A RANGE OF OPERATING CONDITIONS AND PHYSICAL CONSTRAINTS	CAO,CHUN	SHRALL, JEREMY
13118183	8984305	20120159201	150	05/27/2011	METHOD AND APPARATUS TO CONFIGURE THERMAL DESIGN POWER IN A MICROPROCESSOR	NGUYEN,PHIL	SHRALL, JEREMY
13311467	9239611	20120173895	150	12/05/2011	METHOD, APPARATUS, AND SYSTEM FOR	MAZYAD,ALYAA	SHRALL, JEREMY

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					ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING BALANCING POWER AMONG MULTI-FREQUENCY DOMAINS OF A PROCESSOR BASED ON EFFICIENCY RATING SCHEME		
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	SHRALL, JEREMY
13335635	9563254	20120216058	150	12/22/2011	SYSTEM, METHOD AND APPARATUS FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY CONFIGURING POWER MANAGEMENT PARAMETERS DURING RUN TIME	HICKS,AUSTIN	SHRALL, JEREMY
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	SHRALL, JEREMY
13843405	9360909	20130283026	150	03/15/2013	System, Method and	BUTLER,DENNIS	SHRALL,

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					Apparatus For Energy Efficiency And Energy Conservation By Configuring Power Management Parameters During Run Time		JEREMY
14040244	9014637	20150093994	150	09/27/2013	Dynamic Switching Frequency Control of an On-Chip or Integrated Voltage Regulator	TRAN,TUAN	SHRALL, JEREMY
14645330	9898066	20150185795	150	03/11/2015	METHOD AND APPARATUS TO CONFIGURE THERMAL DESIGN POWER IN A MICROPROCESSOR	NGUYEN,PHIL	SHRALL, JEREMY
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	SHRALL, JEREMY
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	SHRALL, JEREMY
15426965	Not Issued		160	02/07/2017	SYSTEM, METHOD AND APPARATUS FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY CONFIGURING POWER	,	SHRALL, JEREMY

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					MANAGEMENT PARAMETERS DURING RUN TIME		
15899902	Not Issued		160	02/20/2018	METHOD AND APPARATUS TO CONFIGURE THERMAL DESIGN POWER IN A MICROPROCESSOR	,	SHRALL, JEREMY
16144919	Not Issued	20190041971	30	09/27/2018	THROTTLING OF COMPONENTS USING PRIORITY ORDERING	ABBASZADEH,JAWEED	SHRALL, JEREMY
61635817	Not Issued		159	04/19/2012	SYSTEM, METHOD AND APPARATUS FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY CONFIGURING POWER MANAGEMENT PARAMETERS DURING RUN TIME	,	SHRALL, JEREMY
62469298	Not Issued		159	03/09/2017	SYSTEMS AND METHODS FOR IMPLEMENTING TELEMETRY ARCHITECTURE ON AN INTEGRATED CIRCUIT	,	SHRALL, JEREMY
11434451	7685441	20070262132	250	05/12/2006	POWER CONTROL	TRAN,VINCENT	SHRALL,

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					UNIT WITH DIGITALLY SUPPLIED SYSTEM PARAMETERS		JEREMY J.
12644989	8700943	20110154090	150	12/22/2009	Controlling Time Stamp Counter (TSC) Offsets For Mulitple Cores And Threads	ELAMIN,ABDELMONIEM	SHRALL, JEREMY J.
12698729	8037326	20100138683	150	02/02/2010	POWER CONTROL UNIT WITH DIGITALLY SUPPLIED SYSTEM PARAMETERS	TRAN,VINCENT	SHRALL, JEREMY J.
13282947	9026815	20130111236	150	10/27/2011	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	SHRALL, JEREMY J.
13326105	9052901	20120216029	150	12/14/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING CONFIGURABLE MAXIMUM PROCESSOR CURRENT	HICKS,AUSTIN	SHRALL, JEREMY J.
13436681	8892269	20130261814	250	03/30/2012	POWER DOWN AND	JARRETT,RYAN	SHRALL,

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					QUICK START OF THERMAL SENSOR		JEREMY J.
13538546	9037840	20140006761	150	06/29/2012	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	SHRALL, JEREMY J.
13600666	9063727	20140068291	150	08/31/2012	Performing Cross-Domain Thermal Control In A Processor	SURYAWANSHI,SURESH	SHRALL, JEREMY J.
13683748	10007528	20130151569	150	11/21/2012	COMPUTING PLATFORM INTERFACE WITH MEMORY MANAGEMENT	VU,BAI	SHRALL, JEREMY J.
13724732	9075556	20140181538	150	12/21/2012	Controlling Configurable Peak Performance Limits Of A Processor	RUSSELL,RICHARD	SHRALL, JEREMY J.
13724798	9235252	20140181545	150	12/21/2012	Dynamic Balancing Of Power Across A Plurality Of Processor Domains According To Power Policy Control Bias	CORCORAN,BRIAN	SHRALL, JEREMY J.
13728677	Not Issued	20140184317	161	12/27/2012	ELECTRONIC DEVICE TO	LE,DINH	SHRALL, JEREMY

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					CONTROL VOLTAGE FLUCTUATIONS		J.
13729833	9081577	20140189225	150	12/28/2012	INDEPENDENT CONTROL OF PROCESSOR CORE RETENTION STATES	TRAN,VINCENT	SHRALL, JEREMY J.
13782578	9176565	20130179709	150	03/01/2013	Controlling Operating Frequency Of A Core Domain Based On Operating Condition Of A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	SHRALL, JEREMY J.
13783978	9189046	20140068293	150	03/04/2013	PERFORMING CROSS-DOMAIN THERMAL CONTROL IN A PROCESSOR	SURYAWANSHI,SURESH	SHRALL, JEREMY J.
13785247	9086834	20140176581	150	03/05/2013	CONTROLLING CONFIGURABLE PEAK PERFORMANCE LIMITS OF A PROCESSOR	RUSSELL,RICHARD	SHRALL, JEREMY J.
13844815	9513688	20140281612	150	03/16/2013	MEASUREMENT OF PERFORMANCE SCALABILITY IN A MICROPROCESSOR	SAMPATH,GAYATHRI	SHRALL, JEREMY J.
13976507	9442739	20130275796	150	06/27/2013	COLLABORATIVE PROCESSOR AND SYSTEM	CHEN,XUXING	SHRALL, JEREMY J.

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					PERFORMANCE AND POWER MANAGEMENT		
13976520	9454379	20130275737	150	06/27/2013	COLLABORATIVE PROCESSOR AND SYSTEM PERFORMANCE AND POWER MANAGEMENT	CHEN,XUXING	SHRALL, JEREMY J.
13976693	8912830	20140159785	150	06/27/2013	METHOD AND APPARATUS FOR ATOMIC FREQUENCY AND VOLTAGE CHANGES	POOS,JOHN	SHRALL, JEREMY J.
13977531	10108433	20130283032	150	06/28/2013	COLLABORATIVE PROCESSOR AND SYSTEM PERFORMANCE AND POWER MANAGEMENT	ELAMIN,ABDELMONIEM	SHRALL, JEREMY J.
13994065	9606595	20130339777	150	06/13/2013	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	BROWN,MICHAEL	SHRALL, JEREMY J.
13997295	9268393	20140157021	150	06/24/2013	ENFORCING A POWER CONSUMPTION DUTY CYCLE IN A PROCESSOR	CHEN,XUXING	SHRALL, JEREMY J.
13997757	9436245	20140195829	150	06/25/2013	DYNAMICALLY	CORCORAN,BRIAN	SHRALL,

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					COMPUTING AN ELECTRICAL DESIGN POINT (EDP) FOR A MULTICORE PROCESSOR		JEREMY J.
14039151	9594560	20150095620	150	09/27/2013	ESTIMATING SCALABILITY VALUE FOR A SPECIFIC DOMAIN OF A MULTICORE PROCESSOR BASED ON ACTIVE STATE RESIDENCY OF THE DOMAIN, STALL DURATION OF THE DOMAIN, MEMORY BANDWIDTH OF THE DOMAIN, AND A PLURALITY OF COEFFICIENTS BASED ON A WORKLOAD TO EXECUTE ON THE DOMAIN	WANG,ZHIPENG	SHRALL, JEREMY J.
14039193	9405345	20150095666	150	09/27/2013	CONSTRAINING PROCESSOR OPERATION BASED ON POWER ENVELOPE INFORMATION	WANG,ZHIPENG	SHRALL, JEREMY J.
14539835	9348407	20150134999	150	11/12/2014	METHOD AND	POOS,JOHN	SHRALL,

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					APPARATUS FOR ATOMIC FREQUENCY AND VOLTAGE CHANGES		JEREMY J.
14583151	9785223	20160187959	150	12/25/2014	POWER MANAGEMENT IN AN UNCORE FABRIC	TRAN,VINCENT	SHRALL, JEREMY J.
14697541	9417681	20150241949	150	04/27/2015	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	SHRALL, JEREMY J.
14742916	9671854	20150286266	150	06/18/2015	Controlling Configurable Peak Performance Limits Of A Processor	RUSSELL,RICHARD	SHRALL, JEREMY J.
14875930	9939879	20160026229	150	10/06/2015	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	SHRALL, JEREMY J.
15089350	9898067	20160216754	150	04/01/2016	METHOD AND APPARATUS TO CONFIGURE THERMAL DESIGN	NGUYEN,PHIL	SHRALL, JEREMY J.

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					POWER IN A MICROPROCESSOR		
15174779	10139882	20160282919	150	06/06/2016	SYSTEM, METHOD AND APPARATUS FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION BY CONFIGURING POWER MANAGEMENT PARAMETERS DURING RUN TIME	BUTLER,DENNIS	SHRALL, JEREMY J.
15238717	Not Issued	20170115716	89	08/16/2016	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	SHRALL, JEREMY J.

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Last Name = GUNTHER
First Name = STEPHEN

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
07487526	5064221		150	03/02/1990	METHOD FOR DISTINGUISHING PRINTED ORIGINALS FROM COPIES	PAYER,HWEI-SIU	GUNTHER, STEPHEN
13203713	9155574	20120239038	150	06/06/2012	BONE FIXATION DEVICE, TOOLS AND METHODS	COTRONEO,STEVEN	GUNTHER, STEPHEN
13486948	8856568	20120239946	150	06/01/2012	Independent Power Control of Processing Cores	CHOUDHURY,ZAHID	GUNTHER, STEPHEN
13549947	Not Issued	20130017309	161	07/16/2012	FROSTING SYSTEMS AND RELATED METHODS AND DISPLAY UNITS	WONG,LESLIE	GUNTHER, STEPHEN
13786939	9032232	20130185580	150	03/06/2013	INSTRUCTION	ELAMIN,ABDELMONIEM	GUNTHER,

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					FOR ENABLING A PROCESOR WAIT STATE		STEPHEN
13788794	9141167	20140189405	150	03/07/2013	APPARATUS AND METHOD TO MANAGE ENERGY USAGE OF A PROCESSOR	TRAN,VINCENT	GUNTHER, STEPHEN
13843405	9360909	20130283026	150	03/15/2013	System, Method and Apparatus For Energy Efficiency And Energy Conservation By Configuring Power Management Parameters During Run Time	BUTLER,DENNIS	GUNTHER, STEPHEN
16147285	Not Issued	20190041962	30	09/28/2018	PER-CORE OPERATING VOLTAGE AND/OR OPERATING FREQUENCY DETERMINATION BASED ON EFFECTIVE CORE UTILIZATION	ABBASZADEH,JAWEED	GUNTHER, STEPHEN
60124627	Not Issued		159	03/16/1999	SURFACE PLASMON RESONANCE	,	GUNTHER, STEPHEN

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					DEVICE AND METHOD		
60146758	Not Issued		159	07/30/1999	METHOD FOR DETECTING HETERODUPLEX PEAK FROM HOMODUPLEX PEAK	,	GUNTHER, STEPHEN
61100635	Not Issued		159	09/26/2008	FRACTURE FIXATION DEVICE, TOOLS AND METHODS	,	GUNTHER, STEPHEN
61100652	Not Issued		159	09/26/2008	FRACTURE FIXATION DEVICE, TOOLS AND METHODS	,	GUNTHER, STEPHEN
61117901	Not Issued		159	11/25/2008	BONE FRACTURE FIXATION SCREWS, SYSTEMS AND METHODS OF USE	,	GUNTHER, STEPHEN
61122563	Not Issued		159	12/15/2008	BONE FIXATION DEVICE, TOOLS AND METHODS	,	GUNTHER, STEPHEN
61138920	Not Issued		159	12/18/2008	BONE FIXATION DEVICE, TOOLS AND METHODS	,	GUNTHER, STEPHEN
61664467	Not Issued		159	06/26/2012	FOOD HEAT TREATMENT AND	,	GUNTHER, STEPHEN

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					PASTEURIZATION USING RADIO FREQUENCY		
08536406	5670197		150	09/29/1995	LOW-ACID, HIGH-MOISTURE PROCESSED CHEESE SPREAD AND METHOD OF MAKING	HEGGESTAD,HELEN	GUNTHER, STEPHEN A.
11066978	8007538	20060195194	150	02/25/2005	SHOULDER IMPLANT FOR GLENOID REPLACEMENT	GHERBI,SUZETTE	GUNTHER, STEPHEN B.
11489994	Not Issued	20080021564	161	07/20/2006	Humeral head resurfacing implant and methods of use thereof	HOBAN,MELISSA	GUNTHER, STEPHEN B.
12482406	8287541	20100023010	150	06/10/2009	FRACTURE FIXATION DEVICE, TOOLS AND METHODS	MERENE,JAN CHRISTOP	GUNTHER, STEPHEN B.
12561528	Not Issued	20100087876	161	09/17/2009	METHODS FOR LESS INVASIVE GLENOID REPLACEMENT	IWAMAYE,ANDREW	GUNTHER, STEPHEN B.
12562371	Not Issued	20100087877	161	09/18/2009	METHODS OF IMPLANTING GLENOID INLAY	IWAMAYE,ANDREW	GUNTHER, STEPHEN B.
12630605	Not Issued	20100274360	161	12/03/2009	HUMERAL HEAD RESURFACING IMPLANT AND	HOBAN,MELISSA	GUNTHER, STEPHEN B.

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					METHODS OF USE THEREOF		
12642648	8568413	20110087227	150	12/18/2009	BONE FIXATION DEVICE, TOOLS AND METHODS	MERENE,JAN CHRISTOP	GUNTHER, STEPHEN B.
12719182	8778028	20100249938	150	03/08/2010	METHODS AND DEVICES FOR LESS INVASIVE GLENOID REPLACEMENT	GHERBI,SUZETTE	GUNTHER, STEPHEN B.
13018341	8038719	20110112648	150	01/31/2011	METHODS FOR LESS INVASIVE GLENOID REPLACEMENT	GHERBI,SUZETTE	GUNTHER, STEPHEN B.
13088976	Not Issued	20110313533	161	04/18/2011	HUMERAL HEAD RESURFACING IMPLANT AND METHODS OF USE THEREOF	HOBAN,MELISSA	GUNTHER, STEPHEN B.
13308221	9381086	20120172996	150	11/30/2011	STEM FOR USE IN JOINT ARTHROPLASTY	WOLF,MEGAN	GUNTHER, STEPHEN B.
13776405	9693784	20130166033	150	02/25/2013	METHODS FOR LESS INVASIVE GLENOID REPLACEMENT	SCHUTTE,WADE	GUNTHER, STEPHEN B.
14020685	Not Issued	20140031823	161	09/06/2013	BONE FIXATION DEVICE, TOOLS AND METHODS	MERENE,JAN CHRISTOP	GUNTHER, STEPHEN B.
14329853	9610166	20150105861	150	07/11/2014	METHODS AND	GHERBI,SUZETTE	GUNTHER,

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					DEVICES FOR LESS INVASIVE GLENOID REPLACEMENT		STEPHEN B.
14845136	Not Issued		93	09/03/2015	ALIGNMENT GUIDE FOR HUMERAL OR FEMORAL STEM REPLACEMENT PROSTHESES	LAWSON,MATTHEW	GUNTHER, STEPHEN B.
15202364	10143559	20170000617	150	07/05/2016	STEM FOR USE IN JOINT ARTHROPLASTY	WOLF,MEGAN	GUNTHER, STEPHEN B.
15477316	Not Issued	20170202674	41	04/03/2017	METHODS AND DEVICES FOR LESS INVASIVE GLENOID REPLACEMENT	DUKERT,BRIAN	GUNTHER, STEPHEN B.
15640039	Not Issued	20170360456	30	06/30/2017	METHODS FOR LESS INVASIVE GLENOID REPLACEMENT	BLANCO,JAVIER	GUNTHER, STEPHEN B.
61418346	Not Issued		159	11/30/2010	STEM FOR USE IN JOINT ARTHROPLASTY	,	GUNTHER, STEPHEN B.
62046084	Not Issued		159	09/04/2014	ALIGNMENT GUIDE FOR HUMERAL OR FEMORAL STEM	,	GUNTHER, STEPHEN B.

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					REPLACEMENT PROSTHESES		
10272154	7013406	20040073821	150	10/14/2002	METHOD AND APPARATUS TO DYNAMICALLY CHANGE AN OPERATING FREQUENCY AND OPERATING VOLTAGE OF AN ELECTRONIC DEVICE	PATEL,ANAND	GUNTHER, STEPHEN H
12236440	7890781	20090015233	150	09/23/2008	DYNAMIC VOLTAGE TRANSITIONS	RAHMAN,FAHMIDA	GUNTHER, STEPHEN H
09784255	6789037	20010021217	150	02/14/2001	METHODS AND APPARATUS FOR THERMAL MANAGEMENT OF AN INTEGRATED CIRCUIT DIE	LAU,TUNG	GUNTHER, STEPHEN H.
09951908	6775786	20030051174	150	09/12/2001	METHOD AND APPARATUS FOR POWER MODE TRANSITION IN A MULTI-THREAD PROCESSOR	MYERS,PAUL	GUNTHER, STEPHEN H.
10334966	7444524	20040125514	150	12/30/2002	DYNAMIC VOLTAGE TRANSITIONS	RAHMAN,FAHMIDA	GUNTHER, STEPHEN H.

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10696469	7290155	20050091548	150	10/28/2003	METHOD, SYSTEM, AND APPARATUS FOR DYNAMICALLY CONFIGURING THE OPERATING POINT UTILIZED FOR THERMAL MANAGEMENT OF AN INTEGRATED CIRCUIT	PATEL,ANAND	GUNTHER, STEPHEN H.
10821292	6980918	20040204899	150	04/09/2004	METHODS AND APPARATUS FOR THERMAL MANAGEMENT OF AN INTEGRATED CIRCUIT DIE	LAU,TUNG	GUNTHER, STEPHEN H.
10821822	7158911	20040195674	150	04/09/2004	METHODS AND APPARATUS FOR THERMAL MANAGEMENT OF AN INTEGRATED CIRCUIT DIE	LAU,TUNG	GUNTHER, STEPHEN H.
10855268	7237128	20060156040	150	05/26/2004	METHOD AND APPARATUS TO DYNAMICALLY CHANGE AN OPERATING FREQUENCY	PATEL,ANAND	GUNTHER, STEPHEN H.

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					AND OPERATING VOLTAGE OF AN ELECTRONIC DEVICE		
10859656	Not Issued	20060080461	161	06/02/2004	Packet exchange for controlling system power modes	VOSTAL,ONDREJ	GUNTHER, STEPHEN H.
10859892	7272741	20050273633	150	06/02/2004	HARDWARE COORDINATION OF POWER MANAGEMENT ACTIVITIES	ELAMIN,ABDELMONIEM	GUNTHER, STEPHEN H.
10871638	7315952	20050273635	150	06/17/2004	POWER STATE COORDINATION BETWEEN DEVICES SHARING POWER-MANAGED RESOURCES	CRIBBS,MALCOLM	GUNTHER, STEPHEN H.
10887488	6981163	20040243868	250	07/07/2004	METHOD AND APPARATUS FOR POWER MODE TRANSITION IN A MULTI-THREAD PROCESSOR	MYERS,PAUL	GUNTHER, STEPHEN H.

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Last Name = ROWLAND
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Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
15846161	Not Issued	20180232024	93	12/18/2017	COMPUTING SYSTEM AND PROCESSOR WITH FAST POWER SURGE DETECTION AND INSTRUCTION THROTTLE DOWN TO PROVIDE FOR LOW COST POWER SUPPLY UNIT	JOHNSON,TERRELL	ROWLAND, MARTIN
13631824	9846463	20140095905	150	09/28/2012	Computing System and Processor With Fast Power Surge Detection And Instruction Throttle Down To Provide For Low Cost Power Supply Unit	JOHNSON,TERRELL	ROWLAND, MARTIN MARK
13843855	9494996	20140281445	150	03/15/2013	PROCESSOR HAVING FREQUENCY OF OPERATION INFORMATION FOR GUARANTEED	SAMPATH,GAYATHRI	ROWLAND, MARTIN MARK T.

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					OPERATION UNDER HIGH TEMPERATURE EVENTS		
13324932	9141166	20120185706	150	12/13/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING DYNAMIC CONTROL OF ENERGY CONSUMPTION IN POWER DOMAINS	ELAMIN,ABDELMONIEM	ROWLAND, MARTIN T.
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ROWLAND, MARTIN T.
13538546	9037840	20140006761	150	06/29/2012	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	ROWLAND, MARTIN T.
13716712	9405351	20140173297	150	12/17/2012	PERFORMING FREQUENCY COORDINATION IN A MULTIPROCESSOR SYSTEM	BROWN,MICHAEL	ROWLAND, MARTIN T.
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	ROWLAND, MARTIN T.
13976687	9158351	20130332753	150	08/06/2013	DYNAMIC POWER LIMIT SHARING IN A PLATFORM	STOYNOV,STEFAN	ROWLAND, MARTIN T.

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13992706	9977482	20140129858	150	06/07/2013	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR FREQUENCY FLOOR	NEVELN,JOSHUA	ROWLAND, MARTIN T.
13994065	9606595	20130339777	150	06/13/2013	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	BROWN,MICHAEL	ROWLAND, MARTIN T.
13996266	9547027	20140195828	150	06/20/2013	DYNAMICALLY MEASURING POWER CONSUMPTION IN A PROCESSOR	SAMPATH,GAYATHRI	ROWLAND, MARTIN T.
13997295	9268393	20140157021	150	06/24/2013	ENFORCING A POWER CONSUMPTION DUTY CYCLE IN A PROCESSOR	CHEN,XUXING	ROWLAND, MARTIN T.
14697541	9417681	20150241949	150	04/27/2015	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	ROWLAND, MARTIN T.
14855553	9535487	20160004291	150	09/16/2015	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ROWLAND, MARTIN T.
14867490	9557804	20160018883	150	09/28/2015	DYNAMIC POWER LIMIT SHARING IN A PLATFORM	STOYNOV,STEFAN	ROWLAND, MARTIN T.
15238717	Not Issued	20170115716	89	08/16/2016	MECHANISM TO PROVIDE WORKLOAD	SURYAWANSHI,SURESH	ROWLAND, MARTIN T.

