

UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	ITL.2495C1US (P38410C)
	First Inventor	Avinash N. Ananthakrishnan, et al.
	Title	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
	Express Mail Label No.	Filed Via EFS

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
1. <input checked="" type="checkbox"/> Fee Transmittal Form. (PTO/SB/17 or equivalent) 2. <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. 3. <input checked="" type="checkbox"/> Specification. [Total Pages <u>25</u>] Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP § 808.01(a)) 4. <input checked="" type="checkbox"/> Drawing(s). (35 U.S.C. 113) [Total Sheets <u>8</u>] 5. Inventor's Oath or Declaration. [Total Sheets _____] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. <input type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> A copy from a prior application (37 CFR 1.63(d)) 6. <input checked="" type="checkbox"/> Application Data Sheet. *See Note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 7. <input type="checkbox"/> CD-ROM or CD-R. in duplicate, large table or Computer Program (Appendix) <input type="checkbox"/> Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission. (if applicable, items a. – c. are required) a. <input type="checkbox"/> Computer Readable Form (CRF) b. <input type="checkbox"/> Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 9. <input type="checkbox"/> Assignment Papers. (cover sheet & document(s)) Name of Assignee _____ 10. <input type="checkbox"/> 37 CFR 3.73(c) Statement. <input type="checkbox"/> Power of Attorney. (when there is an assignee) 11. <input type="checkbox"/> English Translation Document. (if applicable) 12. <input type="checkbox"/> Information Disclosure Statement. (PTO/SB/08 or PTO-1449) <input type="checkbox"/> Copies of citations attached 13. <input type="checkbox"/> Preliminary Amendment. 14. <input type="checkbox"/> Return Receipt Postcard. (MPEP § 503) (Should be specifically itemized) 15. <input type="checkbox"/> Certified Copy of Priority Document(s). (if foreign priority is claimed) 16. <input type="checkbox"/> Nonpublication Request. Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. <input type="checkbox"/> 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					
<input checked="" type="checkbox"/> The address associated with Customer Number: <u>47795</u> OR <input type="checkbox"/> Correspondence address below					
Name					
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City		State		Zip Code	
Country		Telephone		Email	
Signature		Date			
Name (Print/Type)		Registration No. (Attorney/Agent)		42117	

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.**

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FEE TRANSMITTAL

Complete if known

<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27	Application Number	
TOTAL AMOUNT OF PAYMENT (\$)	Filing Date	2013-02-28
1390.00	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Examiner Name	
	Art Unit	
	Practitioner Docket No.	ITL 2495C1US (P38410C)

METHOD OF PAYMENT (check all that apply)

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

☒ Deposit Account Deposit Account Number: 20-1504 Deposit Account Name: Trop, Pruner & Hu, P.C.

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

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under 37 CFR 1.16 and 1.17

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	390	195	620	310	250	125	1260.00
Design	250	125	120	60	160	80	
Plant	250	125	380	190	200	100	
Reissue	390	195	620	310	760	380	
Provisional	250	125	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	62	31
Each independent claim over 3 (including Reissues)	250	125
Multiple dependent claims	460	230

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

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

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

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

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 \$320 (\$160 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).

Total Sheets - 100 = **Extra Sheets** / 50 = **Number of each additional 50 or fraction thereof** **Fee (\$)** **Fee Paid (\$)**

4. OTHER FEE(S)

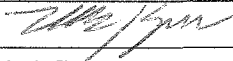
Non-English specification, \$130 fee (no small entity discount)

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

Other (e.g., late filing surcharge): Late filing of declaration

130.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 42,117	Telephone 512-418-9944
Name (Print/Type)	Mark J. Rozman	Date	2/28/13

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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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)
		Application Number	
Title of Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
<p>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.</p> <p>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.</p>			

Secrecy Order 37 CFR 5.2

<input type="checkbox"/> 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		
	Avinash	N.	Ananthakrishnan			
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Hillsboro	State/Province	OR	Country of Residence i	US	
Mailing Address of Inventor:						
Address 1		2900 NW Adagio Way				
Address 2						
City	Hillsboro	State/Province	OR			
Postal Code	97124	Country i	US			
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Efraim		Rotem			
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Haifa	Country of Residence i	IL			
Mailing Address of Inventor:						
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Address 2						
City	Haifa	State/Province	HA			
Postal Code	34400	Country i	IL			
Inventor 3					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Doron		Rajwan			

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number		ITL.2495C1US (P38410C)	
		Application Number			
Title of Invention		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor			
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Rishon Le-Zion		Country of Residence	i IL	
Mailing Address of Inventor:					
Address 1		13 Odem Street			
Address 2					
City	Rishon Le-Zion		State/Province	M	
Postal Code	00000		Country	i IL	
Inventor 4					Remove
Legal Name					
Prefix	Given Name	Middle Name		Family Name	Suffix
	Eliezer			Weissmann	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> 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	HA	
Postal Code	34995		Country	i IL	
Inventor 5					Remove
Legal Name					
Prefix	Given Name	Middle Name		Family Name	Suffix
	Nadav			Shulman	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Tel Mond		Country of Residence	i IL	
Mailing Address of Inventor:					
Address 1		Hasayfan 19 St. POB 447			
Address 2					
City	Tel Mond		State/Province	M	
Postal Code	40600		Country	i IL	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)
		Application Number	
Title of Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		

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Application Information:

Title of the Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
Attorney Docket Number	ITL.2495C1US (P38410C)	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

Publication Information:

<input type="checkbox"/> Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/> 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.

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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, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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.
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)	
		Application Number		
Title of Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor			
Prior Application Status	Pending	Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	
	Continuation of	13225677	2011-09-06	
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 benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. 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(a).			
			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Priority Claimed
			<input type="radio"/> Yes <input checked="" type="radio"/> No
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Authorization to Permit Access:

<input checked="" type="checkbox"/> Authorization to Permit Access to the Instant Application by the Participating Offices
<p>If 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 World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>

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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)
		Application Number	
Title of Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		

Applicant 1	Remove
<p>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.</p>	
Clear	
<input type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117
<input type="radio"/> Person to whom the inventor is obligated to assign.	<input type="radio"/> 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. <input type="checkbox"/>	

Prefix	Given Name	Middle Name	Family Name	Suffix
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Address 1				
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City		State/Province		
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Additional Applicant Data may be generated within this form by selecting the Add button.				
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Assignee 1
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)	
		Application Number		
Title of Invention	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor			

If the Assignee is an Organization check here. <input type="checkbox"/>				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications				
Signature	/Mark J. Rozman/		Date (YYYY-MM-DD)	2013-02-28
First Name	Mark	Last Name	Rozman	Registration Number
				42117
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

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

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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.

APPLICATION

FOR

UNITED STATES LETTERS PATENT

**TITLE: DYNAMICALLY ALLOCATING A POWER
BUDGET OVER MULTIPLE DOMAINS OF A
PROCESSOR**

**INVENTORS: AVINASH N. ANANTHAKRISHNAN; EFRAIM
ROTEM; DORON RAJWAN; ELIEZER
WEISSMANN; NADAV SHULMAN**

Filed Via EFS

Date: February 28, 2013

Prepared by: Trop, Pruner & Hu, P.C., Mark J. Rozman
1616 S. Voss Road, Suite 750, Houston, TX 77057
713/468-8880 [Office], 713/468-8883 [Fax]

DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR

[0001] This application is a continuation of United States Patent Application Serial No. 13/225,677, filed September 6, 2011, the content of which is hereby incorporated by reference.

Background

[0002] As technology advances in the semiconductor field, devices such as processors incorporate ever-increasing amounts of circuitry. Over time, processor designs have evolved from a collection of independent integrated circuits (ICs), to a single integrated circuit, to multicore processors that include multiple processor cores within a single IC package. As time goes on, ever greater numbers of cores and related circuitry are being incorporated into processors and other semiconductors.

[0003] Multicore processors are being extended to include additional functionality by incorporation of other functional units within the processor. One issue that arises is that the different circuitry can consume differing amounts of power based on their workloads. However, suitable mechanisms to ensure that these different units have sufficient power do not presently exist.

Brief Description of the Drawings

[0004] FIG. 1 is a flow diagram of a high level method of performing power budget allocations between multiple domains in accordance with an embodiment of the present invention.

[0005] FIG. 2 is a flow diagram of a method describing further details of allocating a package power budget between multiple domains in accordance with an embodiment of the present invention.

[0006] FIG. 3 is a graphical illustration of allocation of a power budget to multiple domains in accordance with one embodiment of the present invention.

[0007] FIG. 4 is a graphical illustration of power consumption for a variety of workloads in accordance with one embodiment of the present invention.

[0008] FIG. 5 is another graphical illustration of power consumption for a variety of workloads in accordance with an embodiment of the present invention.

[0009] FIG. 6 is a block diagram of a processor in accordance with an embodiment of the present invention.

[0010] FIG. 7 is a block diagram of a multi-domain processor in accordance with another embodiment of the present invention.

[0011] FIG. 8 is a block diagram of a system in accordance with an embodiment of the present invention.

Detailed Description

[0012] In various embodiments, a power budget of a processor including multiple domains can be dynamically apportioned at run time. As used herein the term “domain” is used to mean a collection of hardware and/or logic that operates at the same voltage and frequency point. As an example, a multicore processor can further include other non-core processing engines such as fixed function units, graphics engines, and so forth. Such processor can include at least two independent domains, one associated with the cores (referred to herein as a core domain) and one associated with a graphics engine (referred to herein as a graphics domain). Although many implementations of a multi-domain processor can be formed on a single semiconductor die, other implementations can be realized by a multi-chip package in which different domains can be present on different semiconductor die of a single package.

[0013] In a multi-domain processor, the multiple domains collectively share a single power budget. Accordingly, the higher the frequency at which, e.g., the core domain is

operating, the higher the power consumed by the core domain. And in turn, the higher the power consumed by the core domain, there is less power left for the graphics domain to consume and vice versa. On workloads that utilize both one or more cores of a core domain and a graphics engine of a graphics domain, embodiments may at run time dynamically re-partition how a package power budget is shared between these domains. Thus embodiments provide a power balancing mechanism that can be implemented between the different domains of a multicore processor. For ease of discussion, embodiments described herein are with regard to a multi-domain processor including a core domain and a graphics domain that can share a power budget. However understand the scope of the present invention is not limited in this regard and additional domains can be present. As another example, each core can be allocated to a different domain and each of the domains can be provided with a dynamically re-partitionable amount of a power budget. Furthermore, in addition to core domains and graphics domains, understand that additional domains can be present. For example, another domain can be formed of other processing units such as fixed function units, accelerators or so forth. And a still further domain can be provided for certain management agents of a processor, which can receive a fixed portion of a total power budget.

[0014] In various embodiments a power budget management (PBM) algorithm may be executed by logic such as logic of a power control unit (PCU) of a processor to control the power of an entire processor or an individual domain to a configured power limit. Such algorithm may be based in part on various processor parameters. One such parameter is a guaranteed frequency (P1), which is a frequency that a domain is guaranteed to operate at and not exceed power or thermal specifications of the product. A processor can be tested, e.g., during fabrication to determine this guaranteed frequency, which can be stored in a non-volatile storage or other mechanism of the processor. In various embodiments such guaranteed frequency can be set on a per domain basis. This guaranteed frequency can be fixed upon manufacture and not changed, or in certain embodiments this frequency can be dynamically

updated, e.g., as a processor ages due to various degradation mechanisms of the semiconductor product. In various embodiments, all power domains of a processor can be run at their respective guaranteed frequency simultaneously and the processor should not exceed power or thermal specifications.

[0015] Note that this guaranteed frequency can correspond to a performance state of a processor, namely a P1 processor state. According to an operating system (OS)-based mechanism, namely the Advanced Configuration and Platform Interface (ACPI) standard (e.g., Rev. 3.0b, published October 10, 2006), a processor can operate at various performance states or levels, namely from P0 to PN. In general, the P1 performance state may correspond to the highest guaranteed performance state that can be requested by an OS. In addition to this P1 state, the OS can further request a higher performance state, namely a P0 state. This P0 state may thus be an opportunistic state in which, when power and/or thermal budget is available, processor hardware can configure the processor or at least portions thereof to operate at a higher than guaranteed frequency. In many implementations a processor can include multiple so-called bin frequencies above this P1 frequency.

[0016] Another parameter to be used in a PBM algorithm is a maximum turbo frequency (P0), which is a highest frequency at which a domain can operate. This maximum turbo frequency thus is the highest end of multiple bin frequencies greater than the P1 frequency and corresponds to a maximum non-guaranteed highest performance level that can be achieved. Note that at this frequency there are no guarantees on whether the domain exceeds the power or thermal specifications of the processor. In many situations, device characterization during fabrication of a processor can be used to set a maximum turbo frequency, which can be set on a per domain basis. Bin frequencies up to the maximum turbo frequency can be stored in a non-volatile storage or other mechanism of a processor. Note that it is not guaranteed that a processor with more than one domain is able to simultaneously run all domains at their respective maximum turbo frequencies. It is also not guaranteed that a given domain can run at

its maximum turbo frequency while other domains are running at their respective guaranteed frequencies.

[0017] Embodiments may dynamically calculate a package power budget which is a metric that measures the power headroom available to the processor for a given time interval. Depending on this power budget, one or more domains may be controlled to enter into a turbo mode in which a frequency can be raised above the guaranteed frequency.

[0018] In one embodiment, the power budget can be calculated using the following equation:

$$E_n = E_{n-1} * \alpha + (1-\alpha)*(Power_Limit*\delta T - Energy) \quad [1]$$

where

E_n = energy budget for the current (Nth) evaluation instant (which can be measured in Joules);

E_{n-1} = energy budget carried forward from the previous evaluation instant (which can be measured in Joules);

Power_limit = threshold power level that the processor is configured to maintain, and which may correspond to a thermal design processor (TDP). This thermal design power may thus be a measure of an average power at which the processor can operate. In many implementations, this TDP can be measured in units of power, namely Watts (W). For example, a processor can be rated at a TDP of 40W. This means that on average, the processor can withstand a power consumption level of 40W. But at any instant, its instantaneous power consumption level may be higher or lower than this TDP level.