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					AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS		
15352460	Not Issued		160	11/15/2016	PROCESSOR HAVING FREQUENCY OF OPERATION INFORMATION FOR GUARANTEED OPERATION UNDER HIGH TEMPERATURE EVENTS	,	ROWLAND, MARTIN T.
15367330	Not Issued	20170083076	71	12/02/2016	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	ROWLAND, MARTIN T.
15472113	Not Issued		160	03/28/2017	MICROPROCESSOR-ASSISTED AUTO-CALIBRATION OF VOLTAGE REGULATORS	,	ROWLAND, MARTIN T.
15956994	Not Issued		160	04/19/2018	METHOD AND APPARATUS FOR SETTING AN I/O BANDWIDTH-BASED PROCESSOR FREQUENCY FLOOR	,	ROWLAND, MARTIN T.
07672993	5169906		250	03/21/1991	FILM-FORMING COPOLYMERS AND THEIR USE IN WATER VAPOUR PERMEABLE COATINGS	AYLWARD,DAVID	ROWLANDS, MARTIN
07844090	5246996		250	03/02/1992	ORGANOSILICON COMPOUNDS AND THEIR USE IN FILM-	DEAN JR,RALPH	ROWLANDS, MARTIN

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					FORMING COMPOSITIONS		
07905696	Not Issued		161	06/29/1992	ELECTRORHEOLOGICAL FLUID COMPRISING A POLYSILOXANE HAVING A FLUOROHEXYLALKYL GROUP	TIERNEY,CHRISTINE	ROWLANDS, MARTIN
07914303	5269951		250	07/17/1992	ORGANOSILICON COMPOUNDS	TIERNEY,MICHAEL	ROWLANDS, MARTIN
07932821	5266403		150	08/20/1992	FILM-FORMING COPOLYMERS AND THEIR USE IN WATER VAPOUR PERMEABLE COATINGS	AYLWARD,DAVID	ROWLANDS, MARTIN
08028904	5310597		250	03/08/1993	FILM-FORMING COPOLYMERS AND THEIR USE IN WATER VAPOR PERMEABLE COATINGS	AYLWARD,DAVID	ROWLANDS, MARTIN
08051417	5397824		250	04/23/1993	ORGANOSILICON COMPOUNDS AND THEIR USE IN FILM-FORMING COMPOSITIONS	DEAN JR,RALPH	ROWLANDS, MARTIN
08105242	Not Issued		163	08/12/1993	ORGANOSILICON COMPOUNDS	KRASS,FREDERICK	ROWLANDS, MARTIN
15980004	Not Issued	20180327073	30	05/15/2018	AIRCRAFT DOOR CONTROL	BERONA,KIMBERLY	ROWLANDS, MARTIN GRIFFITH

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Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
10937973	Not Issued		160	09/09/2004	Resolving cache conflicts	,	SISTLA, KRISHNAKANTH
11390270	Not Issued		161	03/27/2006	Providing an on-die interconnect in a modular processor architecture	DALEY,CHRISTOPHER	SISTLA, KRISHNAKANTH
11479009	7827425	20080002603	250	06/29/2006	METHOD AND APPARATUS TO DYNAMICALLY ADJUST RESOURCE POWER USAGE IN A DISTRIBUTED SYSTEM	WANG,ALBERT	SISTLA, KRISHNAKANTH
11479438	7644293	20080005596	250	06/29/2006	METHOD AND APPARATUS FOR DYNAMICALLY CONTROLLING POWER MANAGEMENT IN A DISTRIBUTED SYSTEM	DU,THUAN	SISTLA, KRISHNAKANTH
11526431	7730264		150	09/25/2006	ADAPTIVELY	RUIZ,ARACELIS	SISTLA,

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					REDUCING MEMORY LATENCY IN A SYSTEM		KRISHNAKANTH
11605636	8028131	20080126750	150	11/29/2006	SYSTEM AND METHOD FOR AGGREGATING CORE-CACHE CLUSTERS IN ORDER TO PRODUCE MULTI-CORE PROCESSORS	NAMAZI,MEHDI	SISTLA, KRISHNAKANTH
11606347	8151059	20080126707	150	11/29/2006	CONFLICT DETECTION AND RESOLUTION IN A MULTI CORE-CACHE DOMAIN FOR A CHIP MULTI-PROCESSOR EMPLOYING SCALABILITY AGENT ARCHITECTURE	AHMED,HAMDY	SISTLA, KRISHNAKANTH
11694999	8131940	20080244195	150	03/31/2007	METHODS AND APPARATUSES TO SUPPORT MEMORY TRANSACTIONS USING PARTIAL PHYSICAL ADDRESSES	CHERY,MARDOCHEE	SISTLA, KRISHNAKANTH
11695004	7730266	20080244193	150	03/31/2007	ADAPTIVE RANGE SNOOP FILTERING METHODS AND APPARATUSES	CHERY,MARDOCHEE	SISTLA, KRISHNAKANTH
11751578	Not		160	05/21/2007	Scalability System for a	,	SISTLA,

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	Issued				Processor and Methods Thereof		KRISHNAKANTH
11770618	7971074	20090006871	150	06/28/2007	METHOD, SYSTEM, AND APPARATUS FOR A CORE ACTIVITY DETECTOR TO FACILITATE DYNAMIC POWER MANAGEMENT IN A DISTRIBUTED SYSTEM	YANCHUS III,PAUL	SISTLA, KRISHNAKANTH
11888018	7827357	20090037658	150	07/31/2007	PROVIDING AN INCLUSIVE SHARED CACHE AMONG MULTIPLE CORE-CACHE CLUSTERS	SONG,HUA	SISTLA, KRISHNAKANTH
12430242	8169850	20100274975	150	04/27/2009	FORMING MULTIPROCESSOR SYSTEMS USING DUAL PROCESSORS	NGUYEN,HIEN	SISTLA, KRISHNAKANTH
13207318	8171231	20110296116	150	08/10/2011	SYSTEM AND METHOD FOR AGGREGATING CORE-CACHE CLUSTERS IN ORDER TO PRODUCE MULTI-CORE PROCESSORS	NAMAZI,MEHDI	SISTLA, KRISHNAKANTH
13247594	8914650	20130080795	150	09/28/2011	Dynamically Adjusting Power Of Non-Core Processor Circuitry	CHAN,DANNY	SISTLA, KRISHNAKANTH

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					Including Buffer Circuitry		
13329700	8412970	20120089850	150	12/19/2011	Optimizing Power Usage By Factoring Processor Architectural Events To PMU	ABBASZADEH,JAWEED	SISTLA, KRISHNAKANTH
13422476	9069555	20120254643	150	03/16/2012	Managing Power Consumption In A Multi-Core Processor	YEN,PAUL	SISTLA, KRISHNAKANTH
13422806	8705311	20120179878	250	03/16/2012	Forming Multiprocessor Systems Using Dual Processors	NGUYEN,HIEN	SISTLA, KRISHNAKANTH
13609006	8473766	20130031400	150	09/10/2012	OPTIMIZING POWER USAGE BY PROCESSOR CORES BASED ON ARCHITECTURAL EVENTS	ABBASZADEH,JAWEED	SISTLA, KRISHNAKANTH
13631824	9846463	20140095905	150	09/28/2012	Computing System and Processor With Fast Power Surge Detection And Instruction Throttle Down To Provide For Low Cost Power Supply Unit	JOHNSON,TERRELL	SISTLA, KRISHNAKANTH
13780052	9501129	20130179716	150	02/28/2013	Dynamically Adjusting Power Of Non-Core Processor Circuitry Including Buffer Circuitry	CHAN,DANNY	SISTLA, KRISHNAKANTH
13782492	9075614	20130232368	150	03/01/2013	MANAGING POWER CONSUMPTION IN A	YEN,PAUL	SISTLA, KRISHNAKANTH

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					MULTI-CORE PROCESSOR		
13787085	8700933	20130254572	150	03/06/2013	OPTIMIZING POWER USAGE BY FACTORING PROCESSOR ARCHITECTURAL EVENTS TO PMU	ABBASZADEH,JAWEED	SISTLA, KRISHNAKANTH
13889785	9377841	20140337646	150	05/08/2013	Adaptively Limiting A Maximum Operating Frequency In A Multicore Processor	DU,THUAN	SISTLA, KRISHNAKANTH
13997295	9268393	20140157021	150	06/24/2013	ENFORCING A POWER CONSUMPTION DUTY CYCLE IN A PROCESSOR	CHEN,XUXING	SISTLA, KRISHNAKANTH
14182385	8966299	20140164799	150	02/18/2014	OPTIMIZING POWER USAGE BY FACTORING PROCESSOR ARCHITECTURAL EVENTS TO PMU	ABBASZADEH,JAWEED	SISTLA, KRISHNAKANTH
15632000	Not Issued	20180373287	71	06/23/2017	DYNAMIC MAXIMUM FREQUENCY LIMIT FOR PROCESSING CORE GROUPS	MAMO,ELIAS	SISTLA, KRISHNAKANTH
15720222	Not Issued	0	30	09/29/2017	THREAD SCHEDULING USING PROCESSING ENGINE INFORMATION	WU,BENJAMIN	SISTLA, KRISHNAKANTH
15846161	Not	20180232024	93	12/18/2017	COMPUTING	JOHNSON,TERRELL	SISTLA,

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	Issued				SYSTEM AND PROCESSOR WITH FAST POWER SURGE DETECTION AND INSTRUCTION THROTTLE DOWN TO PROVIDE FOR LOW COST POWER SUPPLY UNIT		KRISHNAKANTH
16012623	Not Issued	20190041951	30	06/19/2018	POWER MANAGEMENT BASED ON REAL TIME PLATFORM POWER SENSING	ABBASZADEH,JAWEED	SISTLA, KRISHNAKANTH
16044092	Not Issued	0	20	07/24/2018	Method and apparatus for improving snooping performance in a multi-core multi-processor	,	SISTLA, KRISHNAKANTH
62542083	Not Issued		159	08/07/2017	APPARATUS AND METHOD FOR MANAGING POWER OF COMPUTING NODES IN REAL-TIME	,	SISTLA, KRISHNAKANTH
13994294	Not Issued	20130311804	161	06/14/2013	MASTER SLAVE QPI PROTOCOL FOR COORDINATED IDLE POWER MANAGEMENT IN GLUELESS AND CLUSTERED SYSTEMS	SAMPATH,GAYATHRI	SISTLA, KRISHNAKANTH KK
10936952	Not Issued	20060053258	161	09/08/2004	Cache filtering using core indicators	THAMMAVONG,PRASITH	SISTLA, KRISHNAKANTH V.

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11000768	7689778	20060117148	150	11/30/2004	PREVENTING SYSTEM SNOOP AND CROSS-SNOOP CONFLICTS	ELMORE,REBA	SISTLA, KRISHNAKANTH V.
11026195	7991966	20060143408	150	12/29/2004	EFFICIENT USAGE OF LAST LEVEL CACHES IN A MCMP SYSTEM USING APPLICATION LEVEL CONFIGURATION	PARIKH,KALPIT	SISTLA, KRISHNAKANTH V.
11026676	7360008	20060149885	150	12/30/2004	ENFORCING GLOBAL ORDERING THROUGH A CACHING BRIDGE IN A MULTICORE MULTIPROCESSOR SYSTEM	LEE,CHRISTOPHER	SISTLA, KRISHNAKANTH V.
11045525	9727468	20060053257	150	01/28/2005	Resolving multi-core shared cache access conflicts	CARDWELL,ERIC	SISTLA, KRISHNAKANTH V.
11153031	10031848	20060282622	150	06/14/2005	Method and apparatus for improving snooping performance in a multi-core multi-processor	LI,ZHUO	SISTLA, KRISHNAKANTH V.
11173917	8407432	20070005909	250	06/30/2005	Cache coherency sequencing implementation and adaptive LLC access priority control for CMP	BIRKHIMER,CHRISTOPHER	SISTLA, KRISHNAKANTH V.
11173919	Not Issued	20070005899	161	06/30/2005	Processing multicore evictions in a CMP multiprocessor	BIRKHIMER,CHRISTOPHER	SISTLA, KRISHNAKANTH V.

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11302646	7353338	20070136531	150	12/14/2005	CREDIT MECHANISM FOR MULTIPLE BANKS OF SHARED CACHE	NGUYEN,THAN	SISTLA, KRISHNAKANTH V.
11320627	7502889	20070156964	150	12/30/2005	HOME NODE AWARE REPLACEMENT POLICY FOR CACHES IN A MULTIPROCESSOR SYSTEM	VO,THANH	SISTLA, KRISHNAKANTH V.
11323368	7590805	20070156971	150	12/29/2005	MONITOR IMPLEMENTATION IN A MULTICORE PROCESSOR WITH INCLUSIVE LLC	VO,THANH	SISTLA, KRISHNAKANTH V.
13324932	9141166	20120185706	150	12/13/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING DYNAMIC CONTROL OF ENERGY CONSUMPTION IN POWER DOMAINS	ELAMIN,ABDELMONIEM	SISTLA, KRISHNAKANTH V.
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	SISTLA, KRISHNAKANTH V.
13326605	9372524	20120144217	150	12/15/2011	Dynamically Modifying A	ELAMIN,ABDELMONIEM	SISTLA, KRISHNAKANTH

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					Power/Performance Tradeoff Based On Processor Utilization		V.
13536852	9053244	20140006673	150	06/28/2012	UTILIZATION-AWARE LOW-OVERHEAD LINK-WIDTH MODULATION FOR POWER REDUCTION IN INTERCONNECTS	PATEL,NIMESH	SISTLA, KRISHNAKANTH V.
13538546	9037840	20140006761	150	06/29/2012	MECHANISM TO PROVIDE WORKLOAD AND CONFIGURATION-AWARE DETERMINISTIC PERFORMANCE FOR MICROPROCESSORS	SURYAWANSHI,SURESH	SISTLA, KRISHNAKANTH V.
13648139	9092581	20140101355	150	10/09/2012	VIRTUALIZED COMMUNICATION SOCKETS FOR MULTI-FLOW ACCESS TO MESSAGE CHANNEL INFRASTRUCTURE WITHIN CPU	DAO,TUAN	SISTLA, KRISHNAKANTH V.

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Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
10829674	7966511	20060026447	150	07/27/2004	POWER MANAGEMENT COORDINATION IN MULTI-CORE PROCESSORS	CHANG,ERIC	WEISSMANN, ELIEZER
10910931	7752030	20060031060	250	08/03/2004	VIRTUALIZATION AS EMULATION SUPPORT	OSBORNE,LUKE	WEISSMANN, ELIEZER
10934034	7451333	20060053326	150	09/03/2004	COORDINATING IDLE STATE TRANSITIONS IN MULTI-CORE PROCESSORS	CHANG,ERIC	WEISSMANN, ELIEZER
11170115	8281083	20070005910	150	06/30/2005	DEVICE, SYSTEM AND METHOD OF GENERATING AN EXECUTION INSTRUCTION BASED ON A	LO,KENNETH	WEISSMANN, ELIEZER

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					MEMORY-ACCESS INSTRUCTION		
11757103	8799620	20080301398	150	06/01/2007	LINEAR TO PHYSICAL ADDRESS TRANSLATION WITH SUPPORT FOR PAGE ATTRIBUTES	TALUKDAR,ARVIND	WEISSMANN, ELIEZER
11933126	7899943	20080195780	150	10/31/2007	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
11933159	7930566	20080195791	150	10/31/2007	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	STOYNOV,STEFAN	WEISSMANN, ELIEZER
11933178	8073981	20080215822	150	10/31/2007	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
12342919	8458498	20100162023	150	12/23/2008	METHOD AND APPARATUS OF POWER MANAGEMENT OF PROCESSOR	REHMAN,MOHAMMED	WEISSMANN, ELIEZER
12861439	8230119	20110208925	150	08/23/2010	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
12883781	8549183	20110072164	150	09/16/2010	PCI EXPRESS ENHANCEMENTS	MARTINEZ,DAVID	WEISSMANN, ELIEZER

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					AND EXTENSIONS		
12890652	9026829	20120079304	150	09/25/2010	PACKAGE LEVEL POWER STATE OPTIMIZATION	NGUYEN,PHIL	WEISSMANN, ELIEZER
13045688	Not Issued	20120233439	161	03/11/2011	Implementing TLB Synchronization for Systems with Shared Virtual Memory Between Processing Devices	RUTZ,JARED	WEISSMANN, ELIEZER
13046345	8555101	20110161703	150	03/11/2011	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	STOYNOV,STEFAN	WEISSMANN, ELIEZER
13048053	Not Issued	20120236010	161	03/15/2011	Page Fault Handling Mechanism	PATEL,KAUSHIKKUMAR	WEISSMANN, ELIEZER
13073149	8230120	20110238882	150	03/28/2011	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13073219	8099523	20110173367	150	03/28/2011	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS INCLUDING TRANSACTIONS HAVING PREFETCH PARAMETERS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13165415	8726048	20110252267	150	06/21/2011	POWER MANAGEMENT COORDINATION	CHANG,ERIC	WEISSMANN, ELIEZER

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					IN MULTI-CORE PROCESSORS		
13175489	9164923	20130007406	150	07/01/2011	DYNAMIC PINNING OF VIRTUAL PAGES SHARED BETWEEN DIFFERENT TYPE PROCESSORS OF A HETEROGENEOUS COMPUTING PLATFORM	SADLER,NATHAN	WEISSMANN, ELIEZER
13198559	8473642	20120036293	150	08/04/2011	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS INCLUDING DEVICE WINDOW CACHING	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13225677	8769316	20130061064	150	09/06/2011	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR	STOYNOV,STEFAN	WEISSMANN, ELIEZER
13282947	9026815	20130111236	150	10/27/2011	Controlling Operating Frequency Of A Core Domain Via A Non-Core Domain Of A Multi-Domain Processor	PHAN,RAYMOND	WEISSMANN, ELIEZER
13285465	9158693	20130111121	150	10/31/2011	Dynamically Controlling Cache	TSENG,CHENG YUAN	WEISSMANN, ELIEZER

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					Size To Maximize Energy Efficiency		
13307529	9092210	20120166854	150	11/30/2011	Controlling Current Transients In A Processor	NEVELN,JOSHUA	WEISSMANN, ELIEZER
13316349	8447888	20120089750	150	12/09/2011	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13326586	9098261	20120204042	150	12/15/2011	User Level Control Of Power Management Policies	ELAMIN,ABDELMONIEM	WEISSMANN, ELIEZER
13327692	9075610	20120185709	150	12/15/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING THREAD CONSOLIDATION	REHMAN,MOHAMMED	WEISSMANN, ELIEZER
13339284	8799687	20130097437	250	12/28/2011	METHOD, APPARATUS, AND SYSTEM FOR ENERGY EFFICIENCY AND ENERGY CONSERVATION INCLUDING OPTIMIZING C-STATE SELECTION	STOYNOV,STEFAN	WEISSMANN, ELIEZER

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					UNDER VARIABLE WAKEUP RATES		
13340433	Not Issued	20130173946	161	12/29/2011	CONTROLLING POWER CONSUMPTION THROUGH MULTIPLE POWER LIMITS OVER MULTIPLE TIME INTERVALS	NGUYEN,TANH	WEISSMANN, ELIEZER
13493606	8793404	20120254563	150	06/11/2012	Atomic Operations	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13538252	9361101	20140006758	150	06/29/2012	Extension of CPU Context-State Management for Micro-Architecture State	ABAD,FARLEY	WEISSMANN, ELIEZER
13591482	9063729	20130036317	150	08/22/2012	Device, System And Method Of Generating An Execution Instruction Based On A Memory-Access Instruction	LI,SIDNEY	WEISSMANN, ELIEZER
13596915	9152205	20140068302	150	08/28/2012	MECHANISM FOR FACILITATING FASTER SUSPEND/RESUME OPERATIONS IN COMPUTING SYSTEMS	TRAN,VINCENT	WEISSMANN, ELIEZER
13683748	10007528	20130151569	150	11/21/2012	COMPUTING	VU,BAI	WEISSMANN,

Petitioner Samsung Ex-1004, 0150

					PLATFORM INTERFACE WITH MEMORY MANAGEMENT		ELIEZER
13690931	Not Issued	20130132636	161	11/30/2012	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13691016	9098415	20150149683	150	11/30/2012	PCI EXPRESS TRANSACTION DESCRIPTOR	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13691106	9535838	20130111086	150	11/30/2012	ATOMIC OPERATIONS IN PCI EXPRESS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13706575	9032103	20130097353	150	12/06/2012	TRANSACTION RE-ORDERING	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13713614	Not Issued	20130132683	161	12/13/2012	PCI EXPRESS ENHANCEMENTS AND EXTENSIONS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13713635	9026682	20130132622	150	12/13/2012	PREFECTCHING IN PCI EXPRESS	MARTINEZ,DAVID	WEISSMANN, ELIEZER
13728327	9110735	20140189694	150	12/27/2012	MANAGING PERFORMANCE POLICIES BASED ON WORKLOAD SCALABILITY	LEE,ADAM	WEISSMANN, ELIEZER
13729915	9361116	20140189332	150	12/28/2012	APPARATUS AND METHOD FOR LOW-LATENCY INVOCATION OF ACCELERATORS	SNYDER,STEVEN	WEISSMANN, ELIEZER

Petitioner Samsung Ex-1004, 0151

13730143	Not Issued	20140189333	161	12/28/2012	APPARATUS AND METHOD FOR TASK-SWITCHABLE SYNCHRONOUS HARDWARE ACCELERATORS	PETRANEK,JACOB	WEISSMANN, ELIEZER
13730491	9448829	20140189297	150	12/28/2012	HETERGENEOUS PROCESSOR APPARATUS AND METHOD	HUSON,ZACHARY	WEISSMANN, ELIEZER
13730539	9329900	20140189704	150	12/28/2012	HETERGENEOUS PROCESSOR APPARATUS AND METHOD	WU,QING YUAN	WEISSMANN, ELIEZER
13730565	9639372	20140189299	150	12/28/2012	APPARATUS AND METHOD FOR HETEROGENEOUS PROCESSORS MAPPING TO VIRTUAL CORES	PARTRIDGE,WILLIAM	WEISSMANN, ELIEZER
13730800	10162687	20140189301	150	12/28/2012	SELECTIVE MIGRATION OF WORKLOADS BETWEEN HETEROGENEOUS COMPUTE ELEMENTS BASED ON EVALUATION OF MIGRATION PERFORMANCE BENEFIT AND AVAILABLE	HUISMAN,DAVID	WEISSMANN, ELIEZER

Petitioner Samsung Ex-1004, 0152

					ENERGY AND THERMAL BUDGETS		
13730971	Not Issued	20140189713	89	12/29/2012	APPARATUS AND METHOD FOR INVOCATION OF A MULTI THREADED ACCELERATOR	MILLS,PAUL	WEISSMANN, ELIEZER
13780066	8775833	20130179704	150	02/28/2013	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor	STOYNOV,STEFAN	WEISSMANN, ELIEZER
13782473	9170624	20130179706	150	03/01/2013	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES	ELAMIN,ABDELMONIEM	WEISSMANN, ELIEZER

Search and Display More Records.

Search Another: Inventor **Last Name** WEISSMANN **First Name** ELIEZER Search

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Petitioner Samsung Ex-1004, 0153

Bibliographic Data

Application No: 15367330

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /ABDELMONIEM I ELAMIN/ Examiner's Signature | Initials

Title: User Level Control Of Power Management Policies

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/02/2016	713	2115	ITL.2490C3US (P38402C3)
RULE			

APPLICANTS

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INVENTORS

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Jason Brandt, Austin, TX, UNITED STATES

CONTINUING DATA

13782473 is a CON of 13326586 12/15/2011PAT 9098261

14855553 is a CON of 13782473 03/01/2013PAT 9170624

15367330 is a CON of 14855553 09/16/2015PAT 9535487

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/12/2016

STATE OR COUNTRY

UNITED STATES

ADDRESS

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631
UNITED STATES

FILING FEE RECEIVED

$1,600

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.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

47795 7590 01/10/2019

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

EXAMINER	
ELAMIN, ABDELMONIEM I	

ART UNIT	PAPER NUMBER
2115	

NOTIFICATION DATE	DELIVERY MODE
01/10/2019	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Inteldocs_docketing@cpaglobal.com
tphpto@tphm.com

Petitioner Samsung Ex-1004, 0156

Applicant-Initiated Interview Summary	**Application No.** 15/367,330	**Applicant(s)** Sistla et al.	
	Examiner ABDELMONIEM I ELAMIN	**Art Unit** 2115	**AIA Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) ABDELMONIEM I. ELAMIN. (3) _____.