δT = evaluation interval at which a power budget is computed, which in one embodiment may be approximately 1 millisecond (ms);

Energy = energy consumed during the previous evaluation interval, which can be measured in Joules. In one embodiment, energy can be estimated based on counters that trace various micro-architectural activity. For example, an energy value can be associated with each micro-operation retiring, or each cache access. Then based on these events occurring over the time interval, energy consumed can be determined. In another embodiment, energy can be obtained from reading external current and voltage monitoring sensors such as current monitoring circuitry implemented in a voltage regulator; and

alpha = rate of power budget decay, which can be a function of the thermal resistance of a heatsink and cooling solution of the platform. In general, an alpha value can vary inversely with the selected deltaT. Where the deltaT is relatively small, e.g., 1ms, the alpha value may be higher, and vice-versa.

[0019] In various embodiments, a user may be provided with control, e.g., by user-level software to enable the software to determine how package power budget is shared between different domains. In one embodiment, this control can be exposed by way of configuration information that can be set by such software, e.g., as entries in one or more configuration registers. In one particular embodiment of a processor having a first domain and a second domain (also referred to as “planes”), two such configuration registers may be provided as follows in Table 1:

TABLE 1

Primary Plane Turbo Power Policy

[31.5]	[4.0]
Reserved	POLICY_FIRST

Secondary Plane Turbo Power Policy

[31.5]	[4.0]
Reserved	POLICY_SECOND

[0020] These two values, referred to as policy values (and in the example of Table 1 can be 5-bit values), can be used to determine how a package power budget is to be shared between these two domains. For purposes of discussion herein, assume that these two domains are a core domain and a graphics domain. Furthermore, the core domain is referred to also herein as an “IA” domain, referring to processor cores in accordance with an Intel Architecture™ instruction set architecture (ISA) (although embodiments can be used in connection with processors of other manufacturers and ISAs), while the graphics domain can be referred to as a

“GT” domain, which refers to an embedded graphics engine that can be implemented on the same die as such IA cores. In one embodiment, the following equations may govern how the package power budget is shared between core and graphics domains:

$$IA_percentage_of_package_budget = 0.5 + (POLICY_FIRST - POLICY_SECOND)/62 \quad [2]$$

$$GT_percentage_of_package_budget = 0.5 + (POLICY_SECOND - POLICY_FIRST)/62 \quad [3]$$

[0021] More generally, for the case of N domains over which an allocation of a package power budget is based on priority over these N domains, the following equations can be used:

$$BIAS_x = \frac{POLICY_x}{\sum POLICY_i} \quad [4]$$

$$E_{domain(x)} = E_n * BIAS_x \quad [5]$$

Here a BIAS can be calculated for each domain x based on the policy value (x) of that domain and the sum of total policy values of all the domains, and again E_n is the energy budget at time instant n.

[0022] In some embodiments, these configuration registers that store policy values can be controlled generally as incrementing counters. That is, in some embodiments both an OS or other scheduler for the core domain and a graphics driver, which is software and/or firmware that controls various parameters of the graphics engine such as its frequency of operation and so forth, can make requests for a given frequency of operation to the PCU. If the requested frequency is not allowed (e.g., due to a power or thermal limit), the corresponding entity can increment the associated policy value. Thus over time, as a given entity's requests for a higher frequency are not granted, the policy values can be raised. These policy values similarly can be decremented. For example, policy values can be decremented on reset and when a domain gets the frequency it requested, or if a workload profile on the domain changes. For example if the workload utilization on that domain decreases (e.g., C0 residency decreases), the OS or driver

software can chose to reduce the policy value for that domain. Then based on these policy values and the above Equations 2 and 3, a percentage of the package budget, e.g., as determined in accordance with Equation 1, can be allocated to each of the domains by controlling their frequency and/or voltage accordingly. In various embodiments, the above mechanism of splitting budget between the domains is done on a continuous basis every ΔT time interval.

[0023] Referring now to FIG. 1, shown is a flow diagram of a high level method of performing power budget allocations between multiple domains in accordance with an embodiment of the present invention. As shown in FIG. 1, method 100 can be implemented by logic within a processor, such as power sharing logic of a PCU or other power controller. As seen, method 100 may begin by determining a package power budget for a current interval (block 110). In various embodiments, this determination can be made in accordance with Equation 1 above, although other manners of determining a package power budget for a given interval can occur.

[0024] Next, at block 120 a portion of this package power budget to be allocated amongst multiple domains can be determined. For purposes of discussion herein, assume a multi-domain processor including a core domain and a graphics domain. Different manners of allocating or sharing a power budget between these domains can occur in different embodiments. In general however, information regarding the manner in which sharing is to be performed, e.g., as indicated within configuration registers that can be set by system level and/or user-level software in addition to any floors or minimum values to be allocated to the different domains, can be considered in this determination. Accordingly, block 120 determines the allocation of the package power budget to be provided to each domain. Thus control next passes to block 130 where these domains can be controlled in accordance with this allocation. More specifically at block 130 a frequency and/or voltage of these domains can be updated based on the allocated portion of the power budget. In this way, for the given interval each of the domains can execute operations in accordance with this budget. While shown at this high

level in the embodiment of FIG. 1, understand the scope of the present invention is not limited in this regard.

[0025] To handle cases where a certain amount of budget may be desired to be reserved for a domain, embodiments may support additional tunable parameters. These parameters, which may also be exposed by way of configuration registers or in another manner, can reserve a predetermined amount of budget for a given domain. In one embodiment, these parameters may be referred to as reservation values and can be used to identify a minimum power budget (e.g., in terms of Watts) to be allocated to a given domain. In the described multi-domain processor, these parameters may be as follows:

Min_reserved_for_IA = amount of budget to be reserved for the core domain; and

Min_reserved_for_GT = amount of budget to be reserved for the graphics domain.

[0026] Referring now to FIG. 2, shown is a flow diagram of a method describing further details of allocating a package power budget between multiple domains in accordance with an embodiment of the present invention. As shown in FIG. 2, method 200 may similarly be performed by power sharing logic of a PCU or other power controller of a processor. Method 200 can begin by obtaining minimum reservation values for the domains (block 210). As in the embodiment of FIG. 1 assume a multi-domain processor including at least a core domain and a graphics domain. These minimum reservation values can be obtained, e.g., from configuration registers set by user-level software to indicate a floor level corresponding to a minimum amount of power budget to be allocated to the given domain. Of course, these values instead can be set by other entities such as an OS and/or graphics driver, respectively for the core and graphics domains.

[0027] At diamond 220 it can be determined whether the package power budget is greater than the minimum reservation value for the second domain. The package power budget can be calculated in different manners, but assume for purposes of discussion that it is

calculated in accordance with Equation 1 above. If the budget is not greater than this minimum reservation value, control passes to block 230 where all of the package power budget can be allocated to the second domain. Thus the embodiment shown in FIG. 2 favors providing power to the second domain (which may correspond to a graphics domain) over the first domain (which may correspond to a core domain). Although shown with this preference in FIG. 2, understand the scope of the present invention is not limited in this regard, and in other implementations the preference can be in the other direction. And note that this preference can be dynamically changed based on a workload of a processor (e.g., a graphics intensive workload versus a computing intensive workload). As an example, a preference for the graphics domain can be hard mapped to first allocate to the graphics domain and then to the core domain to share the rest between core domain and graphics domain. This decision can be made based on the POLICY_FIRST and POLICY_SECOND values. For example, if POLICY_FIRST is greater than POLICY_SECOND, the preference may be to first allocate to the core domain and then allocate the remaining budget to graphics domain and so on.

[0028] If instead at diamond 220 it is determined that the package power budget is greater than the minimum reservation value for the second domain, control passes to diamond 240, where it can be determined whether the package power budget is greater than this minimum reservation value but less than the sum of the minimum reservation values for the two domains. If this is the case, control passes to block 250 where the minimum reservation value can be allocated to the second domain, and any remaining package power budget can be allocated to the first domain. Note again with regard to this allocation that a preference is made in favor of the second domain over the first domain. But in another implementation (or different workload), the preferences can be in the other direction.

[0029] Finally, if the package power budget is greater than the sum of the minimum reservation values, control passes to block 260 where the minimum reservation values can be allocated to the domains, and then any remaining package power budget can be shared

according to sharing policy values. These sharing policy values may also be obtained, e.g., from the configuration registers of Table 1. As one example, these sharing values can be set at equal values such that the remaining power budget can be allocated equally amongst the two domains. However in other examples, one of the domains may have a higher policy sharing value and thus may obtain more of the available power budget. Although shown with this particular implementation in the embodiment of FIG. 2, understand the scope of the present invention is not limited in this regard. For example, in products having greater than two domains, the analysis may proceed similarly but the available power budget is shared amongst the $m > 2$ variable power domains based on policy values, reservation values, and/or preferences for each of the domains.

[0030] Thus, based on the scenarios in FIG. 2 using the programmable reservation parameters, there can be four potential cases with regard to the packet budget (and assuming that the graphics domain has a higher preference value than the core domain):

1. Package budget $<$ Min_reserved_for_GT. In this case the graphics domain receives the entire package budget, and the core domain receives no part of the package budget.
2. Min_reserved_for_IA + min_reserved_for_GT $>$ Package budget $>$ Min reserved for GT. In this case the graphics domain receives its minimum reservation value and the core domain receives the remaining budget (i.e., Packet budget – Min reserved for GT).
3. Package budget $>$ Min_reserved_for_IA + Min_reserved_for_GT. In this case the graphics domain receives its minimum reservation value and a portion of the budget that exceeds the sum of the minimum reservation values. Identically the core domain receives its minimum reservation value and a portion of the budget that exceeds the sum of the minimum reservation values. The portions allocated to the two domains can be a function of POLICY_FIRST and POLICY_SECOND (of Table 1) as follows:

$\text{Pkg_budget_for_IA} = \text{Min Guaranteed IA} + \text{PKG_BUDGET} * \text{IA_percentage_of_package_budget.}$ [6]

Similarly, $\text{Pkg_budget_GT} = \text{Min Guaranteed GT} + \text{PKG_BUDGET} * \text{GT_percentage_of_package_budget.}$ [7]

4. Package budget > Min reserved for IA + GT but with a non-uniform split. In this case the graphics domain receives its minimum reservation value and a portion of the budget that exceeds the sum of the minimum reservation values. The portion of budget given to the graphics domain is governed by Equation 7 listed above (and that allocated to the core domain in Equation 6). Based on the POLICY_FIRST and POLICY_SECOND values, the excess power budget can be split asymmetrically between the domains. For example if POLICY_FIRST is 0 and POLICY_SECOND is 16, the graphics domain receives 75% of the package budget and the core domain receives the remaining 25%. FIG. 3 is a graphical illustration of the different allocation cores for these four cases, which are listed as cases 1-4 in the illustration.

[0031] To further illustrate how different domains can share a power budget, and furthermore how this power budget can shift between the domains based on a type of workload being executed, reference can be made to FIGS. 4 and 5, which are graphical illustrations of various allocations of a power budget between multiple domains in different workload environments.

[0032] Referring first to FIG. 4, shown is a power consumption diagram in which a graphics domain power consumption is on the X-axis and a core domain power consumption is on the Y-axis. As seen, each domain may have an independent specification power level, which may correspond to a P1 or thermal design power level, which is the maximum guaranteed frequency at which the domain can execute. In addition, the domains can execute at higher power levels in a turbo mode (namely, a higher than guaranteed operating frequency, corresponding to a P0 performance state). As seen, a line 10 joining the axes corresponds to a

total package power budget. When a core-intensive workload is executed, the portion of the total power budget allocated to the core domain can be higher, and in turn when a graphics-intensive workload is being executed, the portion of the total package power budget being allocated to the graphics domain can be higher.

[0033] As further seen, the sum of the power budgets when both domains are executing at their highest guaranteed frequency corresponds to a sum of the maximum power budgets at a point 20. This sum can exceed the total package power budget and thus, the realistic current maximum power consumption level may fall on a range between points 30 and 40. Operating at points 30 or 40 depends on how the power budget is split between the core and graphics domains. Prioritizing towards the graphics domain will result in operating at point 40 and prioritizing towards the core domain will result in operating at point 30.

[0034] However as seen in FIG. 5, it is possible that both domains can execute at their guaranteed maximum operating frequency and not violate the total package power budget in a turbo mode, as the total package power budget can be set to a higher level 15, when the turbo mode is available. Thus for at least short time periods, a turbo mode may be available in which both domains can at least meet their maximum guaranteed operating frequency.

[0035] Referring now to FIG. 6, shown is a block diagram of a processor in accordance with an embodiment of the present invention. As shown in FIG. 6, 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.

[0036] In various embodiments, power control unit 355 may include a power sharing logic 359, which may be a logic to perform dynamic control and re-allocation of an available power budget between multiple independent domains of the processor. In the embodiment of FIG. 6, assuming that each core is of an independent power domain, logic 359 can calculate an available power budget for a given time interval and dynamically allocate portions of this available power budget to the different cores. Such allocations can be on equal footing, or preferenced to one or more of the domains. These allocations can thus be based on policy values for the different domains, minimum reservation values for the different domains, and preference values. In one embodiment, these preference values may be of a ranked order in which each domain is ranked according to its preference. For example, in a two domain system the two domains can be ranked as a higher and lower preference such that an algorithm as discussed in FIG. 2 can allocate a minimum reservation value to the higher ranked domain when there is insufficient power budget for both domains' minimum reservation values. And of course such rankings can be extended to additional domains. As further seen in FIG. 6 to provide for storage of various policy values, minimum reservation values and preference values, a power control storage 357 may further be present within PCU 355 to store these various values. Although shown at this location in the embodiment of FIG. 6, understand that the scope of the present invention is not limited in this regard and the storage of this information can be in other locations, such as configuration registers, non-volatile storage or the like.

[0037] With further reference to FIG. 6, 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. 6, the scope of the present invention is not limited in this regard.

[0038] Referring now to FIG. 7, shown is a block diagram of a multi-domain processor in accordance with another embodiment of the present invention of the present invention. As shown in the embodiment of FIG. 7, processor 400 includes multiple domains. Specifically, a core domain 410 can include a plurality of cores 410a–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. In addition, these domains can dynamically share a package power budget between them in accordance with an embodiment of the present invention. Each of domains 410 and 420 may operate at different voltage and/or power.

[0039] 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. In this way, finer grained control of the amount of processor cores that can be executing at a given frequency can be realized.

[0040] 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) 440₀ – 440_n. In various embodiments, LLC 450 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.

[0041] In the embodiment of FIG. 7, system agent domain 450 may include 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 power sharing logic 459 in accordance with an embodiment of the present invention. In various embodiments, this logic may execute algorithms such as shown in FIGS. 1 and 2 to thus dynamically share an available package power budget between the core domain and the graphics domain.

[0042] As further seen in FIG. 7, 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. 7, understand the scope of the present invention is not limited in this regard.

[0043] Thus in various embodiments, a technique is provided to enable selection of how much of a common power envelope can be allocated to each of multiple independent power domains of a semiconductor device. Note that this power sharing approach is different than conventional power management control of processing engines, which simply acts to select one or more engines to be placed into a low power state, but does not provide for the dynamic power sharing of a power budget between domains as described herein. That is, embodiments provide a mechanism to dynamically share the power budget between different compute components in the same die. As a result, a power budget or power headroom can be reallocated between cores and graphics engine when they are both integrated on the same die. Although embodiments described herein are with regard to a multi-domain processor having at least one core domain and a graphics domain, the scope of the present invention is not so limited, and can

be extended to any integrated semiconductor device where common power resources are dynamically allocated between multiple compute entities.

[0044] Embodiments thus may dynamically redistribute power between core domain and graphics domain, enabling flexibility to handle various different workload requirements.

[0045] Embodiments may be implemented in many different system types. Referring now to FIG. 8, shown is a block diagram of a system in accordance with an embodiment of the present invention. As shown in FIG. 8, 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. 8, 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 allocation of a package power budget between multiple domains of the processor, as described herein.

[0046] Still referring to FIG. 8, 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. 8, 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. 8, chipset 590 includes P-P interfaces 594 and 598.

[0047] 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. 8, 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, or so forth.

[0048] 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.

[0049] 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.

What is claimed is:

- 1 1. A processor comprising:
2 a first domain and a second domain, each of the first and second domains to
3 operate at an independent voltage and frequency;
4 a memory controller coupled to the first and second domains;
5 at least one interface; and
6 first logic to dynamically allocate a power budget for the processor between the
7 first and second domains at run time.

- 1 2. The processor of claim 1, wherein the first logic is to dynamically allocate
2 the power budget according to a first sharing policy value for the first domain and a
3 second sharing policy value for the second domain, the first and second sharing policy
4 values controllable by user-level software.

- 1 3. The processor of claim 2, wherein the first logic is to determine a portion
2 of the power budget to allocate to the first domain based on the first sharing policy value.

- 1 4. The processor of claim 2, wherein the first logic is to dynamically allocate
2 the power budget further according to a first minimum reservation value for the first
3 domain and a second minimum reservation value for the second domain, the first and
4 second minimum reservation values controllable by the user-level software.

- 1 5. The processor of claim 4, wherein the first logic is to provide at least a
2 first portion of the power budget to the first domain, the first portion corresponding to the
3 first minimum reservation value.

1 6. The processor of claim 1, wherein the first logic is to determine the power
2 budget for a current time interval based at least in part on a power budget carried forward
3 from a previous time interval, a power consumed in the previous time interval, and a
4 power budget decay value.

1 7. The processor of claim 6, wherein the first logic is to determine the power
2 budget according to $E_n = E_{n-1} * \alpha + (1-\alpha)*(Power_Limit*\delta T - Energy)$,
3 where:

4 E_n is the power budget for the current time interval;
5 E_{n-1} is the power budget carried forward from the previous time interval;
6 Power_limit is a threshold power level;
7 deltaT is a length of the time interval;
8 Energy is the power consumed during the previous time interval; and
9 alpha is the power budget decay value.

1 8. The processor of claim 1, wherein the first logic is to dynamically allocate
2 substantially all of the power budget to the first domain for a first workload, and to
3 dynamically allocate substantially all of the power budget to the second domain for a
4 second workload executed after the first workload.

1 9. A machine-readable medium having stored thereon instructions, which if
2 performed by a machine cause the machine to perform a method comprising
3 determining, in a power controller of a multi-domain processor, a power budget
4 for the multi-domain processor for a current time interval, the multi-domain processor
5 including at least a first domain and a second domain;

6 determining, in the power controller, a portion of the power budget to be allocated
7 to the first and second domains; and
8 controlling a frequency of the first domain and a frequency of the second domain
9 based on the allocated portions.

1 10. The machine-readable medium of claim 9, wherein determining the
2 portion of the power budget to be allocated to the first and second domains includes
3 allocating the power budget to the second domain and not to the first domain if the power
4 budget is less than a minimum reservation value for the second domain.

1 11. The machine-readable medium of claim 10, wherein the method further
2 comprises obtaining the minimum reservation value for the second domain from a
3 configuration register written by user-level software.

1 12. The machine-readable medium of claim 10, wherein the method further
2 comprises allocating the minimum reservation value for the second domain to the second
3 domain, and allocating a remaining portion of the power budget to the first domain when
4 the power budget is greater than the minimum reservation value for the second domain
5 but less than a sum of the minimum reservation value for the second domain and a
6 minimum reservation value for the first domain.

1 13. The machine-readable medium of claim 9, wherein the method further
2 comprises allocating a minimum reservation value to the first domain and a minimum
3 reservation value to the second domain, and sharing a remaining portion of the power
4 budget according to a first sharing policy value for the first domain and a second sharing
5 policy value for the second domain.

1 14. The machine-readable medium claim 13, wherein the first sharing policy
2 value is controllable by software executing on the first domain, the first sharing policy
3 value to be incremented when a request for a higher frequency for the first domain is not
4 granted, and the second sharing policy value is controllable by software executing on the
5 second domain, the second sharing policy value to be incremented when a request for a
6 higher frequency for the second domain is not granted.

1 15. A system comprising:
2 a multicore processor having a first domain including a plurality of cores, a
3 second domain including a graphics engine, and a third domain including system agent
4 circuitry, the third domain to operate at a fixed power budget and including a power
5 sharing logic to dynamically allocate a variable power budget between the first and
6 second domains based at least in part on a first power sharing value for the first domain
7 stored in a first storage and a second power sharing value for the second domain stored in
8 a second storage; and
9 a dynamic random access memory (DRAM) coupled to the multicore processor.

1 16. The system of claim 15, wherein the system agent circuitry includes a
2 power sharing logic to determine the variable power budget for a current time interval
3 and to allocate a first portion of the variable power budget to the first domain according
4 to the first power sharing value, and to allocate a second portion of the variable power
5 budget to the second domain according to the second power sharing value.

1 17. The system of claim 16, wherein the power sharing logic is to dynamically
2 allocate substantially all of the variable power budget to the first domain for a first

3 workload, and to dynamically allocate substantially all of the variable power budget to
4 the second domain for a second workload executed after the first workload.

1 18. The system of claim 16, wherein the power sharing logic is to increment
2 the first power sharing value when a request for a higher frequency for the first domain is
3 not granted, and to increment the second power sharing value when a request for a higher
4 frequency for the second domain is not granted.

1 19. The system of claim 16, wherein the power sharing logic is to further
2 allocate the first portion of the variable power budget according to a first minimum
3 reservation value for the first domain and allocate the second portion of the variable
4 power budget according to a second minimum reservation value for the second domain.

1 20. The system of claim 16, wherein the power sharing logic is to further
2 allocate the variable power budget according to a preference value, the preference value
3 to favor the second domain over the first domain.

DYNAMICALLY ALLOCATING A POWER BUDGET
OVER MULTIPLE DOMAINS OF A PROCESSOR

Abstract of the Disclosure

In one embodiment, the present invention includes a method for determining a power budget for a multi-domain processor for a current time interval, determining a portion of the power budget to be allocated to first and second domains of the processor, and controlling a frequency of the domains based on the allocated portions. Such determinations and allocations can be dynamically performed during runtime of the processor. Other embodiments are described and claimed.