(2) Mark J. Rozman. (4) _____.

Date of Interview: 31 October 2018.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

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

Issues Discussed ☑101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1,13 and 17.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The §101 rejection was discussed. No agreement was reached. Examiner will contact the undersigned in an effort to advance prosecution if Applicant's response is deemed insufficient to place the case in condition for allowance..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

	/ABDELMONIEM I ELAMIN/ Primary Examiner, Art Unit 2115

Petitioner Samsung Ex-1004, 0157

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. 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 15/367,330	Filing Date 12/02/2016	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $420 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/02/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 22	Minus	** 20	= 2		x $100 =	200
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $460 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	200

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/PAULA D MCCRAY STANLEY/
*** 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.**

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

Document code: WFEE

United States Patent and Trademark Office
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Electronic Acknowledgement Receipt

EFS ID:	34197896
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	02-NOV-2018
Filing Date:	02-DEC-2016
Time Stamp:	14:30:13
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	Amendment/Req. Reconsideration-After Non-Final Reject	ITL2490C3USROA8-15-18.pdf	137626 12da1054dfc171a95c86737562525fef79f2ba1c	no	10

Warnings:

Information:	
Total Files Size (in bytes):	137626

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	2115
		§		
Serial No.:	15/367,330	§		
		§	Examiner:	Abdelmoniem I. Elamin
Filed:	December 2, 2016	§		
		§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)

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

REPLY TO OFFICE ACTION MAILED AUGUST 15, 2018

Sir:

In response to the Office Action mailed August 15, 2018, please amend the above-referenced patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Petitioner Samsung Ex-1004, 0163

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A processor comprising:

a plurality of cores;

a cache memory;

an interconnect to couple the plurality of cores and the cache memory; and

a power controller to control a plurality of power management features of the processor, wherein the power controller [[is]] includes a tuning circuit to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

Claim 2 (original): The processor of claim 1, wherein the power controller is to access a power-performance tuning table based on the workload configuration input and the global EPB value, and use information from the power-performance tuning table to update the at least one setting.

Claim 3 (currently amended): The processor of claim 2, wherein the ~~power controller includes a~~ tuning circuit is to update the at least one setting of the at least one power management feature responsive to the global EPB value.

Claim 4 (original): The processor of claim 3, wherein the tuning circuit includes a sampler to receive the plurality of EPB values from at least some of the plurality of cores and a combiner to generate the global EPB value from the EPB value from the plurality of cores.

Claim 5 (original): The processor of claim 4, wherein the sampler is to receive the EPB value from a plurality of threads to execute on the at least some of the plurality of cores.

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Claim 6 (original): The processor of claim 4, wherein the power controller is to generate a bin value from the global EPB value and to access the power-performance tuning table using the bin value.

Claim 7 (original): The processor of claim 3, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by the power controller, and send a message to an interconnect that couples the processor to a second component of a system to update at least one setting of a second power management feature controlled by the interconnect.

Claim 8 (original): The processor of claim 2, wherein the power-performance tuning table includes a plurality of entries each having a plurality of fields each associated with a range of the EPB value and including a setting for a power management feature.

Claim 9 (original): The processor of claim 1, wherein the processor is to receive at least one EPB value from a baseboard management controller.

Claims 10-11 (canceled)

Claim 12 (currently amended): The processor of claim [[11]] 1, wherein the at least one EPB value is to be provided based at least in part on a time of day policy.

Claim 13 (currently amended): A non-transitory machine-readable medium having stored thereon instructions, which if performed by a machine cause the machine to perform a method comprising:

receiving an energy performance bias (EPB) value in a tuning circuit of a power control logic of a processor from a plurality of threads executing on the processor and determining a global EPB value based at least in part on the EPB value received from the plurality of threads, the EPB value to indicate a preference of a user for a tradeoff between power optimization and performance optimization;

accessing a table based on the global EPB value; and

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updating at least one setting of a power management feature controlled by the power control logic based on information obtained from the table.

Claim 14 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises selecting a bin of a plurality of bins, each associated with a power-performance profile using the global EPB value.

Claim 15 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises providing an interface to enable a user, an operating system or a baseboard management controller to set the EPB value, and controlling a plurality of power management features via input of the EPB value.

Claim 16 (previously presented): The non-transitory machine-readable medium of claim 13, wherein the method further comprises receiving the EPB value with a first value for a first portion of a day and with a second value for a second portion of the day, wherein the first value is to configure a system for first performance during the first portion of the day corresponding to peak user hours, and the second value to configure the system for higher power savings during the second portion of the day corresponding to non-peak user hours.

Claim 17 (original): A system comprising:

a multicore processor including a plurality of cores, at least one cache memory and a memory controller;

a tuning circuit to dynamically select a balance between power consumption and performance based on an energy performance bias (EPB) value, wherein the tuning circuit is to access an entry of a tuning table based at least in part on the EPB value and a workload configuration value and update a setting for a power management feature responsive to a value stored in a field of the entry, wherein the workload configuration value is to indicate a predominant workload type to be executed on the system, the tuning table including a first set of entries associated with a first workload type and a second set of entries associated with a second workload type; and

a system memory coupled to the processor via a memory interconnect.

Petitioner Samsung Ex-1004, 0166

Claim 18 (currently amended): The system of claim 17, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by a power control logic of the multicore processor, the at least one setting obtained from a field of an entry of the tuning table associated with a bin in which the EPB value is included.

Claim 19 (original): The system of claim 18, wherein multicore processor comprises the tuning circuit.

Claim 20 (original): The system of claim 17, wherein the multicore processor comprises a power control logic, the power control logic comprising the tuning circuit, wherein the tuning circuit is to generate a bin value from the EPB value and access the tuning table using the bin value.

Claim 21 (new): The processor of claim 1, wherein the power controller is to enable a first power management feature based on the updated at least one setting.

Claim 22 (new): The processor of claim 1, wherein the power controller is to send an update message to a destination agent of the processor to cause the destination agent to control a first power management feature based on the updated at least one setting.

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REMARKS/ARGUMENTS

Applicant gratefully acknowledge the indication that claims 1-20 do not stand rejected under any prior art ground.

Claims 1-20 stand rejected under §101 as being directed to an abstract idea, without significantly more. Particularly in light of the above amendment to the claims, Applicant respectfully traverses this rejection.

As support for this rejection, the Office Action contends that all claims are "directed to the abstract idea of controlling a plurality of power management features of a processor…." Office Action page 2. And then the Office Action continues by contending that additional claim elements are not sufficient to recite significantly more than any such abstract idea. Here, all that is contended is that "the additional computer elements, which are recited at a high level of generality, provide conventional computer functions that do not add meaningful limits to practicing the abstract idea." *Id.*

Applicant respectfully traverses this rejection. Here, each of the independent claims recites significantly more than any abstract idea, and is not, as contended, limited to "controlling a plurality of power management features of a processor." Instead, each of the independent claims recites a concrete and non-generic statutory subject matter arrangement to enable a hardware-performed operation to occur.

Specifically, representative claim 1 recites a processor that includes a power controller, itself including a tuning circuit that receives various information and updates at least one setting of at least one of multiple power management features based on multiple parameters, namely the recited workload input and a global energy performance bias (EPB) value. The rejection is particularly overcome, in that the claims recite inventive concepts, as there stands no prior art rejection to the claims.

The Office Action relies on cases that are inapposite to the subject matter. First, as to reciting receiving of particular information in this tuning circuit, the Office Action refers to the Federal Circuit decision of *Electric Power Group, LLC v. Alstom S.A.*, 2015-1778 (Fed. Cir. 2015). This case is instructive. In *Electric Power Group*, the Federal Circuit found a method for detecting events on a power grid to be ineligible. In that case, the claim at issue was directed to "a process of gathering and analyzing information of a specified content, then displaying the

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results, and not any particular assertedly inventive technology for performing those functions." *Electric Power Group, LLC*, page 8.

In *Electric Power Group*, the subject matter of the patent related to detecting events on an interconnected electric power grid -- and the claimed subject matter was limited to monitoring and analyzing data. More specifically, the district court held that "the claims are directed to 'the abstract idea of monitoring and analyzing data from disparate sources.'" *Electric Power Group*, page 5. Note that the claim at issue in *Electric Power Group* (namely its claim 12), reproduced in the footnote below for ease of illustration, simply relates to receipt of information, analysis of that information and display of resulting information.[1] Nevertheless, nothing in this claim recites any use beyond the display. Certainly, there is nothing in the claim that set forth a particular and inventive use of the information.

As such, the claims at issue in *Electric Power Group* stand in marked contrast from the claims here, which recite that specific information is received in a particular circuit, namely the recited tuning circuit, which is recited to receive both a workload configuration input regarding a workload and multiple EPB values. Furthermore, operations performed by the tuning circuit are

---

[1] 12. A method of detecting events on an interconnected electric power grid in real time over a wide area and automatically analyzing the events on the interconnected electric power grid, the method comprising:

receiving a plurality of data streams, each of the data streams comprising sub-second, time stamped synchronized phasor measurements wherein the measurements in each stream are collected in real time at geographically distinct points over the wide area of the interconnected electric power grid, the wide area comprising at least two elements from among control areas, transmission companies, utilities, regional reliability coordinators, and reliability jurisdictions;

receiving data from other power system data sources, the other power system data sources comprising at least one of transmission maps, power plant locations, EMS/SCADA systems;

receiving data from a plurality of non-grid data sources;

detecting and analyzing events in real-time from the plurality of data streams from the wide area based on at least one of limits, sensitivities and rates of change for one or more measurements from the data streams and dynamic stability metrics derived from analysis of the measurements from the data streams including at least one of frequency instability, voltages, power flows, phase angles, damping, and oscillation modes, derived from the phasor measurements and the other power system data sources in which the metrics are indicative of events, grid stress, and/or grid instability, over the wide area;

displaying the event analysis results and diagnoses of events and associated ones of the metrics from different categories of data and the derived metrics in visuals, tables, charts, or combinations thereof, the data comprising at least one of monitoring data, tracking data, historical data, prediction data, and summary data; displaying concurrent visualization of measurements from the data streams and the dynamic stability metrics directed to the wide area of the interconnected electric power grid;

accumulating and updating the measurements from the data streams and the dynamic stability metrics, grid data, and non-grid data in real time as to wide area and local area portions of the interconnected electric power grid; and

deriving a composite indicator of reliability that is an indicator of power grid vulnerability and is derived from a combination of one or more real time measurements or computations of measurements from the data streams and the dynamic stability metrics covering the wide area as well as non-power grid data received from the non-grid data source.

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recited, including the determination of a global EPB value based on this received information. The claim also recites that based on the determined global EPB value and one of these inputs, at least one setting of at least one power management feature is updated. As such, it is respectfully submitted that reliance on *Electric Power Group* is misplaced, as the claims here recite a machine-based analysis and its use in an inventive manner.

As a further matter, the court in *Electric Power Group* went on to describe the district court's finding that there is "an important common-sense distinction between ends sought and particular means of achieving them, between desired results (functions) and particular ways of achieving (performing) them." *Electric Power Group*, page 11. In finding this method claim ineligible, the Federal Circuit noted that ineligibility was as a result of not "claiming 'some specific way of enabling a computer to monitor data'…some 'particular implementation,' they 'purport to monopolize every potential solution to the problem.'…" *Id.* The Federal Circuit concluded that the Supreme Court's *Alice* framework as applied to particular claims result in patent eligible subject matter when it is determined that "the claims meet the requirement of an inventive concept *in application*." *Electric Power Group*, page 12 (emphasis in original).

The claims here, with reference to representative claim 1, do not in any way meet the standard of a monopolization of every solution to a problem. Stated another way, claim 1 recites that a specific component, namely the recited hardware tuning circuit, is to receive particular information, process it in a particular manner, and then update at least one setting of at least one power management feature of a processor based on multiple parameters.

With this subject matter of the claim, the claim is directed to a specific application. And there is no attempt to monopolize every potential solution to power management. Certainly this is the case, as the claim recites an arrangement for particular technique for power management feature setting update by a particular component based on particular inputs -- nowhere present in the art. As such, the claim is tied to an inventive concept in a particular application, and does not purport to monopolize every potential solution. For example, of course there are many other ways to update a power management feature setting, none of which are prevented by the claims here.

The Office Action also relies on *Digitech Image Techs., LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014). Office Action, page 2. Yet all that the Office Action describes with regard to *Digitech* is that it is related to "organizing and manipulating information

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to mathematical correlations…." *Id.* But nothing in the claim recites a mere mathematical correlation. Instead as described above, the end result is a tangible result in which at least one setting of at least one power management feature of a processor is updated.

As a further matter, this arrangement of a tuning circuit to update a particular setting of at least one power management feature is not "similar to the concept of data recognition and storage…." Office Action, page 2.

The statutory subject matter rejection is further overcome, in light of the Federal Circuit decision in *Visual Memory LLC v. Nvidia Corp.*, 2016-2254 (Fed. Cir. 2017). Following the analysis in that case, the claims here recite statutory subject matter, as these claims are directed to an improvement to computer functionality itself. As with the precedent relied upon in *Visual Memory*, namely *Enfish, LLC v. Microsoft*, 822 F.3d 1327, 1334 (Fed. Cir. 2016), "the plain focus of the claims is on an improvement to the computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity." *Visual Memory*, page 8 (citing *Enfish*). To confirm statutory subject matter, the court in *Visual Memory* analyzed the specification to identify the benefits flowing from the improvement in computer functionality. *Visual Memory*, pages 9-10 ("The specification explains that multiple benefits flow from the '740 patent's improved memory system."). As with the *Visual Memory* court's reliance on the *Enfish* precedent (related to patents directed to a self-referential table), here:

> the specification discusses the advantages offered by the technological improvement. Accordingly, this is not a case where the claims merely recite the use of an abstract mathematical formula on a general purpose computer, a purely conventional computer implementation of a mathematical formula, or generalized steps to be performed on a computer using conventional computer activity.
>
> *Visual Media*, pages 10-11 (citing *Enfish*).

The Specification here describes benefits of a system that includes a tuning circuit to update a setting of at least one power management feature as described herein. Specifically, the Specification describes that an EPB value allows an end user to control power/performance tradeoffs in a simple manner. Specification, paragraph 14. Stated another way, embodiments here and as expressed in the claims provide a manner to enable at least one setting of a power management feature to be updated even where a non-technical user has little or no understanding of an ability to tune such features. *Id.*, paragraph 15. As such, the Specification confirms that benefits are provided by way of the improvements in processor functionality disclosed in the

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Specification and recited in the claims. For all these reasons, the claims recite statutory subject matter and the §101 rejection is overcome.

STATEMENT OF SUBSTANCE OF THE INTERVIEW

The undersigned gratefully thanks the Examiner for the time and courtesy extended during the telephonic interview which occurred on October 31, 2018. The §101 rejection was discussed. While no agreement was reached, it is understood that the Examiner will consider the above amendment and remarks, and if this Reply is deemed insufficient to place the case in condition for allowance, the Examiner will contact the undersigned in an effort to advance prosecution.

In view of the claim amendments and these remarks, the application is now in condition for allowance and the Examiner's prompt action in accordance therewith is respectfully requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504.

Respectfully submitted,

Date: November 2, 2018

/Mark J. Rozman/

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Customer No.: 47795

Petitioner Samsung Ex-1004, 0172

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Oct 25 2018

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s):
Mark Rozman

S-signature:
/Mark J Rozman/

Registration Number:
42117

U.S. Application Number:
15367330

Confirmation Number:
3403

E-mail Address:
rozman@tphm.com

Phone Number:
5124189944

Proposed Time of Interview:
10-31-2018 11:00 AM ET

Prefered Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

Topic for Discussion:

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1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2620

Courtesy Reminder for
Application Serial No: 15/367,330

Attorney Docket No: ITL.2490C3US
(P38402C3)
Customer Number: 47795
Date of Electronic Notification: 08/21/2018

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

tphpto@tphm.com
Inteldocs_docketing@cpaglobal.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://sportal.uspto.gov/secure/myportal/privatepair.** If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

47795 7590 08/15/2018

TROP, PRUNER & HU, P.C.
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HOUSTON, TEXAS 77057-2620
UNITED STATES OF AMERICA

EXAMINER	
ELAMIN, ABDELMONIEM I	

ART UNIT	PAPER NUMBER
2115	

NOTIFICATION DATE	DELIVERY MODE
08/15/2018	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Inteldocs_docketing@cpaglobal.com
tphpto@tphm.com

Petitioner Samsung Ex-1004, 0175

Office Action Summary	Application No. 15/367,330	Applicant(s) Sistla et al.	
	Examiner ABDELMONIEM I ELAMIN	Art Unit 2115	AIA Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☑ Responsive to communication(s) filed on 04/25/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

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

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

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

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

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)).

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more.

4. Claims 1-20 are directed to the abstract idea of controlling a plurality of power management features of a processor, as explained in detail below. The claim(s) do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional computer elements, which are recited at a high level of generality, provide conventional computer functions that do not add meaningful limits to practicing the abstract idea.

5. Claims 1, 13, and 17, recite in part, **receiving a workload configuration input regarding a workload, and receiving a plurality of energy performance bias (EPB) values** [*which is similar to the concept of collecting information, analyzing it, and displaying certain results of the collection and analysis ... Found by the courts to be abstract idea, Electric Power Group*]; **determining a global EPB value based thereon** [*which is similar to the concept of organizing and manipulating information through mathematical correlations ... Found by the courts to be abstract idea, Digitech*]; **and updating at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value** [*which is similar to the concept of data recognition and storage ... Found by the courts to be abstract idea, content extraction*].

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6. The claim does not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea. The claims recite the additional limitations of "processor", "a cache memory", "an interconnect" and "a power controller". These limitations are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer applications. Generic computer components recited as performing generic computer functions that are well-understood, routine and conventional activities amount to no more than implementing the abstract idea with a computerized system. Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception (the abstract idea).

7. Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology. Their collective functions merely provide conventional computer implementation.

Furthermore, dependent claims 2-12, 14-16 and 18-20 do not resolve the issues raised in the independent claims.

Accordingly, for the reasons provided above, claims 1-20 are directed to an abstract idea, hence rejected as ineligible for patenting under 35 U.S.C. 101.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDELMONIEM I ELAMIN whose telephone number is (571)272-3674. The examiner can normally be reached on 9:00 AM -6:00 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is

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encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 5712723667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABDELMONIEM I ELAMIN/
Primary Examiner, Art Unit 2115

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	**Art Unit**
	ABDELMONIEM I ELAMIN	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	12/26/2017	08/09/2018							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/367,330	Sistla et al.
	Examiner	Art Unit
	ABDELMONIEM I ELAMIN	2115

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
WEST	12/26/2017	AE
WEST	08/09/2018	AE

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Petitioner Samsung Ex-1004, 0181

WEST Search History

Hide Items | Restore | Clear | Close

DATE: Thursday, August 09, 2018

Hide?	Set Name	Query	Hit Count
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
☐	L27	L26 and (((plural$5 or multiple) near3 (core or process$5)) or mult$1core or multi$1process$4)	121
☐	L26	(power or consumption) with performance with (trade$1off or trade off) with (value or parameter or indicat$1r)	331
DB=USOC,EPAB,JPAB,DWPI,TDBD,FPRS; PLUR=YES; OP=ADJ			
☐	L25	L24 and (trade$1off or trade off)	9
☐	L24	L23 and (((plural$5 or multiple) near3 (core or process$5)) or mult$1core or multi$1process$4)	179
☐	L23	(power or consumption) with performance with (user or dynamic$7)	12223
☐	L22	L21 and (((plural$5 or multiple) near3 (core or process$5)) or mult$1core or multi$1process$4)	6
☐	L21	(power or consumption) with performance with (trade$1off or trade off) with (user or dynamic$7)	66
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
☐	L20	(power or consumption) with performance with (trade$1off or trade off) with (user or dynamic$7)	480
☐	L19	L17 same (((plural$5 or multiple) near3 (core or process$5)) or mult$1core or multi$1process$4)	6
☐	L18	L17 and (((plural$5 or multiple) near3 (core or process$5)) or mult$1core or multi$1process$4)	196
☐	L17	L16 or l9	480
☐	L16	(power or consumption) with performance with (trade$1off or trade off) with dynamic$	175
☐	L15	20090254660 and (trade$1off or trade off)	2
☐	L14	20090254660 and user	2
☐	L13	20090254660 and ((trade$1off or trade off) with user)	2
☐	L12	20080307238 and unified	2
☐	L11	L10 not L8	20
☐	L10	L9.ti,ab,clm.	24
☐	L9	(power or consumption) with performance with (trade$1off or trade off) with user	326
☐	L8	L7 and(((multiple or plural$5) near3 core) or multi$1core)	30
☐	L7	L6 same (work$1load or load)	100
		(power or consumption) with performance with (value or parameter or ratio)	

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☐	L6	with (global or universal or single)	1127
☐	L5	(power or consumption) with performance with (value)	15911
☐	L4	20050066206	1
☐	L3	20170083076 and global	1
☐	L2	20170083076	1
☐	L1	20090254660	2

END OF SEARCH HISTORY

Petitioner Samsung Ex-1004, 0183

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/367,330	Filing Date 12/02/2016	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/25/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $460 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L 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.

SLIE
TONYA MCBRIDE

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.**

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

Petitioner Samsung Ex-1004, 0184

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	2115
		§		
Serial No.:	15/367,330	§		
		§	Examiner:	Abdelmoniem I. Elamin
Filed:	December 2, 2016	§		
		§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)

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

REPLY TO OFFICE ACTION MAILED DECEMBER 29, 2017

Sir:

In response to the Office Action mailed December 29, 2017, please amend the above-referenced patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Petitioner Samsung Ex-1004, 0185

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A processor comprising:

a plurality of cores;

a cache memory;

an interconnect to couple the plurality of cores and the cache memory; and

a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

Claim 2 (original): The processor of claim 1, wherein the power controller is to access a power-performance tuning table based on the workload configuration input and the global EPB value, and use information from the power-performance tuning table to update the at least one setting.

Claim 3 (original): The processor of claim 2, wherein the power controller includes a tuning circuit to update the at least one setting of the at least one power management feature responsive to the global EPB value.

Claim 4 (original): The processor of claim 3, wherein the tuning circuit includes a sampler to receive the plurality of EPB values from at least some of the plurality of cores and a combiner to generate the global EPB value from the EPB value from the plurality of cores.

Claim 5 (original): The processor of claim 4, wherein the sampler is to receive the EPB value from a plurality of threads to execute on the at least some of the plurality of cores.

Claim 6 (original): The processor of claim 4, wherein the power controller is to

Petitioner Samsung Ex-1004, 0186

generate a bin value from the global EPB value and to access the power-performance tuning table using the bin value.

Claim 7 (original): The processor of claim 3, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by the power controller, and send a message to an interconnect that couples the processor to a second component of a system to update at least one setting of a second power management feature controlled by the interconnect.

Claim 8 (original): The processor of claim 2, wherein the power-performance tuning table includes a plurality of entries each having a plurality of fields each associated with a range of the EPB value and including a setting for a power management feature.

Claim 9 (original): The processor of claim 1, wherein the processor is to receive at least one EPB value from a baseboard management controller.

Claim 10 (original): The processor of claim 1, wherein the workload configuration input comprises information regarding a workload pattern comprising at least one of a non-uniform memory architecture, a uniform memory architecture, and an input/output intensive workload.

Claim 11 (original): The processor of claim 1, further comprising a user interface to receive at least one EPB value from a user.

Claim 12 (original): The processor of claim 11, wherein the at least one EPB value is to be provided based at least in part on a time of day policy.