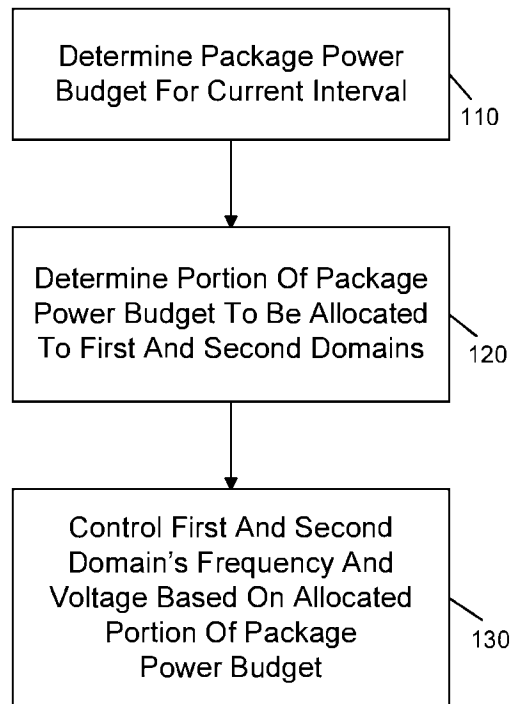


FIG. 1

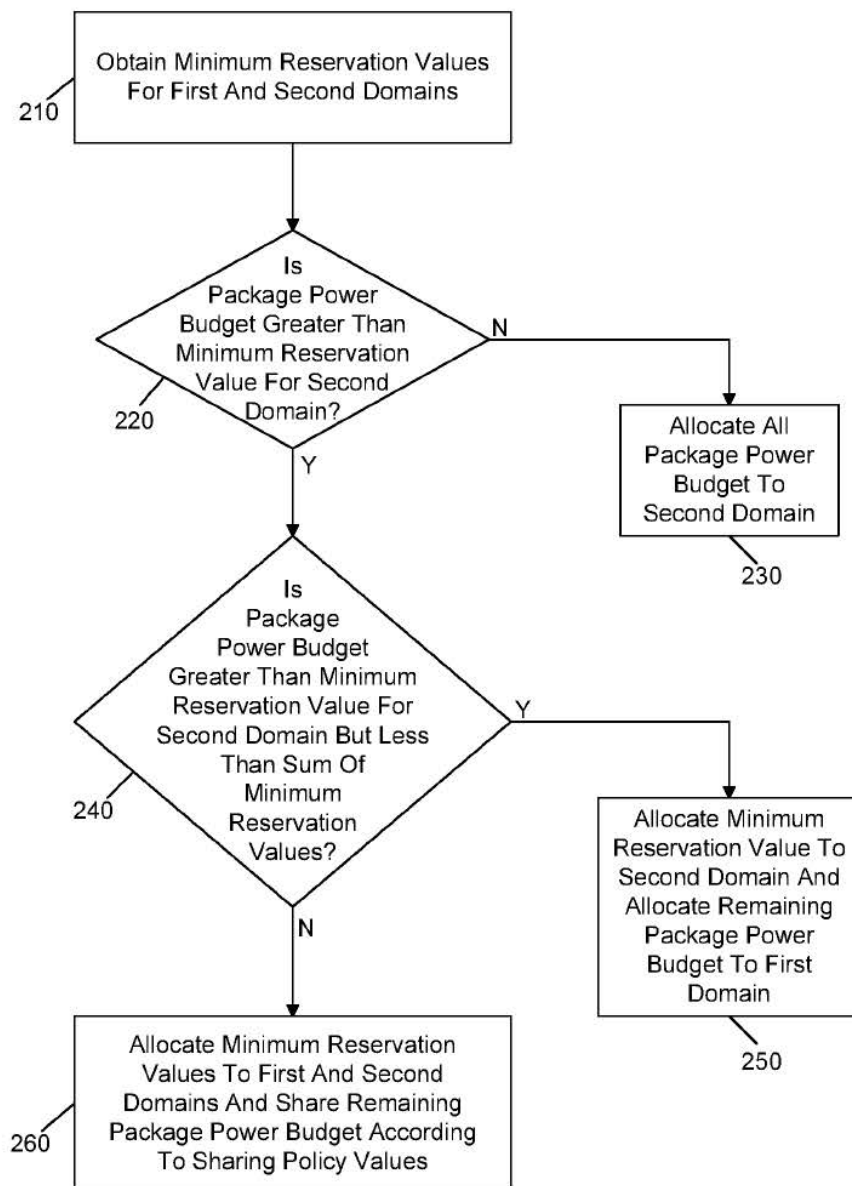


FIG. 2

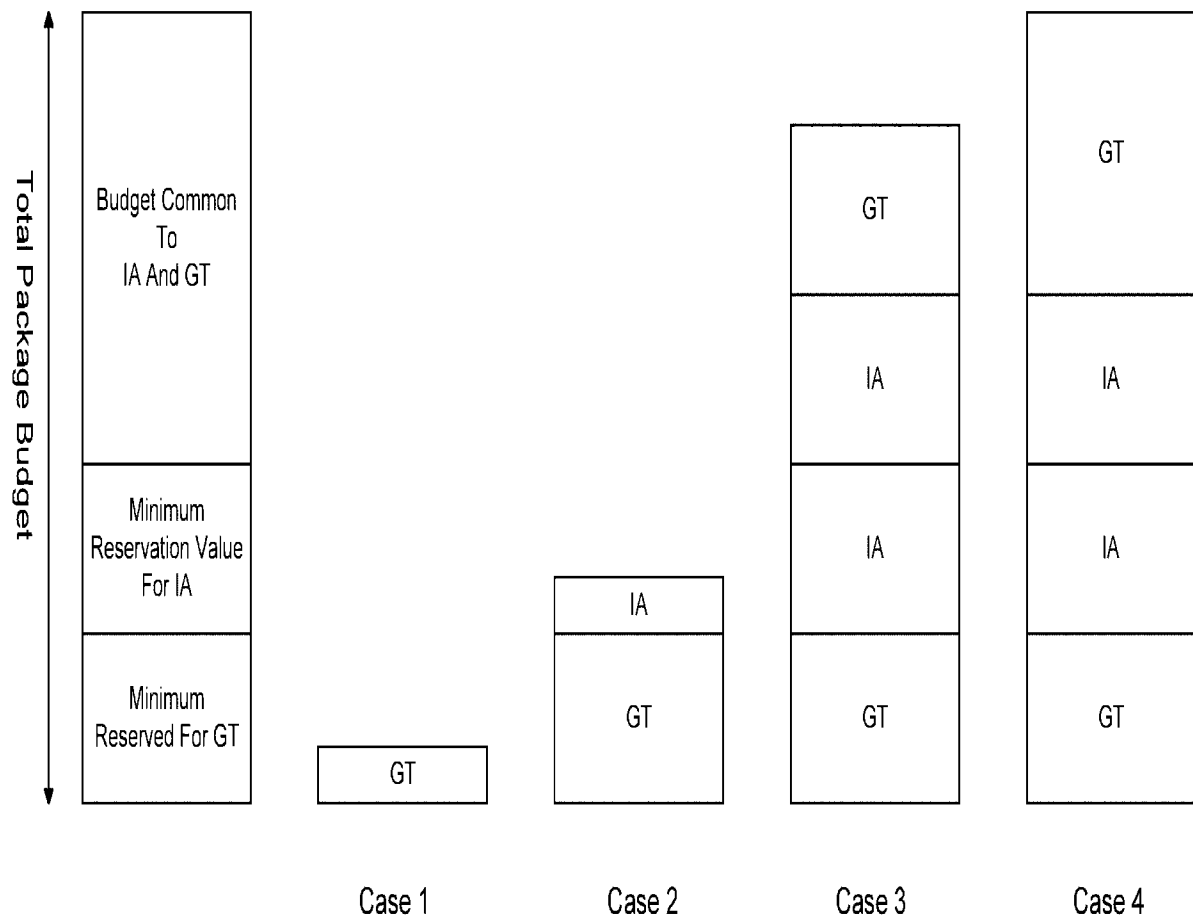
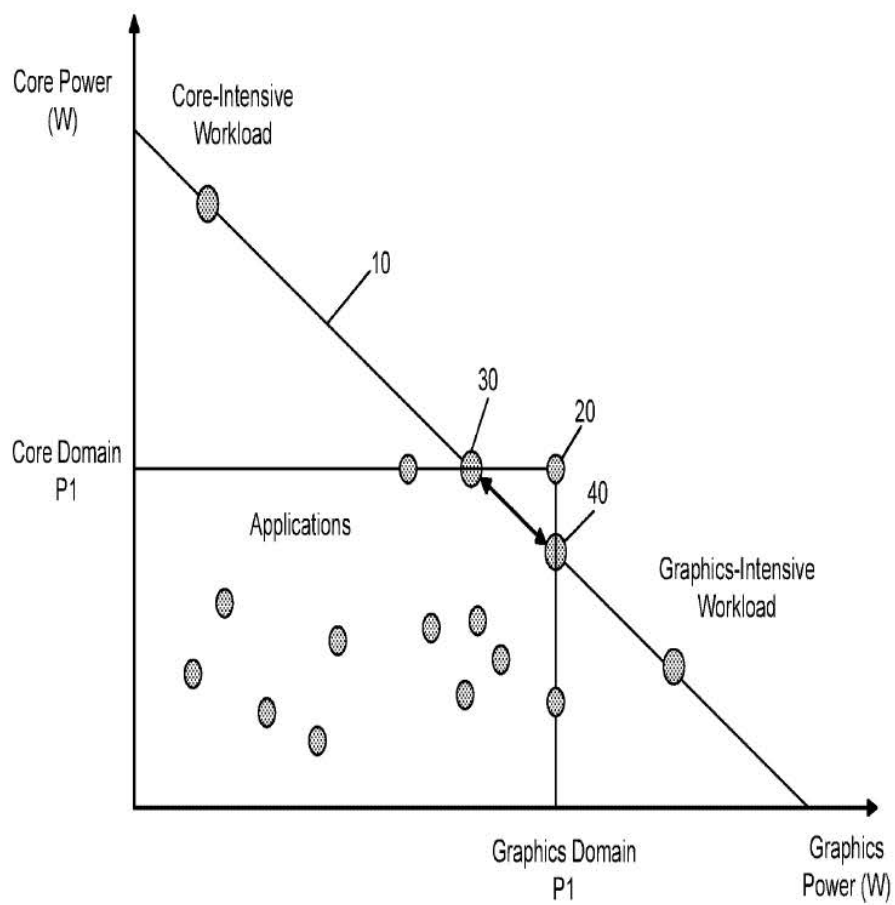


FIG. 3



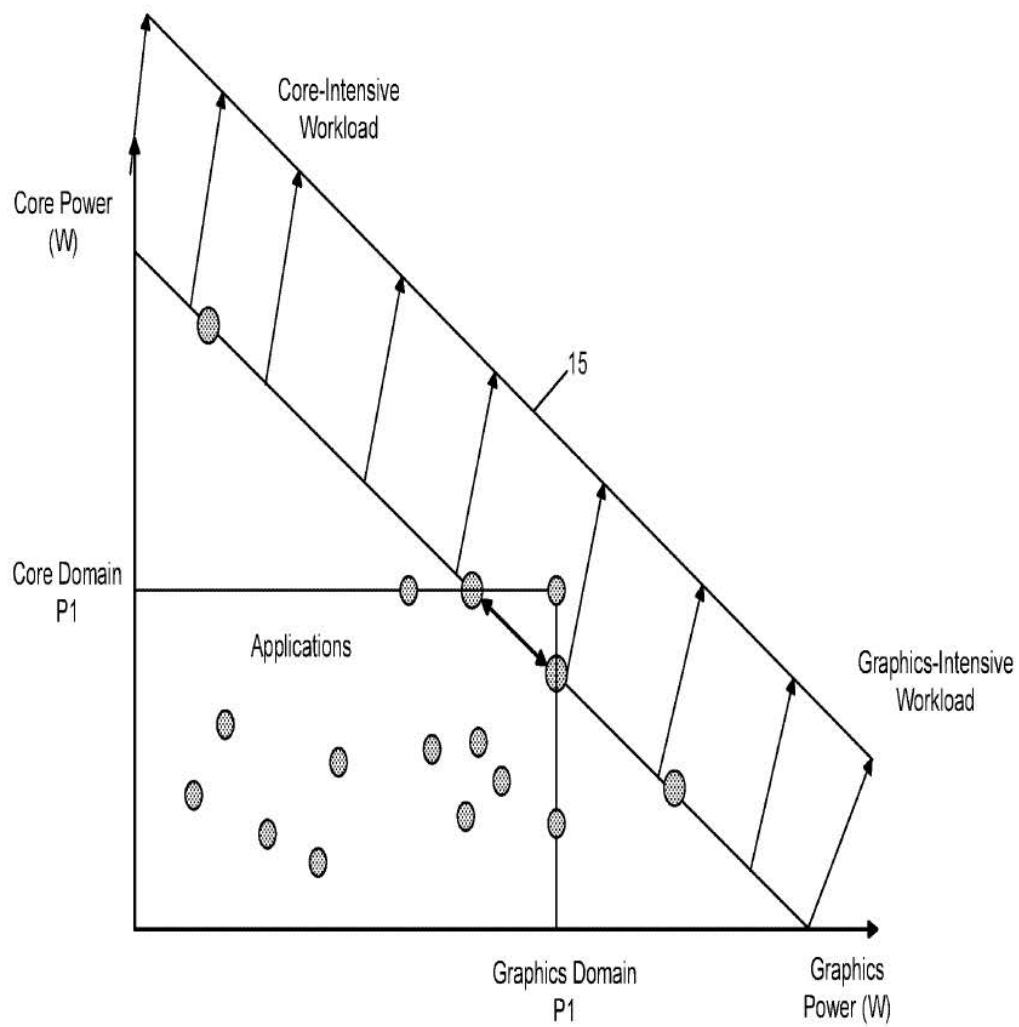


FIG. 5

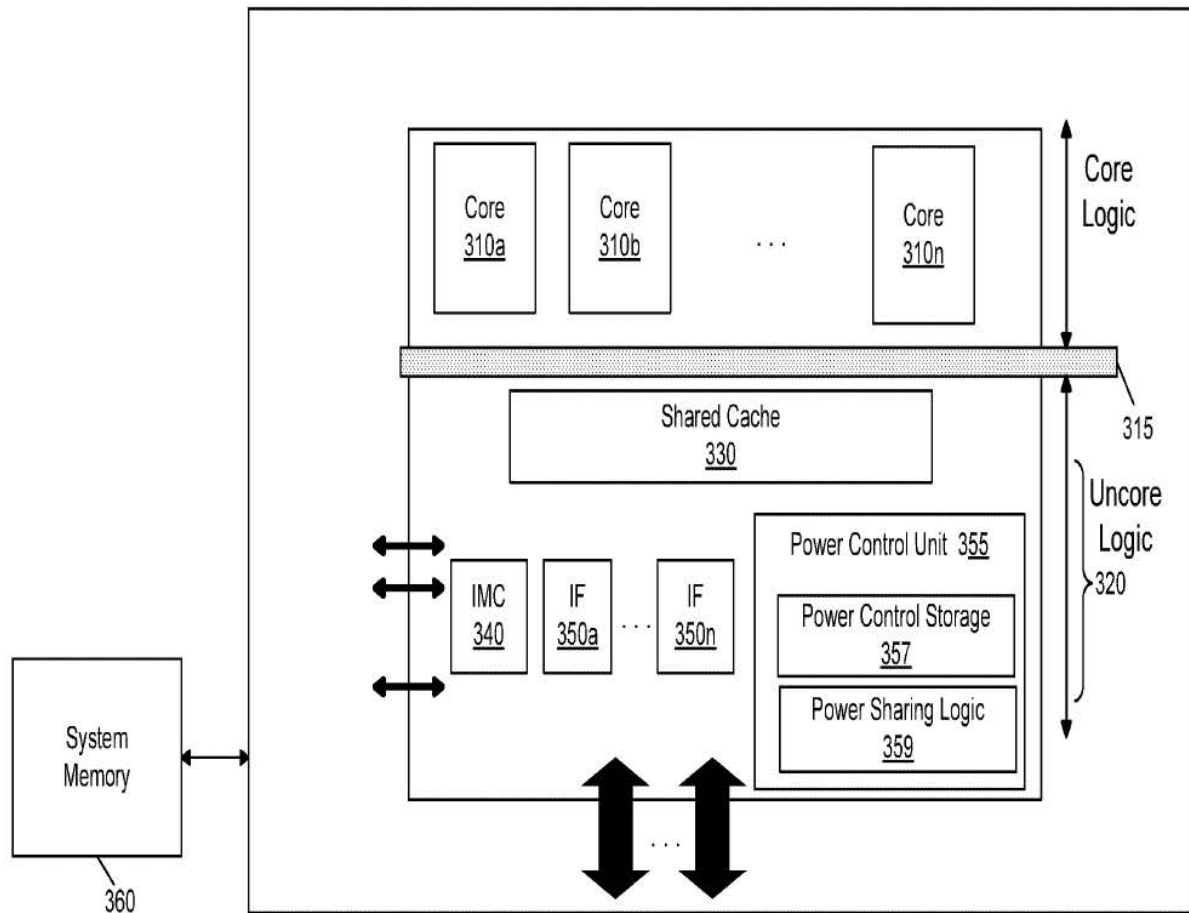


FIG. 6

400

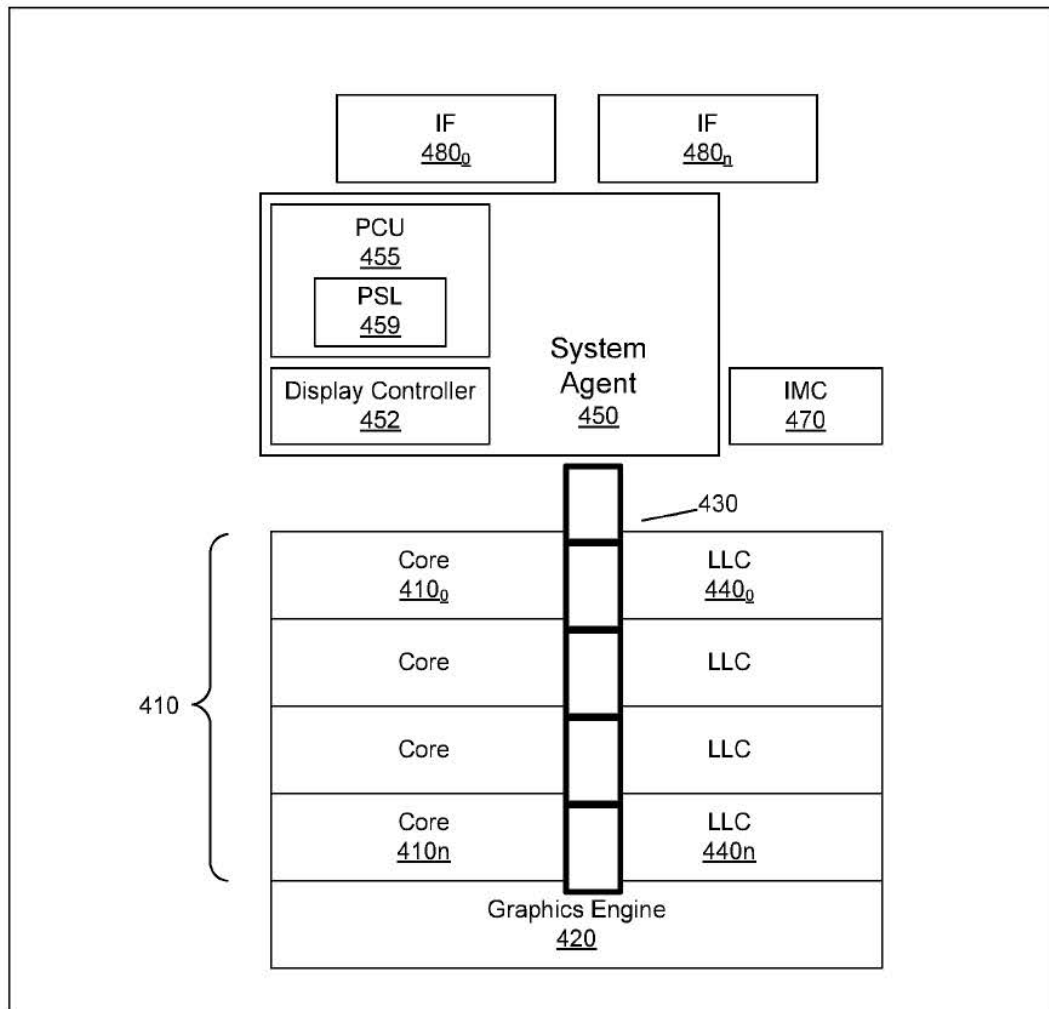


FIG. 7

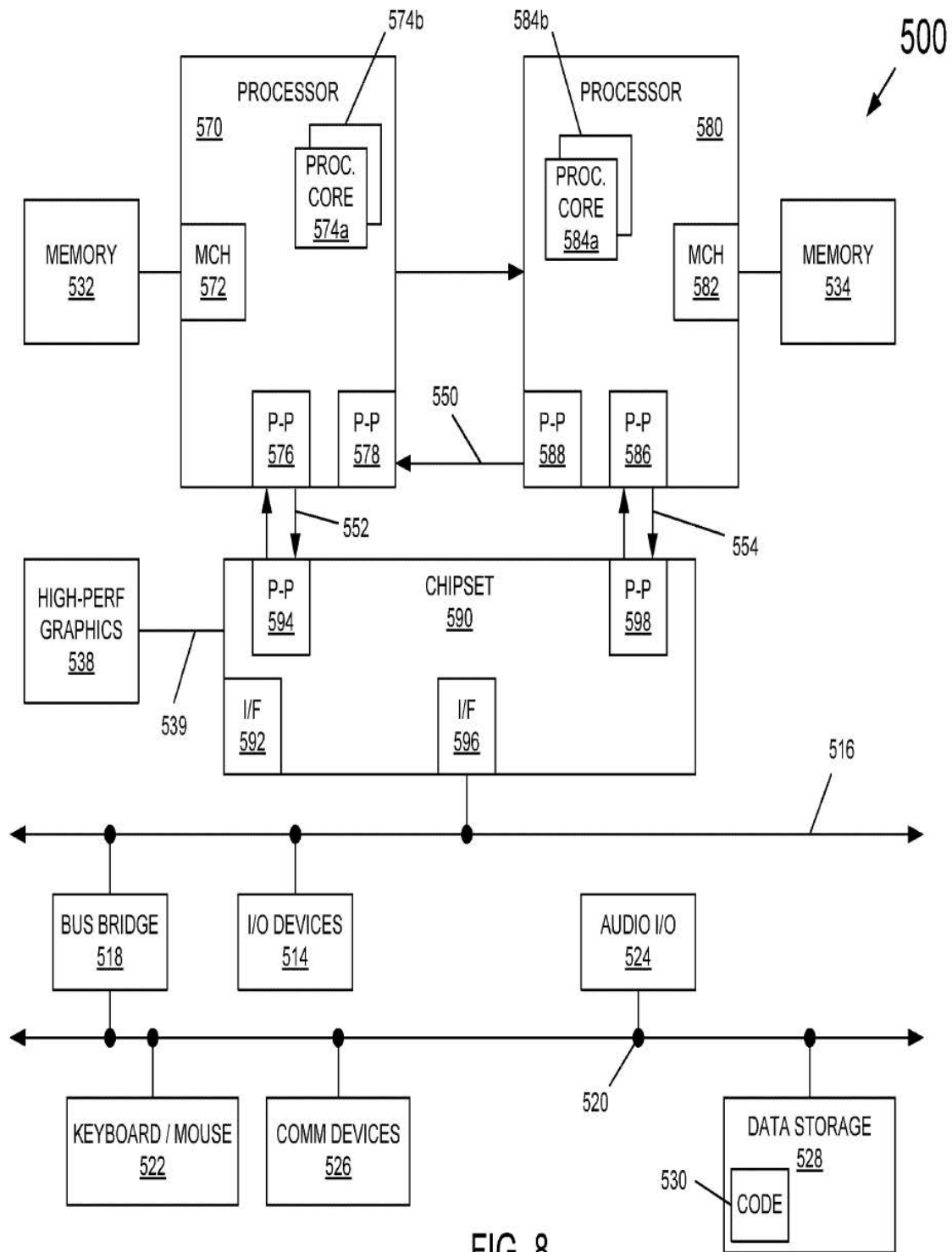


FIG. 8

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	390	390
Utility Search Fee	1111	1	620	620
Utility Examination Fee	1311	1	250	250
Pages:				
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	1051	1	130	130
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1390

Electronic Acknowledgement Receipt	
EFS ID:	15076706
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	28-FEB-2013
Filing Date:	
Time Stamp:	12:38:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1390
RAM confirmation Number	14383
Deposit Account	201504
Authorized User	ROZMAN, MARK J.
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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	ITL2495C1USPatentApplication Trans.pdf	239907	no	1
			104c54574eb3b0433ce87ae5d6ccab5d9f22c5d5		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	ITL2495C1USFeeSheet.pdf	207913	no	1
			32aa3545daa4c74d1ab75ad907961270a3928b2b		
Warnings:					
Information:					
3	Application Data Sheet	ITL2495C1AppDataSheet.pdf	1432932	no	7
			f54ffc0de7a79aa878fbaec128e673fd27db9076		
Warnings:					
Information:					
4		ITL2495C1USPatentApplication .pdf	114683	yes	25
			591f1410a3b02a14ba424e8da37094925845abfe		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	19		
	Claims	20	24		
	Abstract	25	25		
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Information:					
5	Drawings-only black and white line drawings	ITL2495Drawings.pdf	80756	no	8
			c9fe121046583a7ffcd2f29c3d783d8df85b8b984		
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	36899	no	2
			17749683e61a164c429c18ed37f8a7688f652f78		
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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 13/780,066				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	280			
SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A			N/A	600			
EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	720			
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	20	minus 20 = *			OR	x 80 =	0.00			
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	3	minus 3 = *				x 420 =	0.00			
APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	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)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=	OR	x	=
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=	OR	x	=
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	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.										



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY DOCKET NO	TOT CLAIMS	IND CLAIMS
13/780,066	02/28/2013	2115	1390	ITL.2495C1US (P38410C)	20	3

CONFIRMATION NO. 3684

47795

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

FILING RECEIPT



OC000000060019222

Date Mailed: 03/29/2013

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)

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Doron Rajwan, Rishon Le-Zion, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Nadav Shulman, Tel Mond, ISRAEL;

Applicant(s)

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Efraim Rotem, Haifa, ISRAEL;
Doron Rajwan, Rishon Le-Zion, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Nadav Shulman, Tel Mond, ISRAEL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/225,677 09/06/2011

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.

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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/780,066**

Projected Publication Date: 07/11/2013

Non-Publication Request: No

Early Publication Request: No
Title

Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

Preliminary Class

713

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

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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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL.2495C1US (P38410C) CONFIRMATION NO. 3684

47795

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

NOTICE



Date Mailed: 03/29/2013

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Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

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all

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Avinash N. Ananthakrishnan, et al.	§	Group Art Unit:	Unassigned
		§		
Serial No.:	13/780,066	§		
		§	Examiner:	Unassigned
Filed:	February 28, 2013	§		
		§		
For:	Dynamically Allocating A Power	§	Atty. Dkt. No.:	ITL.2495C1US
	Budget Over Multiple Domains Of A	§		(P38410C)
	Processor	§		

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 13/225,677, filed on September 6, 2011. The following references were submitted to and/or cited by the Office in the prior application and, therefore, are not provided in this application.

Please apply any charges or credits to Deposit Account No. 20-1504.

Respectfully submitted,

Date: May 3, 2013

/Mark J. Rozman/
Mark J. Rozman
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Date of Deposit: <u>May 3, 2013</u>
I hereby certify under 37 CFR § 1.8 this correspondence is being deposited via EFS on the date indicated above.
<u>/Sarah Kupcho/</u>
Sarah Kupcho

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495C1US (P38410C)

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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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13 780 066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL.2495 US	

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.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL24956us	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		1378001ae
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL249561US	

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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	20090150695		2009-06-11	Song, et al.	
	2	20090150696		2009-06-11	Song, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL249521US

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	10	20040098560		2004-05-02	Storvik, et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CIUS	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CUGS	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13 780 066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CIUS	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13 780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL24956145	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	EP 1 282 030	EP	A1	2003-05-02	Mitsubishi Kenki Kabushiki Kaisha		<input type="checkbox"/>
	2	2001-202155	JP		2001-07-27	Hitachi LTD		<input checked="" type="checkbox"/>
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	4	2007-102673	JP		2007-04-19			<input type="checkbox"/>

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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 Serial No. 13/282,896, filed October 27, 2011, entitled "ENABLING A NON-CORE DOMAIN TO CONTROL MEMORY BANDWIDTH," by AVINASH N. ANANTHAKRISHNAN, et al. (2492)	<input type="checkbox"/>
	2	SPEC-Power and Performance, Design Overview V1.10, Standard Performance Information Corp., October 21, 2008, 6 pages.	<input type="checkbox"/>
	3	U.S. Patent Application No. 13/070,700, "Obtaining Power Profile Information With Low Overhead," filed March 24, 2011, by Robert Knight.	<input type="checkbox"/>

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	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495LUS	

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	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
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20	U.S. Patent Application Serial No. 13/282,947, filed October 27, 2011, entitled "CONTROLLING OPERATING FREQUENCY OF A CORE DOMAIN VIA A NON-CORE DOMAIN OF A MULTI-DOMAIN PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2493)	<input type="checkbox"/>
21	U.S. Patent Application Serial No. 13/285,414, filed October 31, 2011, entitled "CONTROLLING A TURBO MODE FREQUENCY OF A PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2494)	<input type="checkbox"/>
22	U.S. Patent Application Serial No. 13/247,580, filed September 28, 2011, entitled "CONTROLLING TEMPERATURE OF MULTIPLE DOMAINS OF A MULTI-DOMAIN PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2496)	<input type="checkbox"/>
23	U.S. Patent Application Serial No. 13/285,465, filed October 31, 2011, entitled "DYNAMICALLY CONTROLLING CACHE SIZE TO MAXIMIZE ENERGY EFFICIENCY," by AVINASH N. ANANTHAKRISHNAN, et al. (2497)	<input type="checkbox"/>

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EXAMINER SIGNATURE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2495C1US (P38410C)

CERTIFICATION STATEMENT			
Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):			
<input type="checkbox"/> 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			
<input type="checkbox"/> 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).			
<input type="checkbox"/> See attached certification statement.			
<input type="checkbox"/> Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.			
<input checked="" type="checkbox"/> 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)	2013-05-03
Name/Print	Mark J. Rozman	Registration Number	42,117
<p>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.</p>			

Electronic Acknowledgement Receipt	
EFS ID:	15686920
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Sarah Kupcho
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	03-MAY-2013
Filing Date:	28-FEB-2013
Time Stamp:	15:10:00
Application Type:	Utility under 35 USC 111(a)

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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)	ITL2495C1USIDStofile.pdf	955325 1887c60dbdab952b170202ce9503439261864d87	no	13

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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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL.2495C1US (P38410C)

CONFIRMATION NO. 3684

47795

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

PUBLICATION NOTICE



0000000062505153

Title:Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

Publication No.US-2013-0179704-A1

Publication Date:07/11/2013

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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/>.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495C1US (P38410C)	3684
47795 7590 11/12/2013 TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631			EXAMINER STOYNOV, STEFAN	
			ART UNIT 2116	PAPER NUMBER
			MAIL DATE 11/12/2013	DELIVERY MODE PAPERPAPER

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.

Office Action Summary	Application No. 13/780,066	Applicant(s) ANANTHAKRISHNAN ET AL.	
	Examiner STEFAN STOYNOV	Art Unit 2116	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 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 02/28/2013.
☐ 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) 15-20 is/are allowed.
- 7) ☒ Claim(s) 1-14 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 02/28/2013 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) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 3) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | Paper No(s)/Mail Date. ____. |
| Paper No(s)/Mail Date <u>05/03/2013</u> . | 4) <input type="checkbox"/> Other: ____. |

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

Information Disclosure Statement

The information disclosure statement (IDS) filed 05/03/2013 is identical to the IDS filed on 10/03/2012 in the parent Application with S/N 13/225,677 and all references cited in the IDS filed 05/03/2013 in the current Application were relied on copies of corresponding references submitted with the parent Application.

Deficiencies in the IDS filed 10/03/2012 for the parent Application were observed and made of record in corresponding Office action, thus applicable for the identical IDS filed 05/03/2013 in the current Application.

The IDS filed 05/03/2013 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed (no copy was provided for Citation No. 19 under NON-PATENT LITERATURE DOCUMENTS in IDS filed for parent Application with S/N 13/225,677 on 10/03/2012). In addition, the IDS filed 05/03/2013 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (Citation No. 4 under FOREIGN PATENT DOCUMENTS in IDS filed for parent Application with S/N 13/225,677 on 10/03/2012). It has been placed in the application file, but the information referred to therein has not been considered.

Specification

The abstract of the disclosure is objected to because the title of the invention appears on the same sheet as the abstract. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claim 9 is objected to because of the following informalities:

It is suggested inserting “:” at the end of line 2 to clearly distinguish the claim's preamble from the method steps.