Claim 13 (currently amended): A non-transitory machine-readable medium having stored thereon instructions, which if performed by a machine cause the machine to perform a method comprising:

receiving an energy performance bias (EPB) value in power control logic of a processor

Petitioner Samsung Ex-1004, 0187

from a plurality of threads executing on the processor and determining a global EPB value based at least in part on the EPB value received from the plurality of threads, the EPB value to indicate a preference of a user for a tradeoff between power optimization and performance optimization;

accessing a table based on the global EPB value; and

updating at least one setting of a power management feature controlled by the power control logic based on information obtained from the table.

Claim 14 (currently amended): The non-transitory machine-readable medium of claim 13, wherein the method further comprises selecting a bin of a plurality of bins, each associated with a power-performance profile using the global EPB value.

Claim 15 (currently amended): The non-transitory machine-readable medium of claim 13, wherein the method further comprises providing an interface to enable a user, an operating system or a baseboard management controller to set the EPB value, and controlling a plurality of power management features via input of the EPB value.

Claim 16 (currently amended): The non-transitory machine-readable medium of claim 13, wherein the method further comprises receiving the EPB value with a first value for a first portion of a day and with a second value for a second portion of the day, wherein the first value is to configure a system for first performance during the first portion of the day corresponding to peak user hours, and the second value to configure the system for higher power savings during the second portion of the day corresponding to non-peak user hours.

Claim 17 (original): A system comprising:

a multicore processor including a plurality of cores, at least one cache memory and a memory controller;

a tuning circuit to dynamically select a balance between power consumption and performance based on an energy performance bias (EPB) value, wherein the tuning circuit is to access an entry of a tuning table based at least in part on the EPB value and a workload configuration value and update a setting for a power management feature responsive to a value

Petitioner Samsung Ex-1004, 0188

stored in a field of the entry, wherein the workload configuration value is to indicate a predominant workload type to be executed on the system, the tuning table including a first set of entries associated with a first workload type and a second set of entries associated with a second workload type; and

a system memory coupled to the processor via a memory interconnect.

Claim 18 (original): The system of claim 17, wherein tuning circuit is to update at least one setting of a first power management feature controlled by a power control logic of the multicore processor, the at least one setting obtained from a field of an entry of the tuning table associated with a bin in which the EPB value is included.

Claim 19 (original): The system of claim 18, wherein multicore processor comprises the tuning circuit.

Claim 20 (original): The system of claim 17, wherein the multicore processor comprises a power control logic, the power control logic comprising the tuning circuit, wherein the tuning circuit is to generate a bin value from the EPB value and access the tuning table using the bin value.

Petitioner Samsung Ex-1004, 0189

REMARKS/ARGUMENTS

Provided herewith is an e-Terminal Disclaimer and thus it is respectfully submitted that the obviousness-type double patenting rejection is overcome.

Claims 13-16 are amended to include the non-transitory description. Accordingly, Applicant respectfully submits that the §101 rejection as to claims 13-16 is overcome.

In view of the claim amendments and these remarks, the application is now in condition for allowance and the Examiner's prompt action in accordance therewith is respectfully requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504.

Respectfully submitted,

Date: April 25, 2018

/Mark J. Rozman/

Mark J. Rozman
Registration No. 42,117
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Houston, Texas 77057-2631
(512) 418-9944 [Phone]
(713) 468-8883 [Fax]
Customer No.: 47795

Petitioner Samsung Ex-1004, 0190

Electronic Patent Application Fee Transmittal

Application Number:	15367330
Filing Date:	02-Dec-2016
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Filer:	Mark J. Rozman/Stephanie Petreas
Attorney Docket Number:	ITL.2490C3US (P38402C3)

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
		Total in USD ($)		**200**

Electronic Acknowledgement Receipt

EFS ID:	32438007
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	25-APR-2018
Filing Date:	02-DEC-2016
Time Stamp:	11:45:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$200
RAM confirmation Number	042518INTEFSW11464000
Deposit Account	201504
Authorized User	Stephanie Petreas
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.19 (Document supply fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	ITL2490C3USROA12-29-17.pdf	88243 22cce3b1d6f3802236ca0649464eb47be47348da	no	6
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30882 81c27916bd92d7c1f46c829e4cc58e4ee5dd2d24	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	119125		

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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.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	15367330
Filing Date	02-Dec-2016
First Named Inventor	Krishnakanth Sistla
Attorney Docket Number	ITL.2490C3US (P38402C3)
Title of Invention	User Level Control Of Power Management Policies

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Intel Corporation	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

9535487

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9098261

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

(•) Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request. ( ) I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ( ) Small Entity ( ) Micro Entity (•) Regular Undiscounted 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.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: (•) An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 42117 ( ) A sole inventor ( ) A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ( ) A joint inventor; all of whom are signing this request	
Signature	/Mark J. Rozman/
Name	Mark J. Rozman

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15367330
Filing Date:	02-Dec-2016
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Filer:	Mark J. Rozman/Stephanie Petreas
Attorney Docket Number:	ITL.2490C3US (P38402C3)

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15367330

Filing Date: 02-Dec-2016

Applicant/Patent under Reexamination: Sistla

Electronic Terminal Disclaimer filed on April 25, 2018

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	32435878
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	25-APR-2018
Filing Date:	02-DEC-2016
Time Stamp:	11:48:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	042518INTEFSW11480700
Deposit Account	201504
Authorized User	Stephanie Petreas
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.19 (Document supply fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33813 37ff68330fc76c84687479f126e12466d390ff87e	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30885 1b03929f524e686f8354dadb9f6c9e8d9a435460	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	64698		

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.

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
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)

CONFIRMATION NO. 3403

47795
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

POA ACCEPTANCE LETTER

OC000000098232765

Date Mailed: 03/23/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/19/2018.

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

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

/cnguyen/

Petitioner Samsung Ex-1004, 0202

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

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 47795

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Intel Corporation

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Kerry Tweet		
Title	Assistant Director of Patents		

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

☑ Total of 1 forms are submitted.

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

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

May 11, 2017

Re: Delegation of Signature Authority

To Whom It May Concern:

I, Jeff Draeger, Vice President for Intel Corporation, hereby delegate authority to sign Powers of Attorney in patent matters before any patent office, Revocations of Power of Attorney in patent matters before any patent office, Patent Assignments, and other patent-related documents to: Libby Hope, Sharon Wong, Kerry Tweet, and Kenneth Nelson, as Assistant Directors, Intel Patent Group, Intel Corporation.

I hereby further delegate authority to sign Powers of Attorney in patent matters before any patent office and Revocations of Power of Attorney in patent matters before any patent office to Lisa Hopkinson, as Administrator of Patents, Intel Patent Group, Intel Corporation.

Thank you for your cooperation in this matter.

Sincerely,

Jeff Draeger
Vice President
Intel Patent Group
Intel Corporation

Intel Corporation
2200 Mission College Blvd.
Santa Clara, CA 95054

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Intel Corporation

Application No./Patent No.: 15/367,330 Filed/Issue Date: December 2, 2016

Titled: USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES

Intel Corporation, a corporation

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

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

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

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

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

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

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

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

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

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

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

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 029462, Frame 0303, or for which a copy thereof is attached.

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

1. From: _____ To: _____

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

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

2. From: _____ To: _____

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

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

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 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.**

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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 displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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

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

4. From: _____ To: _____

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

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

5. From: _____ To: _____

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

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

6. From: _____ To: _____

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

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

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

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

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

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

/Mark J. Rozman/	2018-03-19
Signature	Date
Mark J. Rozman	42,117
Printed or Typed Name	Title or Registration Number

Petitioner Samsung Ex-1004, 0206

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.

Electronic Acknowledgement Receipt

EFS ID:	32091385
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/David Hopper
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	19-MAR-2018
Filing Date:	02-DEC-2016
Time Stamp:	14:59:06
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	Power of Attorney	GENERAL_INTEL_CORP_TPHM_POA.pdf	199555 fbc743ed404b890e64dcbe292d7ff91a4a0f001e	no	2

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:					
2	Assignee showing of ownership per 37 CFR 3.73	ITL2490C2US373.pdf	118602 fa77c6032da8c2378691181c422ab7dc70c6a1e0	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	318157	

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.

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.
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)	3403

47795 7590 12/29/2017

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

EXAMINER
ELAMIN, ABDELMONIEM I

ART UNIT	PAPER NUMBER
2115	

NOTIFICATION DATE	DELIVERY MODE
12/29/2017	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tphpto@tphm.com
Inteldocs_docketing@cpaglobal.com

Petitioner Samsung Ex-1004, 0210

Office Action Summary	Application No. 15/367,330	Applicant(s) SISTLA ET AL.	
	Examiner ABDELMONIEM ELAMIN	Art Unit 2115	AIA (First Inventor to File) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☒ Responsive to communication(s) filed on *12/02/2016*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

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

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

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

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

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)).

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

Attachment(s)

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *12/02/2016; 01/11/2017*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 0211

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

3. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

4. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR

3.73(b).

5. Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 9,098,261, claims 1-18 of U.S. Patent No. 9,170,624 and claims 1-20 of US. Patent No. 9,535,487. Although the conflicting claims are not identical, they are not patentably distinct from each other because they recite means or steps that are substantially the same and that would have been obvious to one of ordinary skill in the art.

6. Claims 1-20, essentially repeat most of the features listed in claims 1-16 of U.S. Patent No. 9,098,261, claims 1-18 of U.S. Patent No. 9,170,624 and claims 1-20 of US. Patent No. 9,535,487 (*see the table below*).

7. The omission of an element with a corresponding loss of function is an obvious expedient. See *In re Karlson*, 136 USPQ 184and *Ex parte Raina*, 168 USPQ 375.

Claim 1 of the Instant Application	**Claim 1 of US. Pat. No. 9,098,261**
A processor comprising: a plurality of cores; a cache memory; an interconnect to couple the plurality of cores and the cache memory; and a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.	A processor comprising: at least one computing element and a power controller to control a plurality of power management features of the processor, the power controller to receive an energy performance bias (EPB) value corresponding to a single input value to control the plurality of power management features, the EPB value to be provided by an external entity, the power controller to update at least one setting of at least one of the plurality of power management features based on the EPB value, wherein the power controller includes a tuning circuit to update the at least one setting of the at least one power management feature responsive to the EPB value, the tuning circuit including a sampler to receive an EPB value from a plurality of threads and a combiner to generate

Petitioner Samsung Ex-1004, 0213

	a global EPB value from the EPB value from the plurality of threads.

Claim 1 of the Instant Application	Claim 1 of US. Pat. No. 9,170,624
A processor comprising: a plurality of cores; a cache memory; an interconnect to couple the plurality of cores and the cache memory; and a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.	A processor comprising: a plurality of cores and a power controller to control a plurality of power management features of the processor, the power controller to receive a workload configuration input and receive an energy performance bias (EPB) value corresponding to a single input value from at least some of the plurality of cores and determine global EPB value based thereon, to control the plurality of power management features and to update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

Claim 1 of the Instant Application	Claim 1 of US. Pat. No. 9,535,487
A processor comprising: a plurality of cores; a cache memory; an interconnect to couple the plurality of cores and the cache memory; and a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the	A processor comprising: a first domain including a plurality of cores; a second domain including at least one graphics processor; and a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive an energy performance bias (EPB) value from at least some of the plurality of cores and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload

global EPB value.	configuration input and the global EPB value.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 13-16 are rejected under 35 USC 101 because they disclose a claimed invention that is an abstract idea as defined in the case *In re Warmerdam,* 33, F 3d 1354, 31 USPQ 2d 1754 (Fed. Cir. 1994).

10. As per claims 13-16, they are rejected because the applicant has provided evidence that the applicant intends the term "***machine-readable medium***" to include non-statutory matter. The applicant describes a computer-readable medium as including open ended language and thus it is reasonable to interpret it to include all possible mediums, including non-statutory mediums (see paragraph 0049). The words "storage" and/or "recording" are insufficient to convey only statutory embodiments to one of ordinary skill in the art absent an explicit and deliberate limiting definition or clear differentiation between storage media and transitory media in the disclosure. As such, the claim(s) is/are drawn to a form of energy. Energy is not one of the four categories of invention and therefore this/these claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefore not a composition of matter.

11. The Examiner suggests amending the claim(s) to read as a "non-transitory machine-readable medium".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDELMONIEM ELAMIN whose telephone number is (571)272-3674. The examiner can normally be reached on MON - FRI 10:00 AM - 6:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ABDELMONIEM ELAMIN/
Primary Examiner, Art Unit 2115

December 26, 2017

Petitioner Samsung Ex-1004, 0216

Notice of References Cited	Application/Control No. 15/367,330	Applicant(s)/Patent Under Reexamination SISTLA ET AL.	
	Examiner ABDELMONIEM ELAMIN	Art Unit 2115	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2010/0199280 A1	08-2010	Vestal; Stephen C.	G06F9/4881	718/102
*	B	US-2010/0169609 A1	07-2010	Finkelstein; Lev	G06F1/3203	712/43
*	C	US-8,904,205 B2	12-2014	Burns; James S.	G06F1/26	713/300
*	D	US-8,245,070 B2	08-2012	Finkelstein; Lev	G06F1/3203	713/322
	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	CPC 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.

Petitioner Samsung Ex-1004, 0217

Bibliographic Data

Application No: 15367330

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: _____ (Examiner's Signature) _____ (Initials)

Title: User Level Control Of Power Management Policies

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/02/2016	713	2115	ITL.2490C3US (P38402C3)
RULE			

APPLICANTS

Intel Corporation, Santa Clara, CA, UNITED STATES

INVENTORS

Krishnakanth V. Sistla, Beaverton, OR, UNITED STATES

Jeremy Shrall, Portland, OR, UNITED STATES

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Matthew Bace, North Andover, MA, UNITED STATES

Avinash N. Ananthakrishnan, Hillsboro, OR, UNITED STATES

Jason Brandt, Austin, TX, UNITED STATES

CONTINUING DATA

13782473 is a CON of 13326586 12/15/2011PAT 9098261

14855553 is a CON of 13782473 03/01/2013PAT 9170624

15367330 is a CON of 14855553 09/16/2015PAT 9535487

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

12/12/2016

STATE OR COUNTRY

UNITED STATES

ADDRESS

TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631
UNITED STATES

FILING FEE RECEIVED

$1,600

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15367330	SISTLA ET AL.
	Examiner	**Art Unit**
	M ELAMIN	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	12/26/2017								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Petitioner Samsung Ex-1004, 0220

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	Unassigned
Serial No.:	Filed Concurrently	§	Examiner:	Unassigned
Filed:	December 2, 2016	§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)

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

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Under 35 USC 120, this application relies on the earlier filing date of application serial number 14/855,553, filed September 16, 2015, which is a continuation of U.S. Patent Application Serial No. 13/782,473, filed March 1, 2013, now U.S. Patent No. 9,170,624, issued October 27, 2015, which is a continuation of U.S. Patent Application Serial No. 13/326,586, filed December 15, 2011, now U.S. Patent No. 9,098,261, issued August 4, 2015. To the extent that any following foreign patent or non-patent literature references were submitted to and/or cited by the Office in the prior application, they are not provided in this application (pursuant to 37 C.F.R. §1.98(d) and M.P.E.P. §609.02(A)(2)).

This statement is being filed with the application. Please apply any charges or credits to Deposit Account No. 50-4238.

Date: December 2, 2016

Respectfully submitted,
/Mark J. Rozman/
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Customer No.: 47795

Petitioner Samsung Ex-1004, 0221

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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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	7376849		2008-05-20	Tschanz, et al.	
	2	7010708		2006-03-07	Ma	

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U.S.PATENT APPLICATION PUBLICATIONS

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	20110296212		2011-12-01	Elnozahy, et al.	
	2	20100218029		2010-08-26	Floyd, et al.	
	3	20090177334		2009-07-09	Artman, et al.	

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	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

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	1	8301742		2012-10-08	Hanson, et al.	

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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	20050066206		2005-03-24	Beers, et al.	
	2	20090254660		2009-10-08	Hanson, et al.	
	3	20130179706		2013-07-11	Sistla, et al.	

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

Application Number	
Filing Date	2016-12-02
First Named Inventor	Krishnakanth V. Sistla
Art Unit	
Examiner Name	
Attorney Docket Number	ITL.2490C1USUS (P38402C2)

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	1	20080289369	A1	2005-12-29	Chung, et al.	
	2	20090327785	A1	2009-12-29	Chang, et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	201001157	TW	A	2010-01-01	ACER INC		☒
	2	200301025	TW	A	2006-01-01	VIA TECHNOLOGOLIES, INC		☒

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Petitioner Samsung Ex-1004, 0224

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	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

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	1	20080288894		2005-12-29	Vorenkamp, et al.	

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	1	1728023	CN		2006-02-01	Vorenkamp, et al.		X

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Petitioner Samsung Ex-1004, 0225

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3(P38402C3)

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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	7434073		2008-10-07	Magklis	
	2	6792392		2004-09-14	Knight	
	3	7194643		2007-03-20	Gonzalez, et al.	
	4	7010708		2006-03-07	Ma	
	5	5621250		1997-04-15	Kim	
	6	7412615		2008-08-12	Yokota, et al.	
	7	5163153		1992-11-10	Cole, et al.	
	8	5590341		1996-12-31	Matter	

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Petitioner Samsung Ex-1004, 0226

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

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	9	5931950		1999-08-03	Hsu	
	10	7454632		2008-11-18	Kardach, et al.	
	11	5522087		1996-05-28	Hsiang	
	12	7272730		2007-09-18	Acquaviva, et al.	
	13	7529956		2009-05-05	Stufflebeam	
	14	7730340		2010-06-01	Hu, et al.	
	15	7539885		2009-05-26	Ma	
	16	6748546		2004-06-08	Mirov, et al.	
	17	6829713		2004-12-07	Cooper, et al.	
	18	71111179		2006-09-19	Girson, et al.	
	19	6823516		2004-11-23	Cooper	

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Petitioner Samsung Ex-1004, 0227

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2(P38402C2)

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

	20	7437270		2008-10-14	Song, et al.	
	21	7093147		2006-08-15	Farkas, et al.	
	22	7043649		2006-05-09	Terrell	
	23	6996728		2006-02-07	Singh	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code1	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090150695		2009-06-11	Song, et al.	
	2	20090150696		2009-06-11	Song, et al.	
	3	20110154090		2011-06-23	Dixon, et al.	
	4	20070214342		2007-09-13	Newburn	
	5	20070079294		2007-04-05	Knight	

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Petitioner Samsung Ex-1004, 0228

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

	6	20060117202		2006-06-11	Magklis, et al.	
	7	20070016817		2007-01-18	Albonesi, et al.	
	8	20060053326		2006-03-09	Naveh	
	9	20070005995		2007-01-04	Kardach, et al.	
	10	20040098560		2004-05-02	Storvik, et al.	
	11	20060050670		2006-03-09	Hillyard, et al.	
	12	20060059286		2006-03-16	Bertone, et al.	
	13	20060184287		2006-08-17	Belady, et al.	
	14	20070106827		2007-05-10	Boatright, et al.	
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	16	20090158061		2009-06-18	Schmitz, et al.	

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Petitioner Samsung Ex-1004, 0229

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490 C2 US

	17	20010044909		2001-11-22	Oh, et al.	
	18	20050022038		2005-01-27	Kaushik, et al.	
	19	20070156992		2007-07-05	Jahagirdar	
	20	20050033881		2005-02-10	Yao	
	21	20040064752		2004-04-01	Kazachinsky, et al.	
	22	20040139356		2007-07-15	Ma	
	23	20070239398		2007-10-11	Song, et al.	
	24	20060069936		2006-03-30	Lint, et al.	
	25	20020194509		2002-12-19	Plante, et al.	
	26	20050132238		2005-06-16	Nanja	
	27	20070245163		2007-10-18	Lu, et al.	

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Petitioner Samsung Ex-1004, 0230

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3(P35402C3)

	28	20040268166		2004-12-30	Farkas, et al.	
	29	20090006871		2009-01-01	Liu, et al.	
	30	20100115309		2010-05-06	Carvalho, et al.	
	31	20100191997		2010-07-29	Dodeja, et al.	
	32	20100146513		2010-06-10	Song	
	33	20090235105		2009-09-17	Branover, et al.	
	34	20090172428		2009-07-02	Lee	
	35	20090172375		2009-07-02	Rotem, et al.	
	36	20090158067		2009-06-18	Bodas, et al.	
	37	20080250260		2008-10-09	Tomita	
	38	20030061383		2003-03-27	Zilka	

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Petitioner Samsung Ex-1004, 0231

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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	1	EP 1 282 030	EP	A1	2003-05-02	Mitsubishi Kenki Kabushiki Kaisha		☐

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NON-PATENT LITERATURE DOCUMENTS

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	1	U.S. Patent Application No. 12/889,121, "Providing Per Core Voltage and Frequency Control," filed September 23, 2010, by Pakaj Kumar.	☐
	2	SPEC-Power and Performance, Design Overview V1.10, Standard Performance Information Corp., October 21, 2008, 6 pages.	☐
	3	U.S. Patent Application No. 13/070,700, "Obtaining Power Profile Information With Low Overhead," filed March 24, 2011, by Robert Knight.	☐
	4	ANOOP IYER, et al., "Power and Performance Evaluation of Globally Asynchronous Locally Synchronous Processors," 2002, pages 1-11.	☐
	5	GREG SEMERARO, et al., "Hiding Synchronization Delays In A GALS Processor Microarchitecture," 2004, pages 1-13.	☐
	6	JOAN-MANUEL PARCERISA, et al., "Efficient Interconnects for Clustered Microarchitectures," 2002, pages 1-10.	☐

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Petitioner Samsung Ex-1004, 0232

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38902C2)

	7	GRIGORIOS MAGKLIS, et al., "Profile-Based Dynamic Voltage and Frequency Scalling for a Multiple Clock Domain Microprocessor," 2003, pages 1-12.	☐
	8	GREG SEMERARO, et al., "Dynamic Frequency and Voltage Control for a Multiple Clock Domain Architecture," 2002, pages 1-12.	☐
	9	GREG SEMERARO, "Energy-Efficient Processor Design Using Multiple Clock Domains with Dynamic Voltage and Frequency Scaling," 2002, pages 29-40.	☐
	10	DIANA MARCULESCU, "Application Adaptive Energy Efficient Clustered Architectures," 2004, pages 344-349.	☐
	11	L. BENINI, et al., "System-Level Dynamic Power Management," 1999, pages 23-31.	☐
	12	RAVINDRA JEJURIKAR, et al., "Leakage Aware Dynamic Voltage Scaling For Real-Time Embedded Systems," 2004, pages 275-280.	☐
	13	RAVINDRA JEJURIKAR, et al., "Dynamic Slack Reclamation With Procrastination Scheduling In Real-Time Embedded Systems," 2005, pages 13-17.	☐
	14	R. TODLING, et al., "Some Strategies For Kalman Filtering and Smoothing," 1996, pages 1-21.	☐
	15	R.E. KALMAN, "A New Approach To Linear Filtering and Prediction Problems," 1960, pages 1-12.	☐
	16	INTEL TECHNOLOGY JOURNAL, "Power and Thermal Management in the Intel Core Duo Processor," May 15, 2006, pages 109-122.	☐
	17	INTEL DEVELOPER FORUM, IDF2010, Opher Kahn, et al., "Intel Next Generation Microarchitecture Codename Sandy Bridge: New Processor Innovations," September 13, 2010, 58 pages.	☐

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	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

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	1	INTERNATIONAL SEARCHING AUTHORITY, "Notification of Transmittal of the International Search Report and the Written Opinion of the International Searching Authority," mailed April 30, 2013, in International application no. PCT/US2012/069578.	☐

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Petitioner Samsung Ex-1004, 0234

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
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	1	Taiwan Patent Office, Office Action mailed August 25, 2014, In Taiwan Apllication no. 101141477.	☒
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Petitioner Samsung Ex-1004, 0235

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

	1	China Patent Office, Office Action mailed October 28, 2015 in Chinese Patent Application no. 201280061735.4.	

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Examiner Signature	/ABDELMONIEM I ELAMIN/	Date Considered	12/26/2017

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[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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.I.E/

Petitioner Samsung Ex-1004, 0236

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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	/Mark J. Rozman/	Date (YYYY-MM-DD)	2016-12-02
Name/Print	Mark J. Rozman	Registration Number	42,117

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.**

Petitioner Samsung Ex-1004, 0237

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15367330
Filing Date	2016-12-02
First Named Inventor	Krishnakanth V. Sistla
Art Unit	2116
Examiner Name	
Attorney Docket Number	ITL.2490C3US (P38402C3)

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Petitioner Samsung Ex-1004, 0238

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15367330
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	2116
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

	1	State Intellectual Property Office of The People's Republic of China, Third Office Action mailed November 15, 2016 in Chinese Patent Application no. 201280061735.4.	

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Examiner Signature	/ABDELMONIEM I ELAMIN/	Date Considered	12/26/2017

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Petitioner Samsung Ex-1004, 0239

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15367330
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	2116
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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None

SIGNATURE

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Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2017-01-11
Name/Print	Mark J. Rozman	Registration Number	42,117

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Petitioner Samsung Ex-1004, 0240

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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 the Freedom of Information Act requires disclosure of these record s.

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 inspections 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.

Petitioner Samsung Ex-1004, 0241

WEST Search History

Hide Items | Restore | Clear | Close

DATE: Tuesday, December 26, 2017

Hide?	Set Name	Query	Hit Count
DB=PGPB,USPT; PLUR=YES; OP=ADJ			
☐	L52	tw 201001157	2
☐	L51	20050288894	2
☐	L50	20050157547	2
☐	L49	20040583311	0
☐	L48	9535487.pn.	1
☐	L47	L46 not l10	10
☐	L46	L45 same (((plural$5 or multiple) near core) or multi$1core)	10
☐	L45	(based or depend$5) near3 load near5 performance	2661
☐	L44	L43 not l10	8
☐	L43	L42.ab,ti,clm.	8
☐	L42	L41 same (usage or us$4 or utiliz$5 or load)	48
☐	L41	((lowest or small$4 or minimum) near3 frequency) same (((plural$5 or multiple) near core) or multi$1core)	116
☐	L40	L39 not l10	2
☐	L39	L38 same (((plural$5 or multiple) near core) or multi$1core)	9
☐	L38	L37 with (value or parameter)	372
☐	L37	performance near3 bias	3576
☐	L36	L35 not l10	2
☐	L35	L33 same (global)	6
☐	L34	L33 same (maximum or minimum)	38
☐	L33	L32 same (((plural$5 or multiple) near core) or multi$1core)	216
☐	L32	(performance near3 (value or parameter or indicat$1r))	146670
☐	L31	L30 not l10	34
☐	L30	L29 same (usage or utiliz$4 or load)	34
☐	L29	L28 same (((plural$5 or multiple) near core) or multi$1core)	209
☐	L28	(performance near3 (value or parameter))	136925
☐	L27	L26 same (((plural$5 or multiple) near core) or multi$1core)	4
☐	L26	user near5 select$5 near7 (power near7 performance)	320
DB=USPT; PLUR=YES; OP=ADJ			
☐	L25	(20050066206 or 2005/0066206)[urpn]	10

Petitioner Samsung Ex-1004, 0242

DB=PGPB,USPT; PLUR=YES; OP=ADJ

☐	L24	20050066206	1
☐	L23	l1 and load$4	1
☐	L22	20100169609 and (usage or us$4 or utiliz$5)	2
☐	L21	20100169609 and load$4	0
☐	L20	L19 not l10	17
☐	L19	L18.ti,ab,clm.	18
☐	L18	L17 same ((energy or power) with performance)	54
☐	L17	(((plural$5 or multiple) near core) or multi$1core) same ((one or single) near3 (value or parameter))	1056
☐	L16	(((plural$5 or multiple) near core) or multi$1core) same l4	34
☐	L15	L14 not l10	18
☐	L14	l4 with ((one or single) near3 (value or parameter))	18
☐	L13	l4 with ((minimum or small$4 or lesser) near3 (value or parameter))	4
☐	L12	(((one or single) near3 parameter) with (represent$5 or indicat$5)) same l4	1
☐	L11	L10 not l6	5
☐	L10	(((one or single) near3 value) with (represent$5 or indicat$5)) same l4	12
☐	L9	(value with (represent$5 or indicat$5)) same l4	57

DB=USPT; PLUR=YES; OP=ADJ

☐	L8	8316368[urpn]	7

DB=PGPB,USPT; PLUR=YES; OP=ADJ

☐	L7	L5 same (value or ratio or parameter)	9
☐	L6	L5 same (value or ratio)	9
☐	L5	l4 same (((plural$5 or multiple) near core) or multi$1core)	34
☐	L4	performance with power with trade$1off	2757
☐	L3	20170083076 and epb	1
☐	L2	20170083076 and efb	0
☐	L1	20170083076	1

END OF SEARCH HISTORY

Petitioner Samsung Ex-1004, 0243

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15367330	SISTLA ET AL.
	Examiner	Art Unit
	M ELAMIN	2115

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

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SEARCH NOTES		
Search Notes	Date	Examiner
WEST	12/26/2017	AE

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/367,330	12/02/2016	Krishnakanth V. Sistla	ITL.2490C3US (P38402C3)

CONFIRMATION NO. 3403

47795
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

PUBLICATION NOTICE



Title: User Level Control Of Power Management Policies

Publication No.US-2017-0083076-A1
Publication Date:03/23/2017

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 (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, 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.

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Petitioner Samsung Ex-1004, 0245

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15367330
Filing Date	2016-12-02
First Named Inventor	Krishnakanth V. Sistla
Art Unit	2116
Examiner Name	
Attorney Docket Number	ITL.2490C3US (P38402C3)

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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]

Petitioner Samsung Ex-1004, 0246

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15367330
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	2116
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

	1	State Intellectual Property Office of The People's Republic of China, Third Office Action mailed November 15, 2016 in Chinese Patent Application no. 201280061735.4.	

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Petitioner Samsung Ex-1004, 0247

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15367330
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	2116
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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None

SIGNATURE

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Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2017-01-11
Name/Print	Mark J. Rozman	Registration Number	42,117

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Petitioner Samsung Ex-1004, 0248

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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 inspections 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.

Petitioner Samsung Ex-1004, 0249

Electronic Acknowledgement Receipt

EFS ID:	28030120
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/David Hopper
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	11-JAN-2017
Filing Date:	02-DEC-2016
Time Stamp:	10:32:01
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	Information Disclosure Statement (IDS) Form (SB08)	ITL2490C3US_CN_OA3_IDS.pdf	612252 26d687f04b21c96fab573f0f5a24b9f14454eb79	no	4

Warnings:

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Other Reference-Patent/App/Search documents	NPL_CN_OA3.pdf	404979 c7c387d4ac21d0bcb4cc8d2264fdad90b661e2f3	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	1017231	

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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/367,330

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1600

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L 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 found in the appropriate box in column 1.

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
15/367,330	12/02/2016		1600	ITL.2490C3US (P38402C3)	20	3

CONFIRMATION NO. 3403

47795
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

FILING RECEIPT

OC000000087838380

Date Mailed: 12/14/2016

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**

Inventor(s)

Krishnakanth V. Sistla, Beaverton, OR;
Jeremy Shrall, Portland, OR;
Stephen H. Gunther, Beaverton, OR;
Efraim Rotem, Haifa, ISRAEL;
Alon Naveh, Ramat Hasharon, ISRAEL;
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Ian M. Steiner, Hillsboro, OR;
Matthew Bace, North Andover, MA;
Avinash N. Ananthakrishnan, Hillsboro, OR;
Jason Brandt, Austin, TX;

Applicant(s)

Intel Corporation, Santa Clara, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 14/855,553 09/16/2015
which is a CON of 13/782,473 03/01/2013 PAT 9170624
which is a CON of 13/326,586 12/15/2011 PAT 9098261

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

Petitioner Samsung Ex-1004, 0253

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 12/12/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/367,330**

Projected Publication Date: 03/23/2017

Non-Publication Request: No

Early Publication Request: No

Title

User Level Control Of Power Management Policies

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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

Petitioner Samsung Ex-1004, 0254

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 (1-866-999-4258).

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 AssetsControl, 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).

Petitioner Samsung Ex-1004, 0255

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Petitioner Samsung Ex-1004, 0256

PTO/AIA/15 (07-12)
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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.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	ITL.2490C3US (P38402C3)
First Inventor	Krishnakanth V. Sistla, et al.
Title	
Express Mail Label No.	Filed Via EFS

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form.** (PTO/SB/17 or equivalent)
2. ☐ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification.** [*Total Pages* 24] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP § 608.01(a))*
4. ☑ **Drawing(s).** (*35 U.S.C. 113*) [*Total Sheets* 8]
5. **Inventor's Oath or Declaration.** [*Total Sheets* 13] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. ☐ Newly executed (original or copy)
   b. ☑ A copy from a prior application (37 CFR 1.63(d))
6. ☑ **Application Data Sheet.** **See Note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
7. ☐ **CD-ROM or CD-R.** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission.** *(if applicable, items a. – c. are required)*
   a. ☐ Computer Readable Form (CRF)
   b. ☐ Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers.** (cover sheet & document(s))
   Name of Assignee_____
10. ☐ **37 CFR 3.73(c) Statement.** ☐ **Power of Attorney.** *(when there is an assignee)*
11. ☐ **English Translation Document.** *(if applicable)*
12. ☑ **Information Disclosure Statement.** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment.**
14. ☐ **Return Receipt Postcard.** *(MPEP § 503) (Should be specifically itemized)*
15. ☐ **Certified Copy of Priority Document(s).** *(if foreign priority is claimed)*
16. ☐ **Nonpublication Request.** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ **Other:**_____

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

18. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 47795 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	/Mark J. Rozman/	Date	2016-12-02
Name (Print/Type)	Mark J. Rozman	Registration No. (Attorney/Agent)	42,117

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 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.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

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

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

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

PTO/SB/17 (03-13)
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FEE TRANSMITTAL

Complete if known	
Application Number	
Filing Date	2016-12-02
First Named Inventor	Krishnakanth V. Sistla, et al.
Examiner Name	
Art Unit	
Practitioner Docket No.	ITL.2490C3US (P38402C3)

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

TOTAL AMOUNT OF PAYMENT ($) 1600.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 50-4238 Deposit Account Name: Intel Corporation

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayment of fee(s)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

	FILING FEES			SEARCH FEES			EXAMINATION FEES			
Application Type	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**Fees Paid ($)**
Utility	280	140*	70	600	300	150	720	360	180	1600.00
Design	180	90	45	120	60	30	460	230	115	
Plant	180	90	45	380	190	95	580	290	145	
Reissue	280	140	70	600	300	150	2,160	1,080	540	
Provisional	260	130	65	0	0	0	0	0	0	

* The $140 small entity status filing fee for a utility application is further reduced to $70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	**Undiscounted Fee ($)**	**Small Entity Fee ($)**	**Micro Entity Fee ($)**
Each claim over 20 (including Reissues)	80	40	20
Each independent claim over 3 (including Reissues)	420	210	105
Multiple dependent claims	780	390	195

Total Claims		**Extra Claims**	**Fee ($)**		**Fee Paid ($)**
20	-20 or HP =	_____	x _____	=	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims		**Extra Claims**	**Fee ($)**		**Fee Paid ($)**
3	-3 or HP =	_____	x _____	=	_____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	**Fee ($)**	**Fee Paid ($)**
	_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $400 ($200 for small entity) ($100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		**Extra Sheets**		**Number of each additional 50 or fraction thereof**		**Fee ($)**		**Fee Paid ($)**
_____	- 100 =	_____	/ 50 =	_____ (round **up** to a whole number)	x	_____	=	_____

4. OTHER FEE(S) **Fees Paid ($)**

Non-English specification, $130 fee (no small or micro entity discount) _____

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, $400 fee ($200 small or micro entity) _____

Other (e.g., late filing surcharge): _____ _____

SUBMITTED BY

Signature	/Mark J. Rozman/	Registration No. (Attorney/Agent) 42117	Telephone 512-418-9944
Name (Print/Type)	Mark J. Rozman		Date 2016-12-02

This collection of information is required by 37 CFR 1.136. 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 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Krishnakanth	V.	Sistla	

Residence Information (Select One) ● US Residency Non US Residency Active US Military Service

City	Beaverton	State/Province	OR	Country of Residence	US

Mailing Address of Inventor:

Address 1	6000 SW Fountain Grove Terrace		
Address 2			
City	Beaverton	State/Province	OR
Postal Code	97007	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeremy		Shrall	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

City	Portland	State/Province	OR	Country of Residence	US

Mailing Address of Inventor:

Address 1	6373 SE Yamhill Street		
Address 2			
City	Portland	State/Province	OR
Postal Code	97215	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Stephen	H.	Gunther	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

Petitioner Samsung Ex-1004, 0261

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

City	Beaverton	State/Province	OR	Country of Residence [i]	US

Mailing Address of Inventor:

Address 1	9160 SW 175th Avenue
Address 2	

City	Beaverton	State/Province	OR
Postal Code	97007	Country [i]	US

Inventor 4 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Efraim		Rotem	

Residence Information (Select One) ○ US Residency ● Non US Residency Active US Military Service

City	Haifa	Country of Residence [i]	IL

Mailing Address of Inventor:

Address 1	8 Vizo Street
Address 2	

City	Haifa	State/Province	
Postal Code	34400	Country [i]	IL

Inventor 5 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Alon		Naveh	

Residence Information (Select One) ○ US Residency ◉ Non US Residency Active US Military Service

City	Ramat Hasharon	Country of Residence [i]	IL

Mailing Address of Inventor:

Address 1	97 Usishkin Street
Address 2	

City	Ramat Hasharon	State/Province	
Postal Code	47204	Country [i]	IL

Inventor 6 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Eliezer		Weissmann	

Petitioner Samsung Ex-1004, 0262

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Residence Information (Select One) ○ US Residency ◉ Non US Residency Active US Military Service

City	Haifa	Country of Residence [i]	IL

Mailing Address of Inventor:

Address 1	Albert Switcher 10		
Address 2			
City	Haifa	State/Province	
Postal Code	34995	Country [i]	IL

Inventor 7 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Anil		Aggarwal	

Residence Information (Select One) ◉ US Residency ○ Non US Residency Active US Military Service

City	Portland	State/Province	OR	Country of Residence [i]	US

Mailing Address of Inventor:

Address 1	12665 NW Majestic Sequoia Way		
Address 2			
City	Portland	State/Province	OR
Postal Code	97229	Country [i]	US

Inventor 8 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Martin	T.	Rowland	

Residence Information (Select One) ◉ US Residency ○ Non US Residency Active US Military Service

City	Beaverton	State/Province	OR	Country of Residence [i]	US

Mailing Address of Inventor:

Address 1	6570 SW Ecola Place		
Address 2			
City	Beaverton	State/Province	OR
Postal Code	97007	Country [i]	US

Inventor 9 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Ankush		Varma	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Residence Information (Select One) (•) US Residency ( ) Non US Residency Active US Military Service

City	Hillsboro	State/Province	OR	Country of Residence	US

Mailing Address of Inventor:

Address 1	179 SE 49th Court		
Address 2			
City	Hillsboro	State/Province	OR
Postal Code	97123	Country	US

Inventor 10 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Ian	M.	Steiner	

Residence Information (Select One) (•) US Residency ( ) Non US Residency Active US Military Service

City	Hillsboro	State/Province	OR	Country of Residence	US

Mailing Address of Inventor:

Address 1	1074 NE Creeksedge Drive		
Address 2			
City	Hillsboro	State/Province	OR
Postal Code	97124	Country	US

Inventor 11 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Matthew		Bace	

Residence Information (Select One) (•) US Residency ( ) Non US Residency Active US Military Service

City	North Andover	State/Province	MA	Country of Residence	US

Mailing Address of Inventor:

Address 1	505 Pleasant Street		
Address 2			
City	North Andover	State/Province	MA
Postal Code	01845	Country	US

Inventor 12 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Avinash	N.	Ananthakrishnan	

Residence Information (Select One) (•) US Residency ( ) Non US Residency Active US Military Service

Petitioner Samsung Ex-1004, 0264

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

City	Hillsboro	State/Province	OR	Country of Residence	US

Mailing Address of Inventor:

Address 1	2900 NW Adagio Way		
Address 2			
City	Hillsboro	State/Province	OR
Postal Code	97124	Country	US

Inventor 13 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason		Brandt	

Residence Information (Select One) (•) US Residency ( ) Non US Residency Active US Military Service

City	Austin	State/Province	TX	Country of Residence	US

Mailing Address of Inventor:

Address 1	1713B Summit View Place		
Address 2			
City	Austin	State/Province	TX
Postal Code	78703	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	47795		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	User Level Control Of Power Management Policies		
Attorney Docket Number	ITL.2490C3US (P38402C3)	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Petitioner Samsung Ex-1004, 0265

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	47795		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14855553	2015-09-16

Petitioner Samsung Ex-1004, 0266

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14855553	Continuation of	13782473	2013-03-01	9170624	2015-10-27
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13782473	Continuation of	13326586	2011-12-15	9098261	2015-08-04

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Petitioner Samsung Ex-1004, 0267

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Petitioner Samsung Ex-1004, 0268

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Intel Corporation		
Mailing Address Information For Applicant:			
Address 1	2200 Mission College Boulevard		
Address 2			
City	Santa Clara	**State/Province**	CA
Country	US	Postal Code	95054
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Petitioner Samsung Ex-1004, 0269

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Mark J. Rozman/			Date (YYYY-MM-DD)	2016-12-02
First Name	Mark	Last Name	Rozman	Registration Number	42117

Additional Signature may be generated within this form by selecting the Add button. Add

Petitioner Samsung Ex-1004, 0270

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL.2490C3US (P38402C3)
	Application Number	
Title of Invention	User Level Control Of Power Management Policies	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

Petitioner Samsung Ex-1004, 0271

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Abstract of the Disclosure

In one embodiment, the present invention includes a processor having a core and a power controller to control power management features of the processor. The power controller can receive an energy performance bias (EPB) value from the core and access a power-performance tuning table based on the value. Using information from the table, at least one setting of a power management feature can be updated. Other embodiments are described and claimed.

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What is claimed is:

1. A processor comprising:

a plurality of cores;

a cache memory;

an interconnect to couple the plurality of cores and the cache memory; and

a power controller to control a plurality of power management features of the processor, wherein the power controller is to receive a workload configuration input regarding a workload, receive a plurality of energy performance bias (EPB) values and determine a global EPB value based thereon, and update at least one setting of at least one of the plurality of power management features based on the workload configuration input and the global EPB value.

2. The processor of claim 1, wherein the power controller is to access a power-performance tuning table based on the workload configuration input and the global EPB value, and use information from the power-performance tuning table to update the at least one setting.

3. The processor of claim 2, wherein the power controller includes a tuning circuit to update the at least one setting of the at least one power management feature responsive to the global EPB value.

4. The processor of claim 3, wherein the tuning circuit includes a sampler to receive the plurality of EPB values from at least some of the plurality of cores and a combiner to generate the global EPB value from the EPB value from the plurality of cores.

5. The processor of claim 4, wherein the sampler is to receive the EPB value from a plurality of threads to execute on the at least some of the plurality of cores.

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6. The processor of claim 4, wherein the power controller is to generate a bin value from the global EPB value and to access the power-performance tuning table using the bin value.

7. The processor of claim 3, wherein the tuning circuit is to update at least one setting of a first power management feature controlled by the power controller, and send a message to an interconnect that couples the processor to a second component of a system to update at least one setting of a second power management feature controlled by the interconnect.

8. The processor of claim 2, wherein the power-performance tuning table includes a plurality of entries each having a plurality of fields each associated with a range of the EPB value and including a setting for a power management feature.

9. The processor of claim 1, wherein the processor is to receive at least one EPB value from a baseboard management controller.

10. The processor of claim 1, wherein the workload configuration input comprises information regarding a workload pattern comprising at least one of a non-uniform memory architecture, a uniform memory architecture, and an input/output intensive workload.

11. The processor of claim 1, further comprising a user interface to receive at least one EPB value from a user.

12. The processor of claim 11, wherein the at least one EPB value is to be provided based at least in part on a time of day policy.

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13. A machine-readable medium having stored thereon instructions, which if performed by a machine cause the machine to perform a method comprising:

receiving an energy performance bias (EPB) value in power control logic of a processor from a plurality of threads executing on the processor and determining a global EPB value based at least in part on the EPB value received from the plurality of threads, the EPB value to indicate a preference of a user for a tradeoff between power optimization and performance optimization;

accessing a table based on the global EPB value; and

updating at least one setting of a power management feature controlled by the power control logic based on information obtained from the table.

14. The machine-readable medium of claim 13, wherein the method further comprises selecting a bin of a plurality of bins, each associated with a power-performance profile using the global EPB value.

15. The machine-readable medium of claim 13, wherein the method further comprises providing an interface to enable a user, an operating system or a baseboard management controller to set the EPB value, and controlling a plurality of power management features via input of the EPB value.

16. The machine-readable medium of claim 13, wherein the method further comprises receiving the EPB value with a first value for a first portion of a day and with a second value for a second portion of the day, wherein the first value is to configure a system for first performance during the first portion of the day corresponding to peak user hours, and the second value to configure the system for higher power savings during the second portion of the day corresponding to non-peak user hours.

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17. A system comprising:

a multicore processor including a plurality of cores, at least one cache memory and a memory controller;

a tuning circuit to dynamically select a balance between power consumption and performance based on an energy performance bias (EPB) value, wherein the tuning circuit is to access an entry of a tuning table based at least in part on the EPB value and a workload configuration value and update a setting for a power management feature responsive to a value stored in a field of the entry, wherein the workload configuration value is to indicate a predominant workload type to be executed on the system, the tuning table including a first set of entries associated with a first workload type and a second set of entries associated with a second workload type; and

a system memory coupled to the processor via a memory interconnect.

18. The system of claim 17, wherein tuning circuit is to update at least one setting of a first power management feature controlled by a power control logic of the multicore processor, the at least one setting obtained from a field of an entry of the tuning table associated with a bin in which the EPB value is included.

19. The system of claim 18, wherein multicore processor comprises the tuning circuit.

20. The system of claim 17, wherein the multicore processor comprises a power control logic, the power control logic comprising the tuning circuit, wherein the tuning circuit is to generate a bin value from the EPB value and access the tuning table using the bin value.

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APPLICATION

FOR

UNITED STATES LETTERS PATENT

TITLE: **USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES**

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USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES

Background

[0001] This application is a continuation of United States Patent Application Serial No. 14/855,553, filed September 16, 2015, which is a continuation of U.S. Patent Application Serial No. 13/782,473, filed March 1, 2013, now U.S. Patent No. 9,170,624, issued October 27, 2015, which is a continuation of U.S. Patent Application Serial No. 13/326,586, filed December 15, 2011, now U.S. Patent No. 9,098,261, issued August 4, 2015, the content of which is hereby incorporated by reference.