Appropriate correction is required.

Double Patenting

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 double patenting rejection is appropriate where the claims at issue 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).

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 reference 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. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

Claims 9-14 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 9-14 of copending Application No. 13/225,677. Although the claims at issue are not identical, they are not patentably distinct from each other because all claim limitations of claims 9-14 in the current Application are disclosed in claims 9-14 copending Application No. 13/225,677.

"Generally, an obviousness-type double patenting analysis entails two steps. First, as a matter of law, a court construes the claim in the earlier patent and the claim in the later patent and determines the differences. Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1326, 52, USPQ2d 1590, 1593 (Fed. Cir. 1999).

Second, the court determines whether the differences in the subject matter between the two claims render the claims patentably distinct. Id. at 1327, 52 USPQ2d at 1595. A later claim that is not patentably distinct from an earlier claim in a commonly owned patent is invalid for obvious-type double patenting. In re Berg, 140 F.3d 1428, 1431, 46 USPQ2d 1226, 1229 (Fed. Cir. 1998). A later patent claim is not patentably distinct from an earlier parent claim if the later claim is obvious over, **or anticipated by**, the patent claim. In re Longi, 759 F.2d at 896, 255 USPQ at 651 (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus)." *Eli Lilly and Company v Barr Laboratories, Inc.*, United States Court of Appeals for the Federal Circuit, On petition for Rehearing en banc (decided: May 30, 2001).

In addition, claims 1-8 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-8 of copending Application No. 13/225,677 in view of Gunther et al., US Patent Appl. Pub. No. 2008/0136397. Claim 1 of copending Application No. 13/225,677 discloses all claim limitations of claim 1 in the current Application except a memory controller coupled to the first and second domains and at least one interface.

Gunther teaches dynamic allocation of power budget between plurality of domains within a multi-domain, multi-core processor similar to Applicants invention (paragraphs 0010-0017, FIG(s) 1-5). In addition, Gunther further teaches a memory controller 410 coupled to the multi-core processor (FIG. 4), thus, providing communication interface between processor 402-1 – 402-n and system memory 412 for

instruction execution (paragraph 0018). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the memory controller and die interconnections, as suggested by Gunther, with claim 1 of copending Application No. 13/225,677 to implement a memory controller coupled to the first and second domains and at least one interface, thus, providing a communication interface between the different domains (hosting respective processor cores) and the system memory for instruction execution.

Further, all claim limitations of claims 2-8 in the current Application are disclosed in claims 2-8 of copending Application No. 13/225,677.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 101

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.

Claims 9-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because the Applicants have provided evidence that the Applicants intend the term "***machine-readable medium***" to include non-statutory matter. The Applicants describe a storage medium as including open ended language and thus it is reasonable to interpret it to include all possible mediums, including non-statutory mediums (see specification, paragraph 0048). The words "storage", "stored", 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.

The examiner suggests amending the claim(s) to read as a “non-transitory machine-readable medium”.

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

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

Claims 1 and 9 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Gunther et al., US Patent Appl. Pub. No. 2008/0136397.

Regarding claim 1, Gunther discloses a processor (FIG(s) 1-5) comprising:

a first domain and a second domain (FIG(s) 1, 2, 4, and 5, paragraphs 0009 and 0013), each of the first and second domains to operate at independent voltage and frequency (paragraph 0008, lines 1-8, paragraph 0010, lines 10-18, paragraph 0014, lines 1-18);

a memory controller (memory controller 410) coupled to the first and second domains (FIG(s) 1, 2, and 4);

at least one interface (MCH 408, ICH 420, paragraphs 0018-0020); and

first logic (power management logic 105, power management unit 204) to dynamically allocate a power budget (desired power consumption target, provided by the single power supply 110 – paragraph 0008, lines 8-11, paragraph 0012, lines 1-6) for the processor between the first and second domains at run time (paragraphs 0010-0016).

Regarding claim 9, Gunther discloses a machine-readable medium having stored thereon instructions, which if performed by a machine cause the machine to perform a method (FIG(s) 1-5) comprising

determining, in a power controller (power management logic 105, power management unit 204) of a multi-domain processor (paragraphs 0012, 0017, and 0023), a power budget for the multi-domain processor for a current time interval (desired power consumption target, provided by the single power supply 110 – paragraph 0008, lines 8-11, paragraph 0012, lines 1-6), the multi-domain processor including at least a first domain and a second domain (FIG(s) 1, 2, 4, and 5, paragraphs 0009 and 0013);

determining, in the power controller, a portion of the power budget to be allocated to the first and the second domains (paragraph 0008, lines 1-8, paragraph 0010, lines 10-18, paragraph 0014, lines 1-18); and

controlling a frequency of the first domain and a frequency of the second domain based on the allocated portions (paragraphs 0010-0016).

Allowable Subject Matter

Claims 15-20 are allowed.

Claims 2-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and the nonstatutory obviousness-type double patenting rejection, set forth in this Office action is overcome.

Claims 10-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and the nonstatutory obviousness-type double patenting rejection and the rejection under 35 U.S.C. 101, set forth in this Office action are overcome.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Axford et al., US Patent No. 7,624,215, Tokue, US Patent No. 7,752,467, Dahan et al., US Patent Appl. Pub. No. 2008/0307240, and Arndt et al., US Patent Appl. Pub. No. 2012/0116599 show similar inventions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFAN STOYNOV whose telephone number is (571)272-4236. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. 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.

/Stefan Stoyanov/
Primary Examiner, Art Unit 2116

Notice of References Cited	Application/Control No. 13/780,066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.	
	Examiner STEFAN STOYNOV	Art Unit 2116	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0136397	06-2008	Gunther et al.	323/299
*	B	US-7,624,215	11-2009	Axford et al.	710/260
*	C	US-7,752,467	07-2010	Tokue, Tatsuya	713/300
*	D	US-2008/0307240	12-2008	Dahan et al.	713/320
*	E	US-2012/0116599	05-2012	Arndt et al.	700/291
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS


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

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

<i>Index of Claims</i> 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

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

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant			<input type="checkbox"/> CPA			<input type="checkbox"/> T.D.			<input type="checkbox"/> R.1.47		
CLAIM		DATE									
Final	Original	11/10/2013									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
	7	✓									
	8	✓									
	9	✓									
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	11	✓									
	12	✓									
	13	✓									
	14	✓									
	15	=									
	16	=									
	17	=									
	18	=									
	19	=									
	20	=									

Search Notes 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
713	300	11/10/13	SS
345	501	11/10/13	SS
700	286	11/10/13	SS
712	28	11/10/13	SS

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search for USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB (see attached file).	11/10/13	SS
713/300, 345/501, 700/286, 712/28 text search only for USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB (see attached file).	11/10/13	SS
Inventor's search.	11/10/13	SS

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
713	300	11/10/13	SS
	See attached Interference Search printout.	11/10/13	SS

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	21581	(control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L2	4	L1 same (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
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L4	29	L1 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L5	74	((determin\$5 or decid\$3 or establish\$3 or set\$4 or estimat\$4 or calculat\$3 or compute or computes or computing or defin\$3 or select\$3 or choos\$3) same ((power or energy) adj budget)) same (((past or previous\$2 or earlier or previous\$3) near2 (time\$1 or interval\$1 or period\$1 or duration\$1)) or histor\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L6	19	((determin\$5 or decid\$3 or establish\$3 or set\$4 or estimat\$4 or calculat\$3 or compute or computes or computing or defin\$3 or select\$3 or choos\$3) with ((power or energy) adj budget)) with (((past or previous\$2 or earlier or previous\$3) near2 (time\$1 or interval\$1 or period\$1 or duration\$1)) or histor\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
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L8	2	L6 with ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48

L9	2	L5 and ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L10	2	L6 and ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L11	1245	L1 same (dynamic\$4 or adaptive\$2 or runtime or (run adj time))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L12	609	L1 with (dynamic\$4 or adaptive\$2 or runtime or (run adj time))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L13	14	L11 same (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or only or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L14	3	L12 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or only or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L15	2	L13 same (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L16	2	L14 with (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L17	4	L13 and (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L18	2	L14 and (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT;	OR	OFF	2013/11/10 18:48

			BM_TDB			
L19	199	((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1)) same ((power or energy) adj budget)	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L20	101	((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1)) with ((power or energy) adj budget)	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
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L22	2	L20 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L23	1137	L1 same ((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L24	526	L1 with ((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L25	4	L23 same (shar\$3 near2 (polic\$3 or	US-PGPUB;	OR	OFF	2013/11/10

		rule\$1 or strateg\$3))	USPAT; EPO; JPO; DERWENT; IBM_TDB			18:48
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L27	6	L23 same (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L28	2	L24 with (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L29	4	L23 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L30	2	L24 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L31	16	L23 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L32	6	L24 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L33	201	((power or energy) near2 shar\$3) same ((control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3 or var\$5) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy))))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L34	104	((power or energy) near2 shar\$3) with ((control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3 or var\$5) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy))))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L35	9	L33 same (plural\$3 or multi\$3 or (more	US-PGPUB;	OR	OFF	2013/11/10

		adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	USPAT; EPO; JPO; DERWENT; IBM_TDB			18:48
L36	2	L34 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L37	2	L35 same (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L38	2	L36 with (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L39	2	L35 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L40	2	L36 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L41	297	(plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1))) same (((graphic\$2 or video or image or media or multimedia or (multi adj media)) adj (processor\$1 or microprocessor\$1 or cpu\$1 or core\$1)) or (graphic\$2 adj ((processing adj unit\$1) or engine\$1 or chip or controller)) or GPU\$1) same ((system adj (agent or chip or controller)) or ((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU or ((display or monitor or graphic\$2 or video) adj (controller or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48

		adapter or card)))				
L42	84	(plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1))) with (((graphic\$2 or video or image or media or multimedia or (multi adj media)) adj (processor\$1 or microprocessor\$1 or cpu\$1 or core\$1)) or (graphic\$2 adj ((processing adj unit\$1) or engine\$1 or chip or controller)) or GPU\$1) with ((system adj (agent or chip or controller)) or ((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU or ((display or monitor or graphic\$2 or video) adj (controller or adapter or card)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L43	2	L41 same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L44	2	L42 with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L45	11	L41 and ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L46	4	L42 and ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L47	18583	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L48	11715	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L49	83	L47 same (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48

		segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))				
L50	20	L48 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L51	2682	((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1) near3 (supplied or provid\$3 or feed\$3 or fed or coupl\$3 or connect\$3 or receiv\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L52	1587	((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1) near3 (supplied or provid\$3 or feed\$3 or fed or coupl\$3 or connect\$3 or receiv\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L53	315	L51.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L54	251	L52.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L55	25	L53 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L56	21	L54 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48

		(domain\$1 or section\$1 or area\$1 or block\$1)))				
L57	2	11/242045	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L58	196	L51 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L59	118	L52 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L60	21	L58 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L61	7	L59 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L62	1	L41 same ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L63	1	L42 with ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L64	2	L41 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L65	2	L42 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L66	2	L41 same (shar\$3 near3 (power or	US-PGPUB;	OR	OFF	2013/11/10

		energy))	USPAT; EPO; JPO; DERWENT; BM_TDB			18:48
L67	1	L42 with (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L68	63	L41 and (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L69	2	L42 and (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2013/11/10 18:48
L78	174	(US-20120079290-\$ or US-20110154090-\$ or US-20110072429-\$ or US-20110022865-\$ or US-20100332927-\$ or US-20100191997-\$ or US-20100146513-\$ or US-20100115309-\$ or US-20090313489-\$ or US-20090271646-\$ or US-20090235105-\$ or US-20090172428-\$ or US-20090172375-\$ or US-20090158067-\$ or US-20090158061-\$ or US-20090150696-\$ or US-20090150695-\$ or US-20090132844-\$ or US-20090070605-\$ or US-20090006871-\$ or US-20080250260-\$ or US-20080028240-\$ or US-20080005603-\$ or US-20070245163-\$ or US-20070239398-\$ or US-20070234083-\$).did. or (US-20070214342-\$ or US-20070156992-\$ or US-20070106827-\$ or US-20070079294-\$ or US-20070033425-\$ or US-20070016817-\$ or US-20070005995-\$ or US-20060184287-\$ or US-20060149975-\$ or US-20060117202-\$ or US-20060069936-\$ or US-20060059286-\$ or US-20060053326-\$ or US-20060050670-\$ or US-20050132238-\$ or US-20050046400-\$ or US-20050033881-\$ or US-20050022038-\$ or US-20040268166-\$ or US-20040139356-\$ or US-20040098560-\$ or US-20040064752-\$ or US-20030061383-\$ or US-20020194509-\$ or US-20010044909-\$).did. or (US-8015427-\$ or US-7966511-\$ or US-7797512-\$ or US-7730340-\$ or US-7650518-\$ or US-7539885-\$ or US-7529956-\$ or US-7502948-\$ or US-7454632-\$ or US-7437270-\$ or US-7434073-\$ or US-7412615-\$ or US-7272730-\$ or US-7249268-\$ or US-7194643-\$ or US-7146514-\$ or US-7111179-\$ or US-7093147-\$ or US-7043649-\$ or US-7010708-\$ or US-6996728-\$ or US-6908227-\$ or US-6829713-\$ or US-6823516-\$ or US-6792392-\$ or US-6748546-\$).did. or (US-	US-PGPUB; USPAT; DERWENT	OR	OFF	2013/11/10 18:48

		5931950-\$ or US-5621250-\$ or US-5590341-\$ or US-5522087-\$ or US-5163153-\$).did. or (WO-9016029-\$ or WO-2012040052-\$ or WO-2008117133-\$ or WO-2007038800-\$ or WO-2006029152-\$ or WO-2004070594-\$ or WO-2004066092-\$ or WO-0227451-\$ or US-7797512-\$ or US-7272730-\$ or US-7111179-\$ or US-6823516-\$ or US-6792392-\$ or US-5621250-\$ or US-5590341-\$ or US-5522087-\$ or US-4019973-\$ or US-20110154090-\$ or US-20110072429-\$ or US-20110022865-\$ or US-20100332927-\$ or US-20100191997-\$ or US-20100146513-\$ or US-20090313489-\$ or US-20090271646-\$ or US-20090235105-\$).did. or (US-20090172428-\$ or US-20090172375-\$ or US-20090158067-\$ or US-20090158061-\$ or US-20090150696-\$ or US-20090150695-\$ or US-20090132844-\$ or US-20090070605-\$ or US-20090006871-\$ or US-20080263384-\$ or US-20080250260-\$ or US-20080201591-\$ or US-20080028240-\$ or US-20080016380-\$ or US-20080005603-\$ or US-20080005592-\$ or US-20070245163-\$ or US-20070239398-\$ or US-20070234083-\$ or US-20070214342-\$ or US-20070156992-\$ or US-20070106827-\$ or US-20070033425-\$ or US-20070005995-\$ or US-20060288240-\$ or US-20060184287-\$ or US-20060149975-\$).did. or (US-20060117202-\$ or US-20060069936-\$ or US-20060053326-\$ or US-20060050670-\$ or US-20060026447-\$ or US-20050289365-\$ or US-20050216719-\$ or US-20050132238-\$ or US-20050071694-\$ or US-20050046400-\$ or US-20050033881-\$ or US-20050022038-\$ or US-20040268166-\$ or US-20040215987-\$ or US-20040139356-\$ or US-20040098631-\$ or US-20040098560-\$ or US-20040064752-\$ or US-20040037346-\$ or US-20030204759-\$ or US-20030061383-\$ or US-20020194509-\$ or US-20020087901-\$ or US-20010044909-\$ or SE-7412615-\$ or NL-7412615-\$ or JP-2009180784-\$).did. or (EP-886427-\$ or EP-1363180-\$ or DE-2515645-\$ or DE-2425579-\$ or DE-1813570-\$ or CS-7502948-\$ or BR-7502948-\$ or BE-834006-\$ or BE-814753-\$ or BE-771069-\$).did.				
L79	0	L78 and L51	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 18:48
L80	39	L41.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:05

L81	28	L42.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:05
L82	2	L80 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:05
L83	2	L81 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:05
L84	52	L41 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L85	5	L42 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L86	2	L84 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L87	2	L85 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L88	110	L41 and "345".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L89	45	L42 and "345".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:06
L90	0	L88 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L91	2	L41 and "700".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L92	1	L42 and "700".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07

L93	0	L91 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L94	8	L41 and "712".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L95	1	L42 and "712".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L96	0	L94 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:07
L97	2	L41 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:08
L98	2	L42 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/11/10 19:08

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L99	1	((((multicore or (multi adj core)) adj (processor or microprocessor)) and ((first or second or third) adj domain\$1) and ((plural\$3 or multi\$3 or (more adj2 one) or two or several or separate or individual or different or first or second or dual) adj core\$1) and (graphic\$2 adj engine) and (system adj agent) and ((fixed or constant or preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or set or defined or reserv\$5 or registered) adj ((power or energy) adj budget)) and ((power or energy) adj shar\$3 adj logic) and (dynamic\$4 adj (control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distribut\$3 or split\$3 or divid\$3)) and ((power or energy) adj shar\$3 adj (value\$1 or limit\$1 or threshold\$1 or setting\$1)) and ((first or second) adj storage\$1) and (dynamic adj random adj access adj memory)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2013/11/10 19:27

11/ 10/ 2013 7:28:47 PM

C:\Users\sstoynov1\Documents\EAST\Workspaces\13780066.wsp

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		13 780 066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495US

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	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Petitioner Samsung Ex-1004, 0096

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL24956us	

	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.	
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	18	71111179		2006-09-19	Girson, et al.	
	19	6823516		2004-11-23	Cooper	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		1378001ae
	Filing Date		2013-03-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL249561US	

	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	
	24	7249268		2007-07-24	Bhandarkar	
	25	7502948		2009-03-10	Rotem, et al.	
	26	7650518		2010-01-19	Allarey, et al.	

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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	20090150695		2009-06-11	Song, et al.	
	2	20090150696		2009-06-11	Song, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL2495C105

3	20110154090		2011-06-23	Dixon, et al.	
4	20070214342		2007-09-13	Newburn	
5	20070079294		2007-04-05	Knight	
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.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CIUS	

	14	20070106827		2007-05-10	Boatright, et al.	
	15	20080028240		2008-01-31	Arai, et al.	
	16	20090158061		2009-06-18	Schmitz, et al.	
	17	20010044909		2001-11-22	Oh, et al.	
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	20	20050033881		2005-02-10	Yao	
	21	20040064752		2004-04-01	Kazachinsky, et al.	
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	23	20070239398		2007-10-11	Song, et al.	
	24	20060069936		2006-03-30	Lint, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL2495CUGS

	25	20020194509		2002-12-19	Plante, et al.	
	26	20050132238		2005-06-16	Nanja	
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	30	20100115309		2010-05-06	Carvalho, et al.	
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	34	20090172428		2009-07-02	Lee	
	35	20090172375		2009-07-02	Rotem, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13 780 066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CIUS	

	36	20090158067		2009-06-18	Bodas, et al.	
	37	20080250260		2008-10-09	Tomita	
	38	20030061383		2003-03-27	Zilka	
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	40	20070083779		2007-04-12	Misaka, et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13 780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL24956145	

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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	EP 1 282 030	EP	A1	2003-02-05 2003-05-02	Mitsubishi Kenki Kabushiki Kaisha		<input type="checkbox"/>
	2	2001-202155	JP		2001-07-27	Hitachi LTD		<input checked="" type="checkbox"/>
	3	09-026900	JP		1997-01-28	Toshiba Corp		<input checked="" type="checkbox"/>
	4	2007-102673	JP		2007-04-10			<input type="checkbox"/>

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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 Serial No. 13/282,896, filed October 27, 2011, entitled "ENABLING A NON-CORE DOMAIN TO CONTROL MEMORY BANDWIDTH," by AVINASH N. ANANTHAKRISHNAN, et al. (2492)	<input type="checkbox"/>
	2	SPEC-Power and Performance, Design Overview V1.10, Standard Performance Information Corp., October 21, 2008, 6 pages.	<input type="checkbox"/>
	3	U.S. Patent Application No. 13/070,700, "Obtaining Power Profile Information With Low Overhead," filed March 24, 2011, by Robert Knight.	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
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	Examiner Name		
	Attorney Docket Number	ITL2495LUS	

4	ANOOP IYER, et al., "Power and Performance Evaluation of Globally Asynchronous Locally Synchronous Processors," 2002, pages 1-11.	<input type="checkbox"/>
5	GREG SEMERARO, et al., "Hiding Synchronization Delays In A GALS Processor Microarchitecture," 2004, pages 1-13.	<input type="checkbox"/>
6	JOAN-MANUEL PARCERISA, et al., "Efficient Interconnects for Clustered Microarchitectures," 2002, pages 1-10.	<input type="checkbox"/>
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9	GREG SEMERARO, "Energy-Efficient Processor Design Using Multiple Clock Domains with Dynamic Voltage and Frequency Scaling," 2002, pages 29-40.	<input type="checkbox"/>
10	DIANA MARCULESCU, "Application Adaptive Energy Efficient Clustered Architectures," 2004, pages 344-349.	<input type="checkbox"/>
11	L. BENINI, et al., "System-Level Dynamic Power Management," 1999, pages 23-31.	<input type="checkbox"/>
12	RAVINDRA JEJURIKAR, et al., "Leakage Aware Dynamic Voltage Scaling For Real-Time Embedded Systems," 2004, pages 275-280.	<input type="checkbox"/>
13	RAVINDRA JEJURIKAR, et al., "Dynamic Slack Reclamation With Procrastination Scheduling In Real-Time Embedded Systems," 2005, pages 43-47 111-116.	<input type="checkbox"/>
14	R. TODLING, et al., "Some Strategies For Kalman Filtering and Smoothing," 1996, pages 1-21.	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL2495C1US

15	R.E. KALMAN, "A New Approach To Linear Filtering and Prediction Problems," 1960, pages 1-12.	<input type="checkbox"/>
16	INTEL TECHNOLOGY JOURNAL, "Power and Thermal Management in the Intel Core Duo Processor," May 15, 2006, pages 109-122.	<input type="checkbox"/>
17	U.S. Patent Application Serial No. 13/169,260, filed June 27, 2011, entitled "Increasing Power Efficiency of Turbo Mode Operation in a Processor," by James S. Burns, et al. (ITL2391US)	<input type="checkbox"/>
18	INTEL DEVELOPER FORUM, IDF2010, "Power and Thermal Management," 2010, 7 pages.	<input type="checkbox"/>
19	INTEL DEVELOPER FORUM, IDF2010, Opher Kahn, et al. "Intel Next Generation Microarchitecture Codename Sandy Bridge: New Processor Innovations," September 13, 2010, 58 pages.	<input type="checkbox"/>
20	U.S. Patent Application Serial No. 13/282,947, filed October 27, 2011, entitled "CONTROLLING OPERATING FREQUENCY OF A CORE DOMAIN VIA A NON-CORE DOMAIN OF A MULTI-DOMAIN PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2493)	<input type="checkbox"/>
21	U.S. Patent Application Serial No. 13/285,414, filed October 31, 2011, entitled "CONTROLLING A TURBO MODE FREQUENCY OF A PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2494)	<input type="checkbox"/>
22	U.S. Patent Application Serial No. 13/247,580, filed September 28, 2011, entitled "CONTROLLING TEMPERATURE OF MULTIPLE DOMAINS OF A MULTI-DOMAIN PROCESSOR," by AVINASH N. ANANTHAKRISHNAN, et al. (2496)	<input type="checkbox"/>
23	U.S. Patent Application Serial No. 13/285,465, filed October 31, 2011, entitled "DYNAMICALLY CONTROLLING CACHE SIZE TO MAXIMIZE ENERGY EFFICIENCY," by AVINASH N. ANANTHAKRISHNAN, et al. (2497)	<input type="checkbox"/>

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Examiner Signature	/Stefan Stoynov/ (11/10/2013)	Date Considered	11/10/2013
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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		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit	2116		
	Examiner Name	Stefan Stoyanov		
	Attorney Docket Number	ITL.2495C1US (P38410C)		

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	7603577		2009-10-13	Yamaji, et al.	

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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	20120096288		2012-04-19	Bates, et al.	

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FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							<input type="checkbox"/>

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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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoyanov
	Attorney Docket Number	ITL.2495C1US (P38410C)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoynov
	Attorney Docket Number	ITL.2495C1US (P38410C)

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Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2013-11-20
Name/Print	Mark J. Rozman	Registration Number	42,117

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Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
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Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

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EFS ID:	17452654
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	20-NOV-2013
Filing Date:	28-FEB-2013
Time Stamp:	12:44:34
Application Type:	Utility under 35 USC 111(a)

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	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

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	5287292		1994-02-15	Kenny, et al.	
If you wish to add additional U.S. Patent citation information please click the Add button.						
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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	20050288886		2005-12-29	Therien, et al.	
	2	20070106428		2007-05-10	Omizo, et al.	
	3	20080077282		2008-03-27	Hartman, et al.	
	4	20040030940		2004-02-12	Espinoza-Ibarra, et al.	
	5	20120114010		2012-05-10	Branch	

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	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495C1US (P38410C)

	6	20070260895		2007-11-08	Aguilar, et al.	
	7	20060041766		2006-02-23	Adachi	

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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		<input type="checkbox"/>

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

EXAMINER SIGNATURE

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2495C1US (P38410C)

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)	2013-11-22
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.**

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 the Freedom of Information Act requires disclosure of these records.
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.

Electronic Patent Application Fee Transmittal				
Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

Electronic Acknowledgement Receipt	
EFS ID:	17481308
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	22-NOV-2013
Filing Date:	28-FEB-2013
Time Stamp:	15:27:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180
RAM confirmation Number	2293
Deposit Account	201504
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)</p>	

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)	ITL2495C1USIDSToFile.pdf	38197	no	4
			1443efe1196611ba557d075f5bc1f44fb0e4bba6		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Fee Worksheet (SB06)	fee-info.pdf	30822	no	2
			e53119d8ebb36b4b340107cea75b325279934e7b		
Warnings:					
Information:					
Total Files Size (in bytes):			69019		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

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

Application Number	13/780,066
Filing Date	February 28, 2013
First Named Inventor	Avinash N. Ananthakrishnan
Title	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
Art Unit	2116
Examiner Name	Stoynov, Stefan
Attorney Docket Number	ITL.2495C1US (P38410C)

SIGNATURE of Applicant or Patent Practitioner

Signature	/Mark J. Rozman/	Date (Optional)	February 5, 2014
Name	Mark J. Rozman	Registration Number	42,117
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)	Intel Corporation		

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

☐

*Total of _____ 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.

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82B(07-12)

Approved for use through 11/30/2014. OMB 0651-0035

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 the attached transmittal letter.

- ☒ I hereby appoint 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 equivalent):

47795

OR

- ☐ I hereby appoint Practitioner(s) named below 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 equivalent):

Name	Registration Number	Name	Registration Number

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

- ☐ Inventor or Joint Inventor
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign
- ☐ 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)

SIGNATURE of Applicant for Patent

Signature

Date

Name

Reathar L. Adamson

Telephone

503-712-5273

Title and Company

Administrator of Patents, Intel Corporation

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. Submit multiple forms for more than one signature, see below *.

- ☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to 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.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Intel Corporation

Application No./Patent No.: 13/780,066 Filed/Issue Date: February 28, 2013

Titled: Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

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 026863, Frame 0663, 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.

[Page 1 of 2]

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.

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/

Signature

Mark J. Rozman

Printed or Typed Name

February 5, 2014

Date

42,117

Title or Registration 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.

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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.