Background

[0002] Advances in semiconductor processing and logic design have permitted an increase in the amount of logic that may be present on integrated circuit devices. As a result, computer system configurations have evolved from a single or multiple integrated circuits in a system to multiple hardware threads, multiple cores, multiple devices, and/or complete systems on individual integrated circuits. Additionally, as the density of integrated circuits has grown, the power requirements for computing systems (from embedded systems to servers) have also escalated. Furthermore, software inefficiencies, and its requirements of hardware, have also caused an increase in computing device energy consumption. In fact, some studies indicate that computing devices consume a sizeable percentage of the entire electricity supply for a country, such as the United States of America. As a result, there is a vital need for energy efficiency and conservation associated with integrated circuits. These needs will increase as servers, desktop computers, notebooks, ultrabooks, tablets, mobile phones, processors, embedded systems, etc. become even more prevalent (from inclusion in the typical computer, automobiles, and televisions to biotechnology).

[0003] In many computing environments, it is an established fact that for much of the time, computing systems such as servers are operating well below their peak performance level.

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During these periods of low utilization the focus is on saving as much power as possible in order to reduce the energy costs. Power management technologies can deliver significant power savings during periods of low utilization. However any power management technology involves a power/performance tradeoff.

[0004] Due to increasing integration, many processors can include power management technologies which can control up 2/3 rds of total platform power. In many cases these technologies are controlled by a power control unit (PCU) in the processor. Each power management feature is specifically tuned in design to achieve an optimal power/performance tradeoff. At the time of tuning, there is little knowledge of the actual workload and usage pattern for the system in the field. Given this lack of knowledge, the tuning process is conservative and is necessarily biased towards losing as little performance as possible. This approach prevents significant power savings for an end user who is willing to tolerate more performance loss in return for power savings.

[0005] Thus typically power management features are statically tuned to tolerate very little performance loss. This results in several negative downsides. First, at low utilizations where an end user can tolerate high performance loss, available power savings are not realized. Second, an end user typically has no choice regarding power/performance tradeoffs, other than default profiles provided by an operating system (OS). Given the complexity involved in tuning power management features, end users rarely venture into tuning individual features for their target usage, and thus the potential benefit of the features are often not realized.

Brief Description of the Drawings

[0006] FIG. 1 is a block diagram of an architecture of a tuning circuit for a tunable power performance loadline technique in accordance with one embodiment of the present invention.

[0007] FIG. 2 is a block diagram of a tuning table in accordance with an embodiment of the present invention.

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[0008] FIG. 3 is a flow diagram of a method in accordance with an embodiment of the present invention.

[0009] FIG. 4 is a block diagram of a processor in accordance with an embodiment of the present invention.

[0010] FIG. 5 is a block diagram of a multi-domain processor in accordance with another embodiment of the present invention.

[0011] FIG. 6 is a block diagram of a system in accordance with an embodiment of the present invention.

[0012] FIG. 7 is a block diagram of a multiprocessor system with a point-to-point (PtP) interconnect in accordance with one embodiment of the present invention.

[0013] FIG. 8 is a block diagram of a partially connected quad processor system in accordance with one embodiment of the present invention.

Detailed Description

[0014] Embodiments provide a so-called energy performance bias (EPB) as an architectural feature. Control of this parameter allows for a simple high level input from an end user to indicate a power/performance tradeoff preference from the end user. This input can be used to provide multiple tuning levels with different points of power and performance tradeoff. By associating this energy performance bias with direct user input, embodiments enable the end user to directly control power/performance tradeoff in a simple manner. As used herein the terms "end user" or "user" are comprehended to include computer users of varying degrees, including technical and non-technical users, information technology (IT) personnel, data center personnel and so forth.

[0015] Thus instead of providing complete tuning flexibility for each power management technology and allowing an end user to tune each feature, a single input can be provided by the user to control these different features. The EPB value may thus correspond to a single input

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value to control a plurality of power management features. Furthermore, understand that the provision of the EPB value can be from a variety of external entities including but not limited to an operating system (OS), a basic input/output system (BIOS), an external embedded controller of a platform such as a baseboard management controller (BMC), a data center central management software and communicated via a network and a node manager device or so forth to a platform, among others, automatically or via a user. And in some embodiments, the end user may be prevented from such individual control. As such, the inherent difficulty in exposing all of a large number of power management features to the end user can be avoided, particularly as most end users have little or no knowledge as to how to tune such individual features. In practice, 90% of server users never change the default power management configuration for the server, and a very similar dilemma exists in client usage models as well.

[0016] Table 1 below shows a list of power management features available in different processor models and which can be controlled globally using one or more EPB inputs in accordance with an embodiment of the present invention. It can be seen from Table 1 that the number features is disparate and large. This list continues to grow with each generation of processor. As seen, power management features can be performed within a processor itself, a memory or memory interconnect, or other interconnect structures. Embodiments can provide for global control of a plurality of power management features of a processor including, in some embodiments, those shown in Table 1. However, understand that this listing is exemplary only, and other power management features can be controlled using an EPB value in accordance with an embodiment of the present invention.

Table 1

Index	Platform Area	Processor 1	Processor 2	Processor 3
1	CPU	Turbo	Turbo	Turbo
2	CPU	C-State Demotion	C-State Demotion	C-State Demotion
3	Memory	CKE	CKE	CKE

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4	CPU	QPI Los	Not Supported	QPI LOs
5	CPU	Not Supported	Turbo Demotion	Turbo Demotion
6	CPU	Not Supported	C-State Undemotion	C-State Undemotion
7	CPU	Not Supported	Not Supported	Turbo Upside Control
8	CPU	Not Supported	Energy Efficient Turbo	Not Supported
9	Memory	Not Supported	Not Supported	CKE Slow
10	Memory	Not Supported	Not Supported	Opportunistic Self Refresh
11	CPU	Not Supported	Not Supported	QPI LOP
11	CPU/PCI	Not Supported	PCIE LOs	PCIE LOs

[0017] A power/performance loadline is a well accepted representation of power consumption of a system at different utilizations. This loadline represents the power consumed at each delivered performance level and takes into account the performance impact of a power management feature. Via an energy performance bias setting in accordance with an embodiment of the present invention, tuning of a power performance loadline can be realized. This setting or slider thus allows an end user to choose a range of choices between performance-oriented tuning settings and power saving-oriented tuning settings. Each EPB value can be mapped to a corresponding level of tradeoff between power and performance.

[0018] Although the following embodiments are described with reference to energy conservation and energy efficiency in specific integrated circuits, such as in computing platforms or processors, other embodiments are applicable to other types of integrated circuits and logic devices. Similar techniques and teachings of embodiments described herein may be applied to other types of circuits or semiconductor devices that may also benefit from better energy efficiency and energy conservation. For example, the disclosed embodiments are not limited to any particular type of computer systems, and may be also used in other devices, such as handheld devices, systems on chip (SoCs), and embedded applications. Some examples of

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handheld devices include cellular phones, Internet protocol devices, digital cameras, personal digital assistants (PDAs), and handheld PCs. Embedded applications typically include a microcontroller, a digital signal processor (DSP), network computers (NetPC), set-top boxes, network hubs, wide area network (WAN) switches, or any other system that can perform the functions and operations taught below. Moreover, the apparatus', methods, and systems described herein are not limited to physical computing devices, but may also relate to software optimizations for energy conservation and efficiency. As will become readily apparent in the description below, the embodiments of methods, apparatus', and systems described herein (whether in reference to hardware, firmware, software, or a combination thereof) are vital to a 'green technology' future, such as for power conservation and energy efficiency in products that encompass a large portion of the US economy.

[0019] Referring now to FIG. 1, shown is a block diagram of an architecture of a tuning circuit for a tunable power performance loadline technique in accordance with an embodiment of the present invention. In the embodiment of FIG. 1, each logical thread can provide an input, namely an energy performance bias value, referred to herein as an EPB value. Note that this logical thread can correspond to a logical processor or other execution entity. The policy choice between performance and power can be provided per logical thread via a register or other storage, e.g., a 4-bit input register. In this example, 16 levels of power and performance tradeoff can be realized, in such an embodiment. According to one convention, a value of zero represents a very low (or even zero) tolerance for performance loss while saving power. On the other hand a value of 15 represents a high tolerance for performance loss and saving as much power as possible. Note that this EPB input can be provided by an operating system (OS) or by system basic input/output system (BIOS), or even by a user level application directly or indirectly.

[0020] In one usage model, where an operating system supports multiple power/performance profiles, the OS configures the energy performance bias register to an

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appropriate value based the power/performance profile chosen by an administrator which is one example of an end user. To this end, embodiments may provide a user interface to request and receive user selection of a given EPB value. This user interface functionality can be accommodated within BIOS or an OS or other custom system level software. In an advanced usage model, a data center administrator or other information technology personnel can provide the input based on time of day policies. For example, during times of peak usage, the administrator can choose to configure a value of 0 while during non-peak hours the administrator can choose to configure the server to a value of 15 to save as much power as possible.

[0021] In another usage model for advanced application level control that supports the option for application monitoring of the level of performance that the application expects to receive under a level of service agreement, the application may tune through an OS service the level of performance loss that is acceptable by the application under its current level of operation.

[0022] As seen in FIG. 1, a power management tuning circuit 100 can be used to receive incoming EPB values from multiple cores of a multicore processor and use these values to determine an appropriate tradeoff between power and performance policies and provide settings to the agents responsible for controlling various power management features of a system including the processor. In one embodiment, circuit 100 can be implemented in logic of a power control unit (PCU) of a processor, although embodiments can be implemented in other hardware or software. As seen, circuit 100 includes a sampler 110 that can receive incoming EPB values from the various cores. Note that these values received can be from logical threads, in one embodiment, which provide a value based on its programming. Although described in the embodiment of FIG. 1 as being received from cores, in various embodiments, EPB values can be per core's thread, per core or per package that includes a number of cores, or other granularity. By these multiple inputs, thread specific optimizations can be made based on a

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workload being executed. Received EPB values can be stored in temporary storage, e.g., registers within EPB sampler 110 at a sampling point, which may be according to a given interval. In one embodiment, the EPB inputs can be sampled at a predetermined interval, e.g., once every 1 millisecond (ms). The samples obtained from the various cores can be provided to an EPB combiner 120 that can generate a single value from these multiple values. For power management optimizations that are not thread specific (for example, of a memory controller, interconnect, memory or so forth), a mechanism can be provided to resolve the inputs from the multiple threads. In one embodiment, this resolution can be via a policy of favoring performance. To this end, a min function can be performed on all thread's inputs and the resulting value represents the most performance favoring EPB input. This value can then be used to determine the processor power/performance policy level. However, understand the scope of the present invention is not limited in this way. As an example instead of a minimum function, an averaging between the individual thread values can be performed. Another example is to make the minimum function per control power domain that may hold several sets of cores or threads.

[0023] Still referring to FIG. 1, the single value corresponding to, e.g., the minimum value of the EPB value, can be provided to a bin generator 130. Note that in various embodiments this bin generator may be optional to provide for finer-grained control. That is, bin generator 130 may generalize the tuning by taking the received EPB value and placing it into one of multiple bins that correspond to multiple coarser-grained levels of control such that the EPB value thus determined can be bucketed into an internal value. As described above, with a 4-bit EPB value, 16 levels can be provided. However, some systems may not be sufficiently complex with regard to the number of power management features, and thus the determined EPB value can be corresponded to one of N bins less than 16 individual levels. In one embodiment, to simplify and minimize the amount of tuning for a processor, the EPB value can be allocated to one of N buckets or bins. N can equal four, in one embodiment. In this

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example, each bucket represents a continuous range that is 1/4th of total power management range. These buckets may directly map to power/performance profiles supported by certain operating systems. Table 2 shows the tuning criterion for four buckets in accordance with one embodiment of the present invention. However, understand that different tuning criteria can be used in other embodiments.

Table 2

Resolved EPB Input Range	Power Profile	Power Management Feature Tuning Target
0-3	Performance	Tolerate up to 0.1% performance loss
4-7	Balanced Performance	Tolerate up to 2% performance loss. Power saving should be at least 2x performance loss.
8-11	Balanced Power	Tolerate up to 5% performance loss. Power saving should be at least 1x performance loss.
12-15	Power Saver	Tolerate >5% performance loss. Save as much power as possible.

[0024] Still referring to FIG. 1, the bin value thus determined can be provided to a change detector 140 that can determine whether the value of the bin has changed since the last analysis interval. If not, no further operation of circuit 100 may be performed for that analysis interval. If instead the value has changed, this new value can be used to access a power/performance table 150. In various embodiments, this table can be stored in a processor, e.g., in non-volatile storage of the PCU. The table can be pre-tuned to provide user transparent tuning settings that correspond to a selected power/performance profile. In general, table 150 can include one or more entries for each power management feature. Each entry can further include a plurality of fields, each associated with one of the buckets (or indicated EPB values) to store a parameter for use in that feature or setting of a feature. These parameters may be

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values used for a certain power management feature, or can be an address to code that is executed for a given setting.

[0025] Referring now to FIG. 2, shown is a block diagram of a tuning table in accordance with an embodiment of the present invention. As shown in FIG. 2, table 150 includes multiple entries 151_0-151_n. As seen, each of these entries can be associated with a given power management feature setting. Some features may have more than one setting associated with them. For other power management features, only an entry for a single setting is provided.

[0026] As further seen in table 150, each entry includes a plurality of fields. In the embodiment shown in FIG. 2, fields 152, 154, 156 and 158 are provided. Each field is associated with a given one of the multiple bins as discussed above, namely a given policy. In other embodiments, each field can be associated with a given EPB value. Thus for each power management feature setting, every bin can have a value in its corresponding field. In specific implementations, each field may include a value that can be used to control enablement of a power management feature, provide a configuration register value or so forth. For some features and settings, it is possible that multiple bins may have the same value, however the scope of the present invention is not limited in this aspect.

[0027] Based on the bin value, a respective column of the table can be accessed and all of the fields of the accessed column can be read out, e.g., as a single vector read or iteratively via a field of an entry per cycle. As will be discussed below, these values output from the table can be provided to a change detector 160. Although shown at this high level in the embodiment of FIG. 3, understand the scope of the present invention is not limited in this regard.

[0028] In some embodiments, in addition to the EPB input, a workload configuration input can be provided. To this end, the table can have 3 dimensions such that based on the workload configuration input, a different set of entries for the defined power management features can be accessed, as different values may be present in the table for different workload configurations. By this workload configuration input a vertical user having an understanding

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and control of the exact workloads running on their systems can benefit from well-tuned settings. As examples, a user can configure a workload input as non-uniform memory architecture (NUMA), uniform memory architecture (UMA), input/output (I/O) intensive, etc. This input allows for choosing tuning settings that favor a specific workload pattern. For example, if the workload is NUMA, aggressive settings can be applied to off-chip interconnects such as Intel® Quick Path Interconnect (QPI) links to save as much power possible while causing very little performance impact, as off-chip accesses can be expected to be low. Thus for embodiments in which a workload configuration input is provided, it can be used as an additional input to access the table.

[0029] Once a new set of configurations is determined from access to the tuning table, the target features can be updated. There are two classes of configurations. For features like a power C-state auto demotion and turbo upside clipping, the configurations can be internal to power management code, such as present in firmware of the PCU. In this case the update can be effected by loading new values into an internal feature specific data structure such as one or more configuration registers. In a second class of configuration, the configuration value is specific to an entity that resides outside the PCU. For example, a clock related configuration can be implemented in the memory controller. In this case, the PCU can initiate a series of writes to target configuration space to update the settings. In order to minimize the number of writes, each configuration value can be compared to the previous value and a write is issued only if the actual configuration value changes.

[0030] Accordingly, with further reference back to FIG. 1 the identified field of the multiple entries of table 150 can be output to a change detector 160 to determine whether the values have changed from the previous output. Note that for certain power management features, settings may not change when a bin changes level. Thus change detector 160 acts as a filter to filter from sending messages for updates when in fact no update is needed. If a change in fact has occurred, it may be sent from change detector 160 to the indicated destination. As

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described, many power management features can be controlled using the PCU, and accordingly updated settings can be sent to a PCU updater 170 which thus may update the settings, e.g., by updating values in configuration registers, other storages, enabling or disabling certain power management features, changing variables used with regard to duration of power management features or so forth.

[0031] If instead the power management feature is for a non-PCU controlled feature, update messages can be sent to the destination, e.g., via one or more write messages including the information. Although shown with this particular implementation in the embodiment of FIG. 1, understand the scope of the present invention is not limited in this regard.

[0032] Referring now to FIG. 3, shown is a flow diagram of a method in accordance with an embodiment of the present invention. As seen, method 200 can be performed, e.g., using policy management logic of a PCU or other power controller. Method 200 begins by receiving an energy performance bias value from multiple threads (block 210). As discussed above, these threads can be logical threads or equivalently the EPB values can be received from the cores themselves. Next, a global EPB value can be determined from the received EPB values (block 220). For example, a min function can be performed or an average obtained from these multiple values. Then, this global EPB value can be placed into a bin of multiple performance level bins (block 230). Such binning provides a smoothing function, although it may not be present in some implementations where very fine-grained control of power and performance tradeoffs is desired.

[0033] Still referring to FIG. 3, control next passes to diamond 240 where it can be determined whether a bin change has occurred since the last evaluation interval. If not, method 200 concludes for that given evaluation interval which can be, e.g., on the order of approximately 1 ms.

[0034] If instead a bin change has occurred, control passes to block 250 where a power-performance table can be accessed based on the bin. This table access thus can be used to read

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out for the given bin, and for each of multiple power management features, one or more settings or other values used to control the power management feature. This reading and the updating process can be performed iteratively for each feature. Thus it can be determined whether an additional power management features present in the table (diamond 255). If not, method 200 terminates for that evaluation interval. If another feature is present, it can be determined whether a change in the feature settings has occurred since the last read out from the table (diamond 260). If not control passes back to diamond 255. If instead a feature change has occurred, control passes to diamond 270 where it can be determined whether the feature is a PCU-controlled feature. If so, one or more settings for the feature can be updated in the PCU (block 290). Such updating can be via configuration register updates or so forth. Otherwise if the updates are for a power management feature controlled by an external agent, control passes to block 280 where one or more messages, e.g., write messages can be sent to the destination agent to update the settings accordingly. For example, writes can be issued to target using a given message channel (e.g., QPI, integrated memory controller, a Peripheral Component Interconnect Express (PCI Express™ (PCIe™)) link or so forth). Although shown with this particular implementation in the embodiment of FIG. 3, understand the scope of the present invention is not limited in this regard.

[0035] In one embodiment, a tuning methodology for generating to power-performance table may include the following. First, each individual power management feature is tuned separately while the other features are turned off. This tuning includes generating a power/performance profile across a range of workloads for each feature. As an example various benchmark workloads can be executed to generate the profile. Second, multiple features can be enabled to a profile whether the power/performance tradeoff met the tuning goals for overall power/performance profile. Then individual feature tunings can be adjusted to meet overall power/performance profile goals. The above steps can be repeated until overall goals are reached.

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[0036] By default the operating system may populate the EPB input with a profile chosen by the end user. This tuning can be achieved via an iterative process in which different EPB values are input and workloads run with each setting. As the EPB input is tuned towards power savings, a user may notice a continuous degradation of response time (performance). Once a desired response time is met, the EPB value may correspond to a desired maximum power savings for the user's specific usage. This in essence is the goal of the tunable power performance loadline, as each end user can tune the power/performance loadline to his specific usage.

[0037] Embodiments can be implemented in processors for various markets including server processors, desktop processors, mobile processors, and so forth. Referring now to FIG. 4, shown is a block diagram of a processor in accordance with an embodiment of the present invention. As shown in FIG. 4, processor 300 may be a multicore processor including a plurality of cores $310_a - 310_n$. In one embodiment, each such core may be of an independent power domain and can be configured to operate at an independent voltage and/or frequency, and to enter turbo mode when available headroom exists. The various cores may be coupled via an interconnect 315 to a system agent or uncore 320 that includes various components. As seen, the uncore 320 may include a shared cache 330 which may be a last level cache. In addition, the uncore may include an integrated memory controller 340, various interfaces 350 and a power control unit 355.

[0038] In various embodiments, power control unit 355 may include a policy tuning logic 359, which may be a logic to perform dynamic control of power management settings based on an input EPB value. As further seen, a tuning table 357 can be present to store power management feature settings. This tuning table generated, e.g., during design of the processor, based on benchmark workload testing on the processor may be used to determine appropriate settings for the different power management policies that map to EPB values or bins.

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[0039] With further reference to FIG. 4, processor 300 may communicate with a system memory 360, e.g., via a memory bus. In addition, by interfaces 350, connection can be made to various off-chip components such as peripheral devices, mass storage and so forth. While shown with this particular implementation in the embodiment of FIG. 4, the scope of the present invention is not limited in this regard.

[0040] Referring now to FIG. 5, shown is a block diagram of a multi-domain processor in accordance with another embodiment of the present invention. As shown in the embodiment of FIG. 5, processor 400 includes multiple domains. Specifically, a core domain 410 can include a plurality of cores 410_0–410n, a graphics domain 420 can include one or more graphics engines, and a system agent domain 450 may further be present. In various embodiments, system agent domain 450 may execute at a fixed frequency and may remain powered on at all times to handle power control events and power management such that domains 410 and 420 can be controlled to dynamically enter into and exit low power states. Each of domains 410 and 420 may operate at different voltage and/or power. Note that while only shown with three domains, understand the scope of the present invention is not limited in this regard and additional domains can be present in other embodiments. For example, multiple core domains may be present each including at least one core.

[0041] In general, each core 410 may further include low level caches in addition to various execution units and additional processing elements. In turn, the various cores may be coupled to each other and to a shared cache memory formed of a plurality of units of a last level cache (LLC) 440_0 – 440_n. In various embodiments, LLC 440 may be shared amongst the cores and the graphics engine, as well as various media processing circuitry. As seen, a ring interconnect 430 thus couples the cores together, and provides interconnection between the cores, graphics domain 420 and system agent circuitry 450. In one embodiment, interconnect 430 can be part of the core domain. However in other embodiments the ring interconnect can be of its own domain.

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[0042] As further seen, system agent domain 450 may include a display controller 452 which may provide control of and an interface to an associated display. As further seen, system agent domain 450 may include a power control unit 455 which can include a policy tuning logic 459 in accordance with an embodiment of the present invention to dynamically control power management settings obtained from a tuning table 457 based on one or more EPB values. In various embodiments, this logic may execute the algorithm described above in FIG. 3.

[0043] As further seen in FIG. 5, processor 400 can further include an integrated memory controller (IMC) 470 that can provide for an interface to a system memory, such as a dynamic random access memory (DRAM). Multiple interfaces 480_0 – 480_n may be present to enable interconnection between the processor and other circuitry. For example, in one embodiment at least one direct media interface (DMI) interface may be provided as well as one or more Peripheral Component Interconnect Express (PCI Express™ (PCIe™)) interfaces. Still further, to provide for communications between other agents such as additional processors or other circuitry, one or more interfaces in accordance with a Intel® Quick Path Interconnect (QPI) protocol may also be provided. Although shown at this high level in the embodiment of FIG. 5, understand the scope of the present invention is not limited in this regard.

[0044] Embodiments may be implemented in many different system types. Referring now to FIG. 6, shown is a block diagram of a system in accordance with an embodiment of the present invention. As shown in FIG. 6, multiprocessor system 500 is a point-to-point interconnect system, and includes a first processor 570 and a second processor 580 coupled via a point-to-point interconnect 550. As shown in FIG. 6, each of processors 570 and 580 may be multicore processors, including first and second processor cores (i.e., processor cores 574a and 574b and processor cores 584a and 584b), although potentially many more cores may be present in the processors. Each of the processors can include a PCU or other logic to perform dynamic control of power management settings based on a resolved power management policy, as described herein.

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[0045] Still referring to FIG. 6, first processor 570 further includes a memory controller hub (MCH) 572 and point-to-point (P-P) interfaces 576 and 578. Similarly, second processor 580 includes a MCH 582 and P-P interfaces 586 and 588. As shown in FIG. 6, MCH's 572 and 582 couple the processors to respective memories, namely a memory 532 and a memory 534, which may be portions of system memory (e.g., DRAM) locally attached to the respective processors. First processor 570 and second processor 580 may be coupled to a chipset 590 via P-P interconnects 552 and 554, respectively. As shown in FIG. 6, chipset 590 includes P-P interfaces 594 and 598.

[0046] Furthermore, chipset 590 includes an interface 592 to couple chipset 590 with a high performance graphics engine 538, by a P-P interconnect 539. In turn, chipset 590 may be coupled to a first bus 516 via an interface 596. As shown in FIG. 6, various input/output (I/O) devices 514 may be coupled to first bus 516, along with a bus bridge 518 which couples first bus 516 to a second bus 520. Various devices may be coupled to second bus 520 including, for example, a keyboard/mouse 522, communication devices 526 and a data storage unit 528 such as a disk drive or other mass storage device which may include code 530, in one embodiment. Further, an audio I/O 524 may be coupled to second bus 520. Embodiments can be incorporated into other types of systems including mobile devices such as a smart cellular telephone, tablet computer, netbook, ultrabook, or so forth.

[0047] FIG. 7 is a block diagram of a system 600 coupled with point-to-point (PtP) system interconnects in accordance with a given cache coherence protocol using QPI links as the system interconnect. In the embodiment shown, each processor 610 is coupled to two PtP links 625 and includes one instance of an integrated memory controller 615 that in turn is coupled to a corresponding local portion of a system memory 620. Each processor can perform power management techniques using optimized settings obtained from a tuning table in accordance with an embodiment of the present invention. The processors are connected to an

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input/output hub (IOH) 630 using one link and the remaining link is used to connect the two processors.

[0048] Referring now to FIG. 8, shown is a block diagram of a system in accordance with another embodiment of the present invention. As shown in FIG. 8, system 700 may be a partially connected quad processor system in which each processor 710 (each of which may be multicore multi-domain processors) is coupled to each other processor via a PtP link and is coupled to a local portion of memory (e.g., dynamic random access memory (DRAM)) 720 via a memory interconnect coupled to an integrated memory controller 715 of the corresponding processor. In the partially connected system of FIG. 8, note the presence of two IOHs 730 and 740 such that processors 710_0 and 710_1 are directly coupled to IOH 730 and similarly processors 710_2 and 710_3 are directly coupled to IOH 740.

[0049] Embodiments may be implemented in code and may be stored on a non-transitory storage medium having stored thereon instructions which can be used to program a system to perform the instructions. The storage medium may include, but is not limited to, any type of disk including floppy disks, optical disks, solid state drives (SSDs), compact disk read-only memories (CD-ROMs), compact disk rewritables (CD-RWs), and magneto-optical disks, semiconductor devices such as read-only memories (ROMs), random access memories (RAMs) such as dynamic random access memories (DRAMs), static random access memories (SRAMs), erasable programmable read-only memories (EPROMs), flash memories, electrically erasable programmable read-only memories (EEPROMs), magnetic or optical cards, or any other type of media suitable for storing electronic instructions.

[0050] While the present invention has been described with respect to a limited number of embodiments, those skilled in the art will appreciate numerous modifications and variations therefrom. It is intended that the appended claims cover all such modifications and variations as fall within the true spirit and scope of this present invention.

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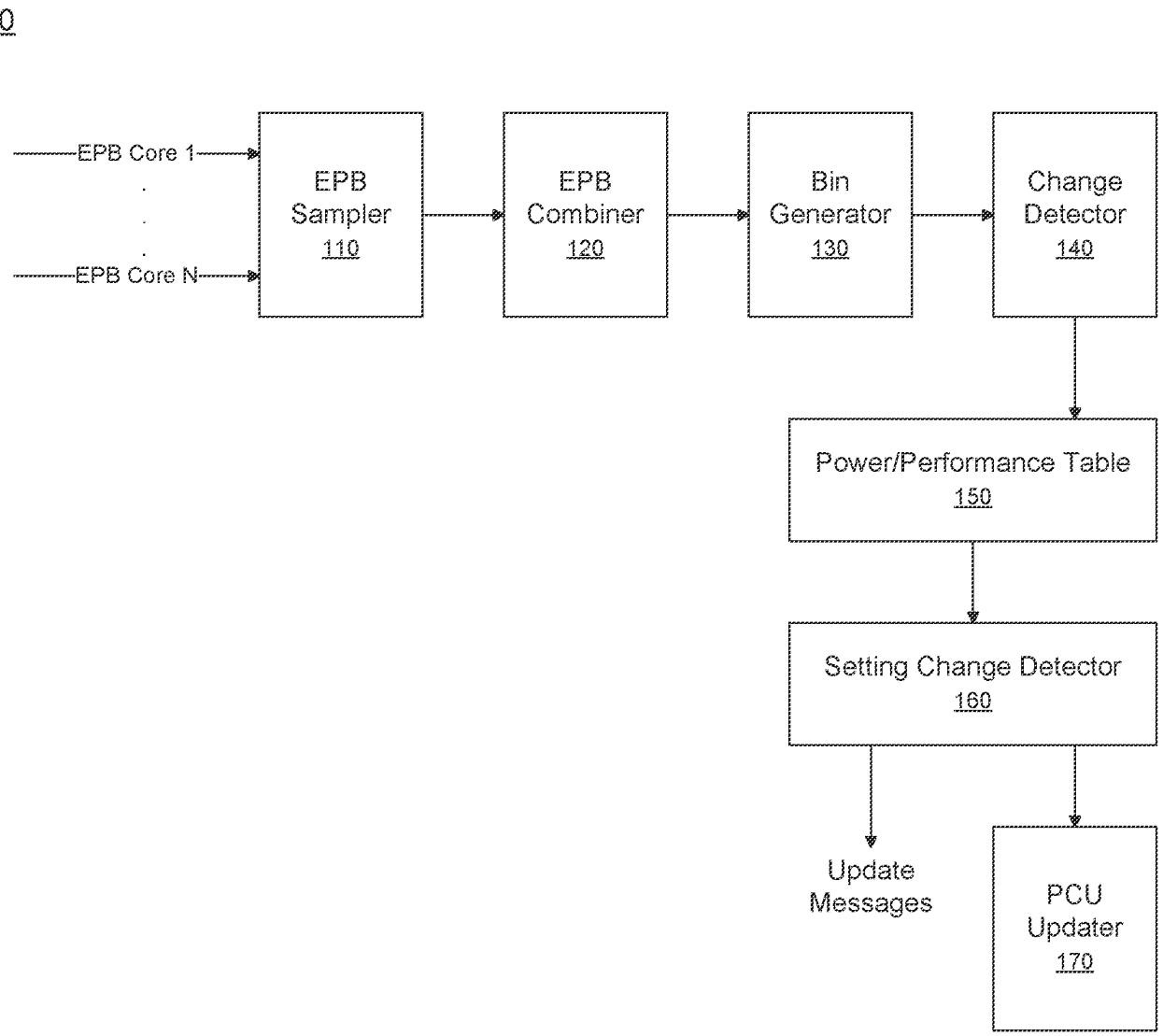


FIG. 1

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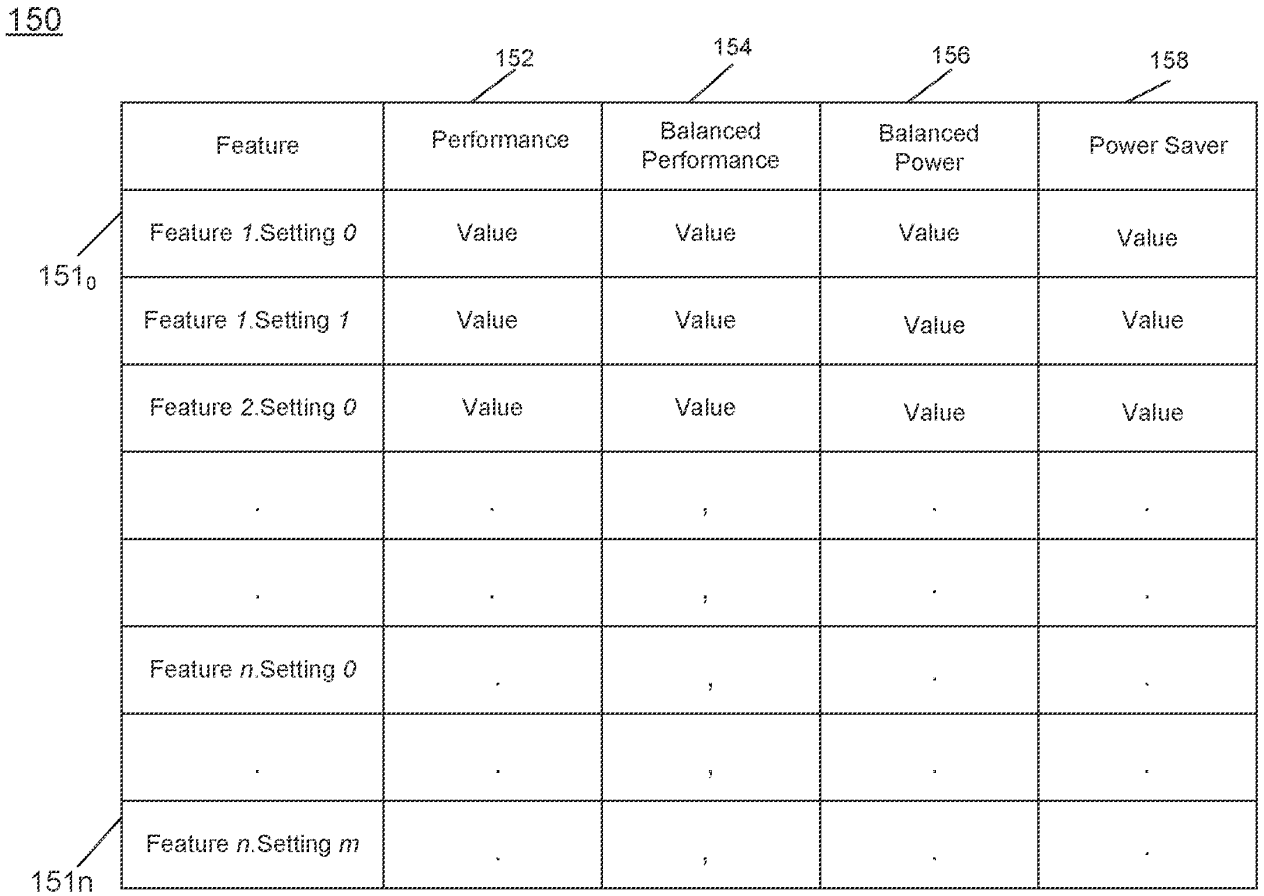


FIG. 2

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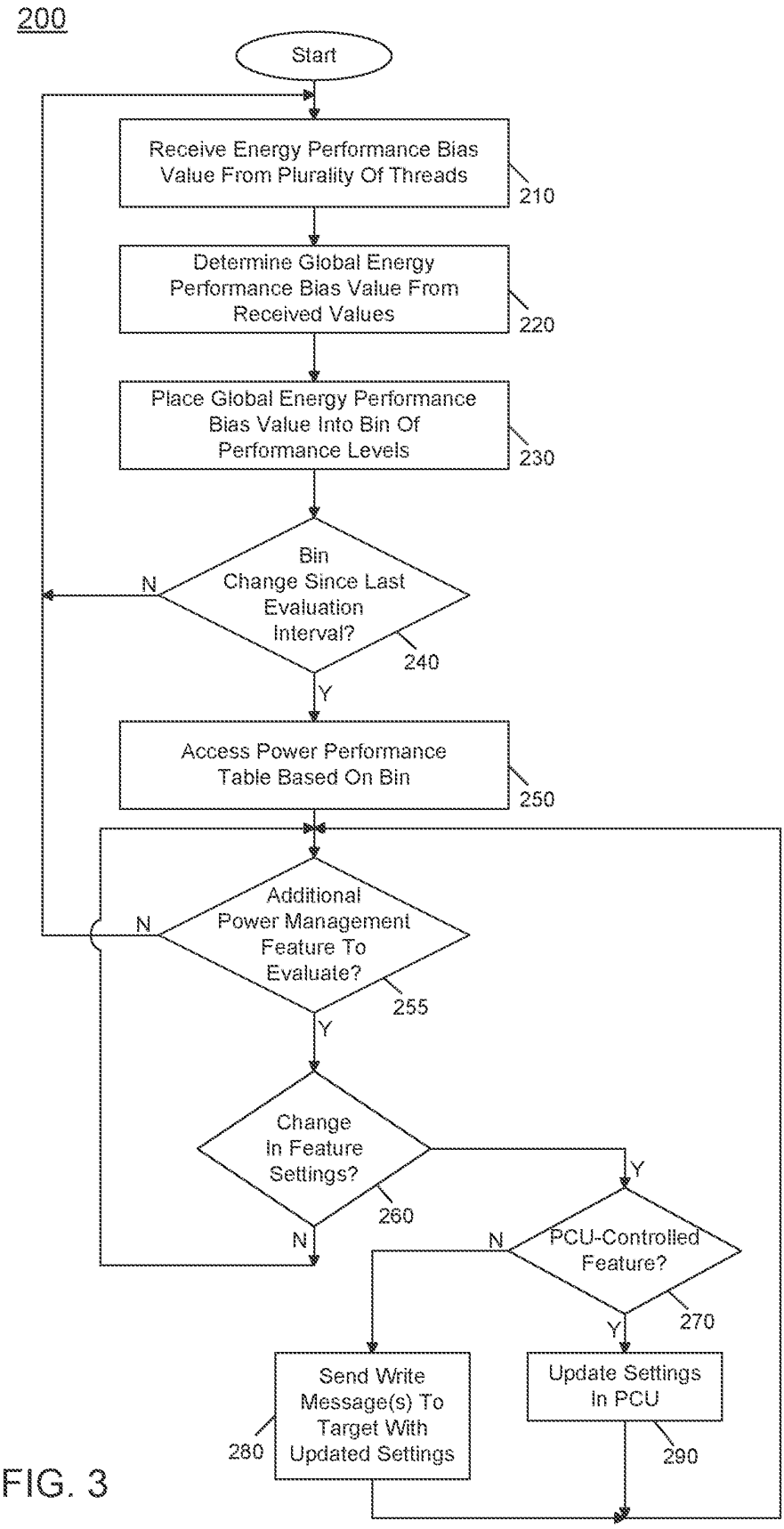

200
Start
Receive Energy Performance Bias Value From Plurality Of Threads
210
Determine Global Energy Performance Bias Value From Received Values
220
Place Global Energy Performance Bias Value Into Bin Of Performance Levels
230
Bin Change Since Last Evaluation Interval?
240
N
Y
Access Power Performance Table Based On Bin
250
Additional Power Management Feature To Evaluate?
255
N
Y
Change In Feature Settings?
260
N
Y
PCU-Controlled Feature?
270
N
Y
Send Write Message(s) To Target With Updated Settings
280
Update Settings In PCU
290

FIG. 3

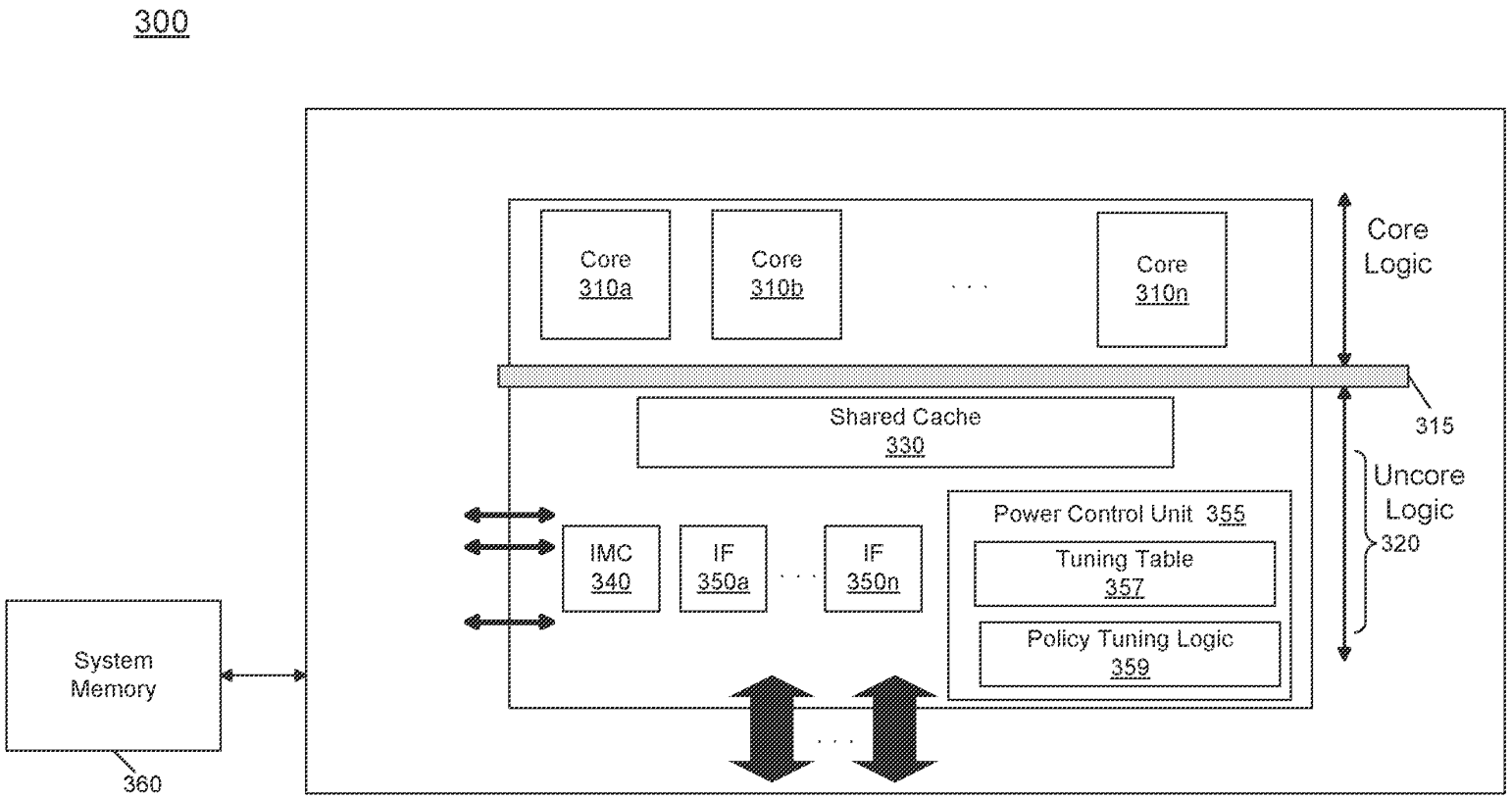


FIG. 4

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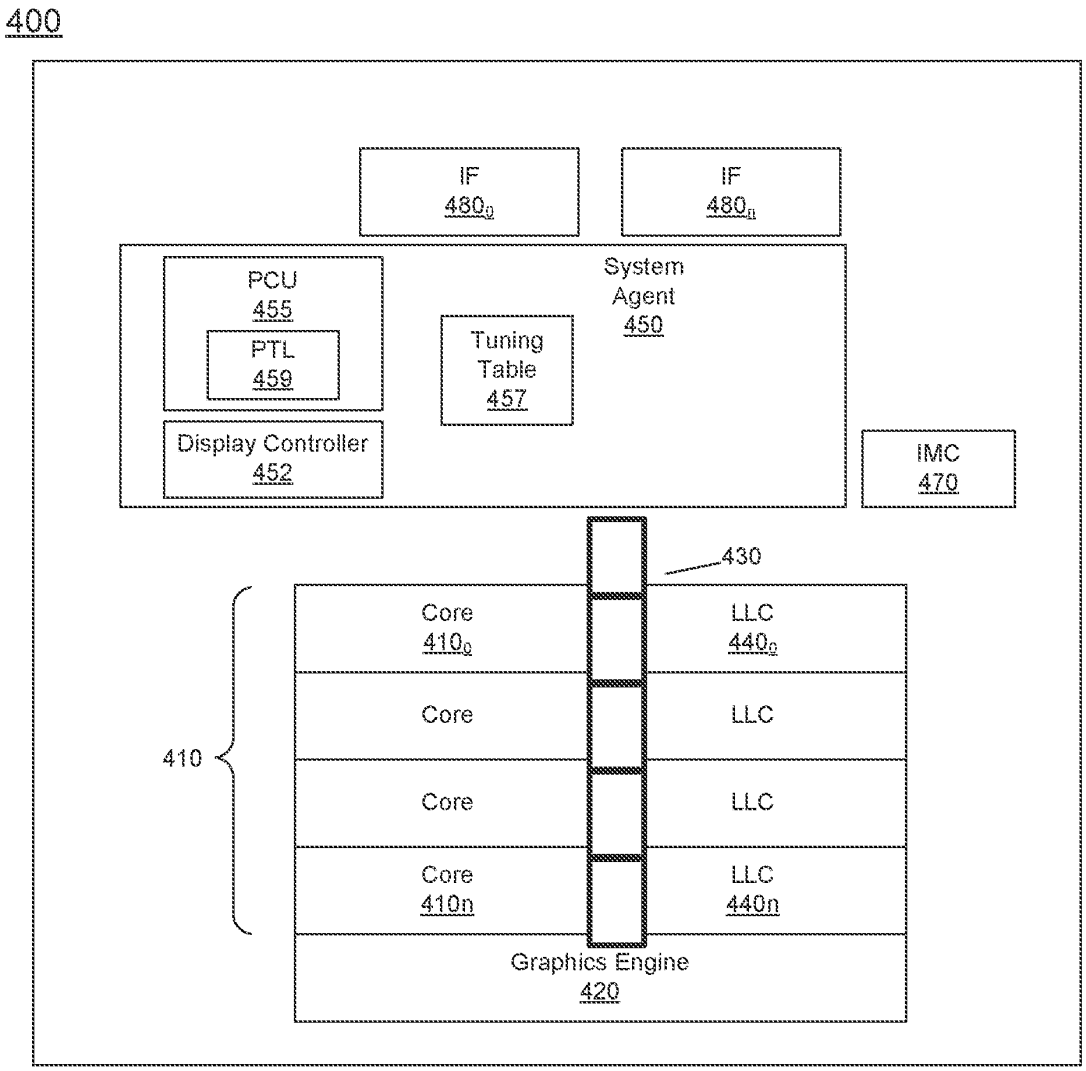


FIG. 5

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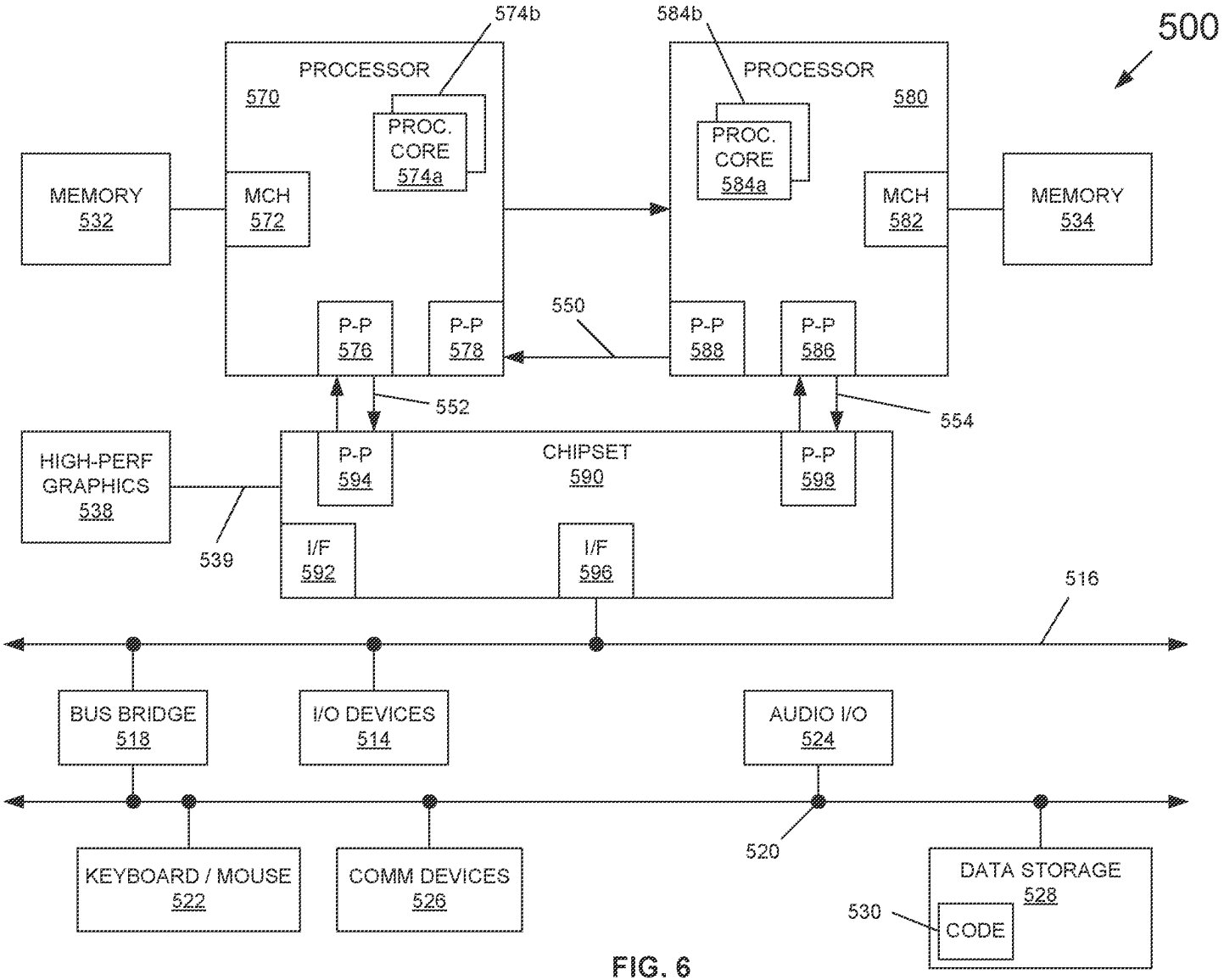


FIG. 6

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600

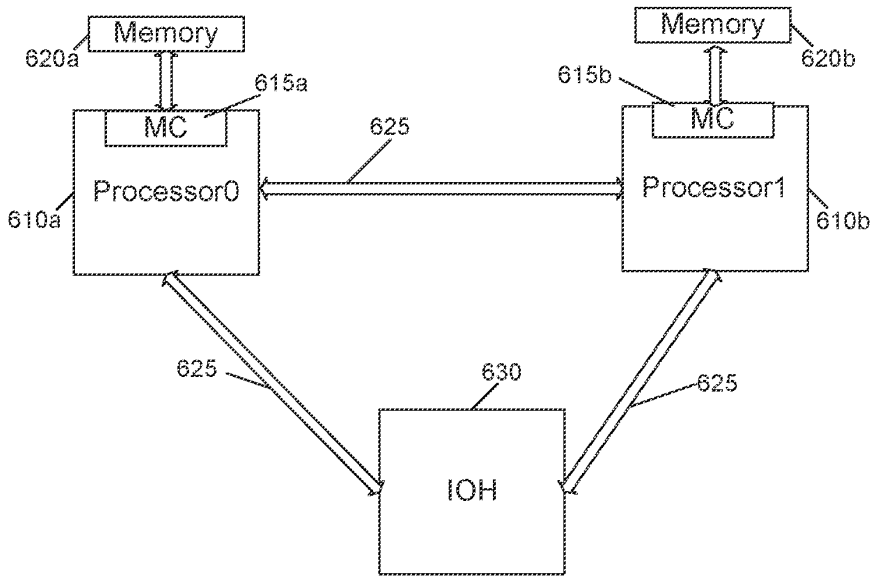


FIG. 7

Petitioner Samsung Ex-1004, 0303

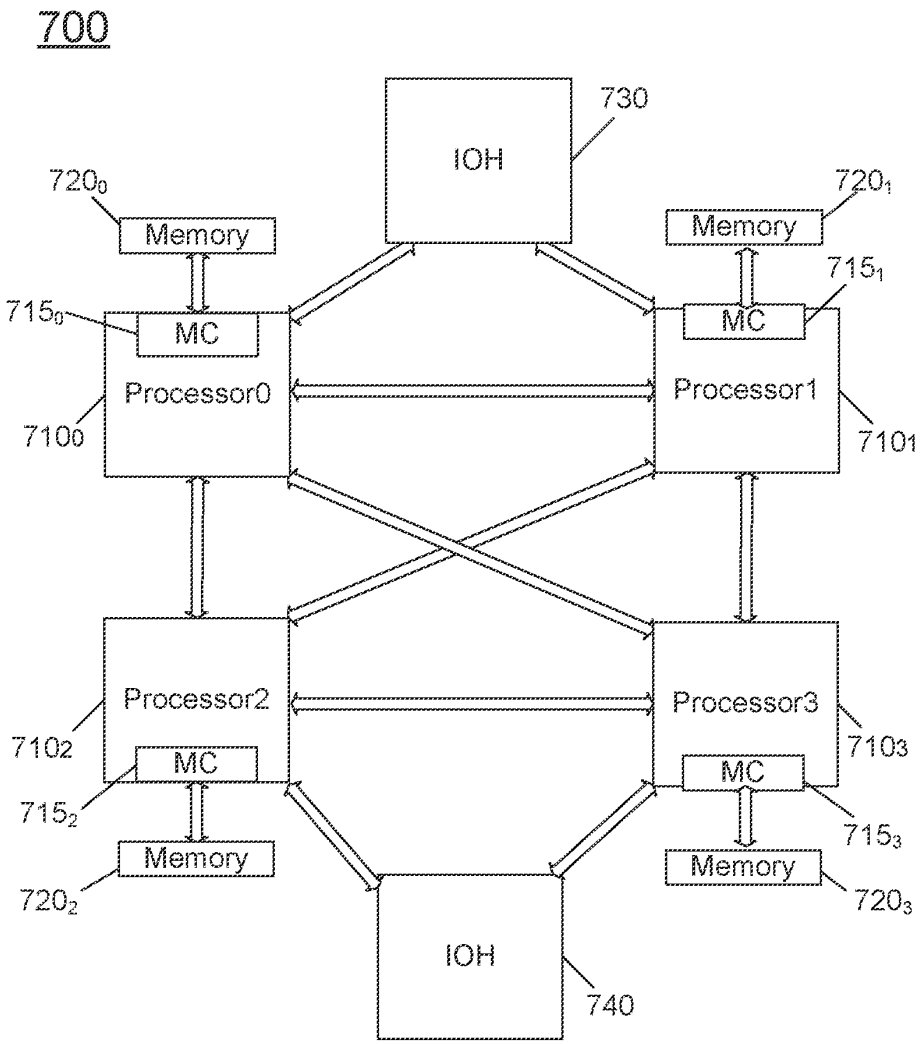


FIG. 8

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Title of Invention	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☑ United States application or PCT international application number 13/782,473 filed on March 1, 2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

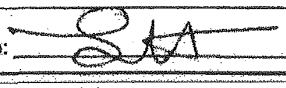
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LEGAL NAME OF INVENTOR

Inventor: KRISHNAKANTH V. SISTLA Date (Optional): 07/11/14

Signature: 

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LEGAL NAME OF INVENTOR

Inventor: JEREMY SHRALL Date (Optional): 4/28/2014

Signature: Jeremy Shrall

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LEGAL NAME OF INVENTOR

Inventor: STEPHEN H. GUNTHER Date (Optional): April 19, 2013

Signature: [signature]

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LEGAL NAME OF INVENTOR

Inventor: EFRAIM ROTEM Date (Optional): 5/2/14

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: ALON NAVEH Date (Optional): _____

Signature: _____

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	USER LEVEL CONTROL OF POWER MANAGEMENT POLICIES

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LEGAL NAME OF INVENTOR

Inventor: ELIEZER WEISSMANN Date (Optional): 22/04/2013

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: ANIL AGGARWAL Date (Optional): 5/22/14

Signature: Anil Agg

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: MARTIN T. ROWLAND Date (Optional): 9/24/14

Signature: Martin T. Rowland

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: ANKUSH VARMA Date (Optional): 04/30/2013

Signature: Ankush Varma

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LEGAL NAME OF INVENTOR

Inventor: IAN M. STEINER Date (Optional): 3/23/12

Signature:

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LEGAL NAME OF INVENTOR

Inventor: MATTHEW BACE Date (Optional): 7/16/2014

Signature: Matthew M. Bace

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LEGAL NAME OF INVENTOR

Inventor: AVINASH N. ANANTHAKRISHNAN Date (Optional): _____

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: JASON BRANDT Date (Optional): _____

Signature: Jason Brandt

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Petitioner Samsung Ex-1004, 0317

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FEE TRANSMITTAL

Complete if known	
Application Number	
Filing Date	2016-12-02
First Named Inventor	Krishnakanth V. Sistla, et al.
Examiner Name	
Art Unit	
Practitioner Docket No.	ITL.2490C3US (P38402C3)

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

TOTAL AMOUNT OF PAYMENT ($) 1600.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 50-4238 Deposit Account Name: Intel Corporation

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

	FILING FEES			SEARCH FEES			EXAMINATION FEES			
Application Type	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**Fees Paid ($)**
Utility	280	140*	70	600	300	150	720	360	180	1600.00
Design	180	90	45	120	60	30	460	230	115	
Plant	180	90	45	380	190	95	580	290	145	
Reissue	280	140	70	600	300	150	2,160	1,080	540	
Provisional	260	130	65	0	0	0	0	0	0	

* The $140 small entity status filing fee for a utility application is further reduced to $70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	**Undiscounted Fee ($)**	**Small Entity Fee ($)**	**Micro Entity Fee ($)**
Each claim over 20 (including Reissues)	80	40	20
Each independent claim over 3 (including Reissues)	420	210	105
Multiple dependent claims	780	390	195

Total Claims		**Extra Claims**		**Fee ($)**		**Fee Paid ($)**
20	-20 or HP =	_____	x	_____	=	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims		**Extra Claims**		**Fee ($)**		**Fee Paid ($)**
3	-3 or HP =	_____	x	_____	=	_____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	**Fee Paid ($)**
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $400 ($200 for small entity) ($100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		**Extra Sheets**		**Number of each additional 50 or fraction thereof**		**Fee ($)**		**Fee Paid ($)**
_____	- 100 =	_____	/ 50 =	_____ (round **up** to a whole number)	x	_____	=	_____

4. OTHER FEE(S) **Fees Paid ($)**

Non-English specification, $130 fee (no small or micro entity discount) _____

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, $400 fee ($200 small or micro entity) _____

Other (e.g., late filing surcharge): _____ _____

SUBMITTED BY

Signature	/Mark J. Rozman/	Registration No. (Attorney/Agent) 42117	Telephone 512-418-9944
Name (Print/Type)	Mark J. Rozman		Date 2016-12-02

This collection of information is required by 37 CFR 1.136. 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 30 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.**

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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.
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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.
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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors:	Krishnakanth V. Sistla, et al.	§	Group Art Unit:	Unassigned
Serial No.:	Filed Concurrently	§	Examiner:	Unassigned
Filed:	December 2, 2016	§		
For:	User Level Control Of Power Management Policies	§	Atty. Dkt. No.:	ITL.2490C3US (P38402C3)

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

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Under 35 USC 120, this application relies on the earlier filing date of application serial number 14/855,553, filed September 16, 2015, which is a continuation of U.S. Patent Application Serial No. 13/782,473, filed March 1, 2013, now U.S. Patent No. 9,170,624, issued October 27, 2015, which is a continuation of U.S. Patent Application Serial No. 13/326,586, filed December 15, 2011, now U.S. Patent No. 9,098,261, issued August 4, 2015. To the extent that any following foreign patent or non-patent literature references were submitted to and/or cited by the Office in the prior application, they are not provided in this application (pursuant to 37 C.F.R. §1.98(d) and M.P.E.P. §609.02(A)(2)).

This statement is being filed with the application. Please apply any charges or credits to Deposit Account No. 50-4238.

Date: December 2, 2016

Respectfully submitted,
/Mark J. Rozman/
Mark J. Rozman
Registration No. 42,117
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Houston, Texas 77057-2631
(512) 418-9944 [Phone]
(713) 468-8883 [Fax]
Customer No.: 47795

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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	7376849		2008-05-20	Tschanz, et al.	
	2	7010708		2006-03-07	Ma	
If you wish to add additional U.S. Patent citation information please click the Add button.						

U.S.PATENT APPLICATION PUBLICATIONS						
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	20110296212		2011-12-01	Elnozahy, et al.	
	2	20100218029		2010-08-26	Floyd, et al.	
	3	20090177334		2009-07-09	Artman, et al.	
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FOREIGN PATENT DOCUMENTS								
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Petitioner Samsung Ex-1004, 0321

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

U.S.PATENTS						Remove
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	8301742		2012-10-08	Hanson, et al.	

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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	20050066206		2005-03-24	Beers, et al.	
	2	20090254660		2009-10-08	Hanson, et al.	
	3	20130179706		2013-07-11	Sistla, et al.	

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	1							☐

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Petitioner Samsung Ex-1004, 0322

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C1USUS (P38402C2)

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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	20080289369	A1	2005-12-29	Chung, et al.	
	2	20090327785	A1	2009-12-29	Chang, et al.	

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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	201001157	TW	A	2010-01-01	ACER INC		☒
	2	200301025	TW	A	2006-01-01	VIA TECHNOLOGOLIES, INC		☒

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

U.S.PATENTS						Remove
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					
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U.S.PATENT APPLICATION PUBLICATIONS						Remove
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	20080288894		2005-12-29	Vorenkamp, et al.	
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	1728023	CN		2006-02-01	Vorenkamp, et al.		X
If you wish to add additional Foreign Patent Document citation information please click the Add button								Add

NON-PATENT LITERATURE DOCUMENTS			Remove
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]

Petitioner Samsung Ex-1004, 0324

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3 (P38402C3)

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	7434073		2008-10-07	Magklis	
	2	6792392		2004-09-14	Knight	
	3	7194643		2007-03-20	Gonzalez, et al.	
	4	7010708		2006-03-07	Ma	
	5	5621250		1997-04-15	Kim	
	6	7412615		2008-08-12	Yokota, et al.	
	7	5163153		1992-11-10	Cole, et al.	
	8	5590341		1996-12-31	Matter	

Petitioner Samsung Ex-1004, 0325

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490(C2US(CP 38402(C3))

	9	5931950		1999-08-03	Hsu	
	10	7454632		2008-11-18	Kardach, et al.	
	11	5522087		1996-05-28	Hsiang	
	12	7272730		2007-09-18	Acquaviva, et al.	
	13	7529956		2009-05-05	Stufflebeam	
	14	7730340		2010-06-01	Hu, et al.	
	15	7539885		2009-05-26	Ma	
	16	6748546		2004-06-08	Mirov, et al.	
	17	6829713		2004-12-07	Cooper, et al.	
	18	71111179		2006-09-19	Girson, et al.	
	19	6823516		2004-11-23	Cooper	

Petitioner Samsung Ex-1004, 0326

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2(P38402C2)

	20	7437270		2008-10-14	Song, et al.	
	21	7093147		2006-08-15	Farkas, et al.	
	22	7043649		2006-05-09	Terrell	
	23	6996728		2006-02-07	Singh	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code1	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090150695		2009-06-11	Song, et al.	
	2	20090150696		2009-06-11	Song, et al.	
	3	20110154090		2011-06-23	Dixon, et al.	
	4	20070214342		2007-09-13	Newburn	
	5	20070079294		2007-04-05	Knight	

Petitioner Samsung Ex-1004, 0327

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US

	6	20060117202		2006-06-11	Magklis, et al.	
	7	20070016817		2007-01-18	Albonesi, et al.	
	8	20060053326		2006-03-09	Naveh	
	9	20070005995		2007-01-04	Kardach, et al.	
	10	20040098560		2004-05-02	Storvik, et al.	
	11	20060050670		2006-03-09	Hillyard, et al.	
	12	20060059286		2006-03-16	Bertone, et al.	
	13	20060184287		2006-08-17	Belady, et al.	
	14	20070106827		2007-05-10	Boatright, et al.	
	15	20080028240		2008-01-31	Arai, et al.	
	16	20090158061		2009-06-18	Schmitz, et al.	

Petitioner Samsung Ex-1004, 0328

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490 C2 US

	17	20010044909		2001-11-22	Oh, et al.	
	18	20050022038		2005-01-27	Kaushik, et al.	
	19	20070156992		2007-07-05	Jahagirdar	
	20	20050033881		2005-02-10	Yao	
	21	20040064752		2004-04-01	Kazachinsky, et al.	
	22	20040139356		2007-07-15	Ma	
	23	20070239398		2007-10-11	Song, et al.	
	24	20060069936		2006-03-30	Lint, et al.	
	25	20020194509		2002-12-19	Plante, et al.	
	26	20050132238		2005-06-16	Nanja	
	27	20070245163		2007-10-18	Lu, et al.	

Petitioner Samsung Ex-1004, 0329

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3(P35402C3)

	28	20040268166		2004-12-30	Farkas, et al.	
	29	20090006871		2009-01-01	Liu, et al.	
	30	20100115309		2010-05-06	Carvalho, et al.	
	31	20100191997		2010-07-29	Dodeja, et al.	
	32	20100146513		2010-06-10	Song	
	33	20090235105		2009-09-17	Branover, et al.	
	34	20090172428		2009-07-02	Lee	
	35	20090172375		2009-07-02	Rotem, et al.	
	36	20090158067		2009-06-18	Bodas, et al.	
	37	20080250260		2008-10-09	Tomita	
	38	20030061383		2003-03-27	Zilka	

Petitioner Samsung Ex-1004, 0330

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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	EP 1 282 030	EP	A1	2003-05-02	Mitsubishi Kenki Kabushiki Kaisha		☐

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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	U.S. Patent Application No. 12/889,121, "Providing Per Core Voltage and Frequency Control," filed September 23, 2010, by Pakaj Kumar.	☐
	2	SPEC-Power and Performance, Design Overview V1.10, Standard Performance Information Corp., October 21, 2008, 6 pages.	☐
	3	U.S. Patent Application No. 13/070,700, "Obtaining Power Profile Information With Low Overhead," filed March 24, 2011, by Robert Knight.	☐
	4	ANOOP IYER, et al., "Power and Performance Evaluation of Globally Asynchronous Locally Synchronous Processors," 2002, pages 1-11.	☐
	5	GREG SEMERARO, et al., "Hiding Synchronization Delays In A GALS Processor Microarchitecture," 2004, pages 1-13.	☐
	6	JOAN-MANUEL PARCERISA, et al., "Efficient Interconnects for Clustered Microarchitectures," 2002, pages 1-10.	☐

Petitioner Samsung Ex-1004, 0331

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38902C2)

	7	GRIGORIOS MAGKLIS, et al., "Profile-Based Dynamic Voltage and Frequency Scalling for a Multiple Clock Domain Microprocessor," 2003, pages 1-12.	☐
	8	GREG SEMERARO, et al., "Dynamic Frequency and Voltage Control for a Multiple Clock Domain Architecture," 2002, pages 1-12.	☐
	9	GREG SEMERARO, "Energy-Efficient Processor Design Using Multiple Clock Domains with Dynamic Voltage and Frequency Scaling," 2002, pages 29-40.	☐
	10	DIANA MARCULESCU, "Application Adaptive Energy Efficient Clustered Architectures," 2004, pages 344-349.	☐
	11	L. BENINI, et al., "System-Level Dynamic Power Management," 1999, pages 23-31.	☐
	12	RAVINDRA JEJURIKAR, et al., "Leakage Aware Dynamic Voltage Scaling For Real-Time Embedded Systems," 2004, pages 275-280.	☐
	13	RAVINDRA JEJURIKAR, et al., "Dynamic Slack Reclamation With Procrastination Scheduling In Real-Time Embedded Systems," 2005, pages 13-17.	☐
	14	R. TODLING, et al., "Some Strategies For Kalman Filtering and Smoothing," 1996, pages 1-21.	☐
	15	R.E. KALMAN, "A New Approach To Linear Filtering and Prediction Problems," 1960, pages 1-12.	☐
	16	INTEL TECHNOLOGY JOURNAL, "Power and Thermal Management in the Intel Core Duo Processor," May 15, 2006, pages 109-122.	☐
	17	INTEL DEVELOPER FORUM, IDF2010, Opher Kahn, et al., "Intel Next Generation Microarchitecture Codename Sandy Bridge: New Processor Innovations," September 13, 2010, 58 pages.	☐

Petitioner Samsung Ex-1004, 0332

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C3)

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	1	INTERNATIONAL SEARCHING AUTHORITY, "Notification of Transmittal of the International Search Report and the Written Opinion of the International Searching Authority," mailed April 30, 2013, in International application no. PCT/US2012/069578.	☐

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Petitioner Samsung Ex-1004, 0333

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C3)

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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	Taiwan Patent Office, Office Action mailed August 25, 2014, In Taiwan Apllication no. 101141477.	☒
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[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.

Petitioner Samsung Ex-1004, 0334

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C2US (P38402C2)

	1	China Patent Office, Office Action mailed October 28, 2015 in Chinese Patent Application no. 201280061735.4.	

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Petitioner Samsung Ex-1004, 0335

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-12-02
	First Named Inventor	Krishnakanth V. Sistla, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2490C3US (P38402C3)

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	/Mark J. Rozman/	Date (YYYY-MM-DD)	2016-12-02
Name/Print	Mark J. Rozman	Registration Number	42,117

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Petitioner Samsung Ex-1004, 0336

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Filer:	Mark J. Rozman/Stephanie Petreas
Attorney Docket Number:	ITL.2490C3US (P38402C3)

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1600**

Electronic Acknowledgement Receipt	
EFS ID:	27674452
Application Number:	15367330
International Application Number:	
Confirmation Number:	3403
Title of Invention:	User Level Control Of Power Management Policies
First Named Inventor/Applicant Name:	Krishnakanth V. Sistla
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2490C3US (P38402C3)
Receipt Date:	02-DEC-2016
Filing Date:	
Time Stamp:	10:58:53
Application Type:	Utility under 35 USC 111(a)

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Payment Type	DA
Payment was successfully received in RAM	$1600
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1	Transmittal of New Application	ITL2490C3USPatentApplicationTrans.pdf	138981 d5920d34ae3af2454aff5ebfe40b71bf2d99229f	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	ITL2490C3USFeeTransmittal.pdf	255989 80aace61323c1a7c83959892daeee6e8d971bc92f	no	2
Warnings:					
Information:					
3	Application Data Sheet	ITL2490C3USADS.pdf	1824329 5c6795f23659d450b8acb57d003abbc16b2a445c	no	12
Warnings:					
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4		ITL2490C3USPatentApplication.pdf	198156 5a289616da0afcd034ad06d58be24887e96ec227	yes	24

Multipart Description/PDF files in .zip description

Document Description	Start	End
Abstract	24	24
Claims	20	23
Specification	1	19

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7	Information Disclosure Statement (IDS) Form (SB08)	ITL2490C2USIDSToFile.pdf	1688035 af4ca8285212127878 4cbff6d36ad9d5f69c40e3	no	17
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8	Fee Worksheet (SB06)	fee-info.pdf	35434 ed3b21ef9caf430574aeb3e6d2f50c9eed10d453	no	2
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