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)
		Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		
<p>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.</p> <p>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.</p>			

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		
	Avinash	N.	Ananthakrishnan			
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
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 i	US			
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Efraim		Rotem			
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> 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	HA			
Postal Code	34400	Country i	IL			
Inventor 3					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Doron		Rajwan			

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		ITL2495C1US (P38410C)	
		Application Number			
Title of Invention		DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR			

Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Rishon Le-Zion	Country of Residence ⁱ	IL		

Mailing Address of Inventor:					
Address 1		13 Odem Street			
Address 2					
City	Rishon Le-Zion	State/Province	M		
Postal Code	00000	Country ⁱ	IL		
Inventor 4					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Eliezer		Weissmann		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> 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	HA		
Postal Code	34995	Country ⁱ	IL		
Inventor 5					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Nadav		Shulman		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Tel Mond	Country of Residence ⁱ	IL		

Mailing Address of Inventor:					
Address 1		Hasayfan 19 St. POB 447			
Address 2					
City	Tel Mond	State/Province	M		
Postal Code	40600	Country ⁱ	IL		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL 2495C1US (P38410C)
		Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		

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

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Application Information:

Title of the Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		
Attorney Docket Number	ITL 2495C1US (P38410C)	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	8	Suggested Figure for Publication (if any)	

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.

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL2495C1US (P38410C)
		Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		
Please Select One:			
<input checked="" type="radio"/> Customer Number		<input type="radio"/> US Patent Practitioner	<input type="radio"/> 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, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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 blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13780066	Continuation of	13225677	2011-09-06
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(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	Filing Date (YYYY-MM-DD)	Access Code (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL2495C1US (P38410C)
		Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

<p>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.</p> <p><input type="checkbox"/> 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.</p>
--

Authorization to Permit Access:

<p><input checked="" type="checkbox"/> Authorization to Permit Access to the Instant Application by the Participating Offices</p> <p>If 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 World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.</p> <p>In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>
--

Applicant Information:

<p>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.</p>
--

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ITL2495C1US (P38410C)
	Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR	

Applicant 1

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.

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.

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.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ITL.2495C1US (P38410C)
		Application Number	
Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR		

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		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.

Signature:

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

Signature	/Mark J. Rozman/		Date (YYYY-MM-DD)	2014-02-05	
First Name	Mark	Last Name	Rozman	Registration Number	42117

Additional Signature may be generated within this form by selecting the Add button.

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.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Ananthakrishnan, et al.	§	Group Art Unit:	2116
		§		
Serial No.:	13/780,066	§	Conf. No.:	3684
		§		
Filed:	February 28, 2013	§	Examiner:	Stoynov, Stefan
		§		
		§	Atty. Dkt. No.:	ITL.2495C1US
		§		(P38410C)
For:	DYNAMICALLY	§		
	ALLOCATING A POWER	§		
	BUDGET OVER MULTIPLE	§		
	DOMAINS OF A	§		
	PROCESSOR	§		

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

REPLY TO OFFICE ACTION MAILED NOVEMBER 12, 2013

Sir:

In response to the Office Action mailed November 12, 2013, please amend the above-referenced patent application as follows:

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

Amendments to the Claims begin on page 3 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Specification:

Please remove the title of the application from the abstract page as amended below.

~~DYNAMICALLY ALLOCATING A POWER BUDGET
OVER MULTIPLE DOMAINS OF A PROCESSOR~~

Abstract of the Disclosure

In one embodiment, the present invention includes a method for determining a power budget for a multi-domain processor for a current time interval, determining a portion of the power budget to be allocated to first and second domains of the processor, and controlling a frequency of the domains based on the allocated portions. Such determinations and allocations can be dynamically performed during runtime of the processor. Other embodiments are described and claimed.

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A processor comprising:
a first domain and a second domain, each of the first and second domains to operate at an independent voltage and frequency;
a memory controller coupled to the first and second domains;
at least one interface; and
first logic to dynamically allocate a power budget for the processor between the first and second domains at run time according to a first sharing policy value for the first domain and a second sharing policy value for the second domain, the first and second sharing policy values controllable by user-level software.
2. (Canceled)
3. (Currently Amended) The processor of claim [[2]] 1, wherein the first logic is to determine a portion of the power budget to allocate to the first domain based on the first sharing policy value.
4. (Currently Amended) The processor of claim [[2]] 1, wherein the first logic is to dynamically allocate the power budget further according to a first minimum reservation value for the first domain and a second minimum reservation value for the second domain, the first and second minimum reservation values controllable by the user-level software.
5. (Original) The processor of claim 4, wherein the first logic is to provide at least a first portion of the power budget to the first domain, the first portion corresponding to the first minimum reservation value.
6. (Original) The processor of claim 1, wherein the first logic is to determine the power budget for a current time interval based at least in part on a power budget carried forward

from a previous time interval, a power consumed in the previous time interval, and a power budget decay value.

7. (Original) The processor of claim 6, wherein the first logic is to determine the power budget according to $E_n = E_{n-1} * \alpha + (1-\alpha)*(Power_Limit*\delta T - Energy)$, where:

E_n is the power budget for the current time interval;

E_{n-1} is the power budget carried forward from the previous time interval;

Power_limit is a threshold power level;

δT is a length of the time interval;

Energy is the power consumed during the previous time interval; and

α is the power budget decay value.

8. (Original) The processor of claim 1, wherein the first logic is to dynamically allocate substantially all of the power budget to the first domain for a first workload, and to dynamically allocate substantially all of the power budget to the second domain for a second workload executed after the first workload.

9. (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:

determining, in a power controller of a multi-domain processor, a power budget for the multi-domain processor ~~for a current time interval~~, the multi-domain processor including at least a first domain and a second domain;

determining, in the power controller, a portion of the power budget to be allocated to the first and second domains, including allocating a minimum reservation value to the first domain and a minimum reservation value to the second domain, and sharing a remaining portion of the power budget according to a first sharing policy value for the first domain and a second sharing policy value for the second domain; and

controlling a frequency of the first domain and a frequency of the second domain based on the allocated portions.

10. (Currently Amended) The non-transitory machine-readable medium of claim 9, wherein determining the portion of the power budget to be allocated to the first and second domains includes allocating the power budget to the second domain and not to the first domain if the power budget is less than [[a]] the minimum reservation value for the second domain.

11. (Currently Amended) The non-transitory machine-readable medium of claim 10, wherein the method further comprises obtaining the minimum reservation value for the second domain from a configuration register written by user-level software.

12. (Currently Amended) The non-transitory machine-readable medium of claim 10, wherein the method further comprises allocating the minimum reservation value for the second domain to the second domain, and allocating a remaining portion of the power budget to the first domain when the power budget is greater than the minimum reservation value for the second domain but less than a sum of the minimum reservation value for the second domain and a minimum reservation value for the first domain.

13. (Canceled)

14. (Currently Amended) The non-transitory machine-readable medium claim [[13]] 9, wherein the first sharing policy value is controllable by software executing on the first domain, the first sharing policy value to be incremented when a request for a higher frequency for the first domain is not granted, and the second sharing policy value is controllable by software executing on the second domain, the second sharing policy value to be incremented when a request for a higher frequency for the second domain is not granted.

15. (Original) A system comprising:
a multicore processor having a first domain including a plurality of cores, a second domain including a graphics engine, and a third domain including system agent circuitry, the third domain to operate at a fixed power budget and including a power sharing logic to dynamically allocate a variable power budget between the first and second domains based at

least in part on a first power sharing value for the first domain stored in a first storage and a second power sharing value for the second domain stored in a second storage; and
a dynamic random access memory (DRAM) coupled to the multicore processor.

16. (Original) The system of claim 15, wherein the system agent circuitry includes a power sharing logic to determine the variable power budget for a current time interval and to allocate a first portion of the variable power budget to the first domain according to the first power sharing value, and to allocate a second portion of the variable power budget to the second domain according to the second power sharing value.

17. (Original) The system of claim 16, wherein the power sharing logic is to dynamically allocate substantially all of the variable power budget to the first domain for a first workload, and to dynamically allocate substantially all of the variable power budget to the second domain for a second workload executed after the first workload.

18. (Original) The system of claim 16, wherein the power sharing logic is to increment the first power sharing value when a request for a higher frequency for the first domain is not granted, and to increment the second power sharing value when a request for a higher frequency for the second domain is not granted.

19. (Original) The system of claim 16, wherein the power sharing logic is to further allocate the first portion of the variable power budget according to a first minimum reservation value for the first domain and allocate the second portion of the variable power budget according to a second minimum reservation value for the second domain.

20. (Original) The system of claim 16, wherein the power sharing logic is to further allocate the variable power budget according to a preference value, the preference value to favor the second domain over the first domain.

REMARKS/ARGUMENTS

Provided herewith is an amendment to the specification and thus the objection is overcome.

Provided herewith is a Terminal Disclaimer and thus it is respectfully submitted that the double patenting rejection is overcome.

Applicants gratefully acknowledge the indication that claims 15-20 are allowed.

Applicants gratefully acknowledge the indication that claims 2-8 include allowable subject matter. The subject matter of dependent claims 2 and 13 have been incorporated into the corresponding independent claims and as such, all pending claims are in condition for allowance.

In view of 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: February 5, 2014

/Mark J. Rozman/

Mark J. Rozman

Registration No. 42,117

TROP, PRUNER & HU, P.C.

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Houston, Texas 77057-2631

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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		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit	2116		
	Examiner Name	Stefan Stoyanov		
	Attorney Docket Number	ITL.2495C1US (P38410C)		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoyanov
	Attorney Docket Number	ITL.2495C1US (P38410C)

1	INTEL DEVELOPER FORUM, IDF2010, Opher Kahn, et al., "Intel Next Generation Microarchitecture Codename Sandy Bridge: New Processor Innovations," September 13, 2010, 58 pages.	<input type="checkbox"/>
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If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoyanov
	Attorney Docket Number	ITL.2495C1US (P38410C)

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)	2014-02-05
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.**

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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 the Freedom of Information Act requires disclosure of these records.
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.

Electronic Patent Application Fee Transmittal				
Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Pamela Polnick		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Statutory or Terminal Disclaimer	1814	1	160	160
Total in USD (\$)				340

Electronic Acknowledgement Receipt	
EFS ID:	18118972
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Pamela Polnick
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	05-FEB-2014
Filing Date:	28-FEB-2013
Time Stamp:	12:47:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 340
RAM confirmation Number	9041
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1		ITL_2495C1US_ROA_11-12-13.pdf	24990 29a00f32580d394b4ccc84e396b92b78c6f241d2	yes	7
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Specification		2	2	
	Claims		3	6	
	Applicant Arguments/Remarks Made in an Amendment		7	7	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	ITL_2495C1US_Terminal_Disclaimer.pdf	247219 bbd28936c98db6351bd3f2a6b6d67851f532572c	no	2
Warnings:					
Information:					
3	Power of Attorney	ITL_2495C1US_POA.pdf	1197587 44c3a3810e22bae894834ce511a9bbe44b7d4bcf	no	2
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73.	ITL_2495C1US_373.pdf	118581 2c7c6a1e551284ee7b7d5b6ccdd30ac2814f935e	no	3
Warnings:					
Information:					
5	Application Data Sheet	ITL_2495C1US_ADS_as_filed.pdf	785137 40c1478826f6e920d57c989e3e2cd119230de685	no	7
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
6	Information Disclosure Statement (IDS) Form (SB08)	ITL_2495US_IDS_Refilng_Sand y_Bridge_Doc.pdf	612354 afae72ea7f026c117aac5416c319e904f946054a	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.

7	Non Patent Literature	NPLSandyBridgePart1.pdf	11121046	no	20
			e1b640a059e2d50ae56e5832b7b892595fa97b79		

Warnings:

Information:

8	Non Patent Literature	NPLSandyBridgePart2.pdf	12406256	no	20
			f51761d5c13eff89c805d7c17bada9a63c989983		

Warnings:

Information:

9	Non Patent Literature	NPLSandyBridgePart3.pdf	9193783	no	18
			27168a01f739c23084aef0de08e18ec80007acdd		

Warnings:

Information:

10	Fee Worksheet (SB06)	fee-info.pdf	32216	no	2
			ef7d7dce39dfb25810de2f668c849c36b92bf42a		

Warnings:

Information:

Total Files Size (in bytes):			35739169		
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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.

**TERMINAL DISCLAIMER TO OBTAIN A PROVISIONAL DOUBLE PATENTING
REJECTION OVER A PENDING "REFERENCE" APPLICATION**

Docket Number (Optional)
ITL2495C1US (P38410C)

In re Application of: Ananthkrishnan, et al.

Application No.: 13/780,066

Filed: February 28, 2013

For:

Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

The applicant, Intel Corporation, owner of 100 percent interest 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 any patent granted on pending **reference** Application Number 13/225,677, filed, September 6, 2011, as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the **reference** application 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 applicant does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said **reference** application, "as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application," in the event that: any such patent granted on the pending **reference** application 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 shortened by any terminal disclaimer filed prior to its grant.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 42,117

<u>/Mark J. Rozman/</u> Signature	<u>February 5, 2014</u> Date
<u>Mark J. Rozman</u> Typed or printed name	
<u>Attorney</u> Title	<u>512-418-9944</u> Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) is included.

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.

This collection of information is required by 37 CFR 1.321. 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.
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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.

Application Number 	Application/Control No. 13/780,066	Applicant(s)/Patent under Reexamination ANANTHAKRISHNAN ET AL.	
Document Code - DISQ		Internal Document – DO NOT MAIL	

TERMINAL DISCLAIMER	<input checked="" type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED
Date Filed : 2/5/14	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

jean proctor



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY DOCKET NO	TOT CLAIMS	IND CLAIMS
13/780,066	02/28/2013	2116	1390	ITL2495C1US (P38410C)	20	3

CONFIRMATION NO. 3684

47795

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

REPLACEMENT FILING RECEIPT



OC000000066493557

Date Mailed: 02/14/2014

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)

Avinash N. Ananthakrishnan, Hillsboro, OR;
Efraim Rotem, Haifa, ISRAEL;
Doron Rajwan, Rishon Le-Zion, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Nadav Shulman, Tel Mond, ISRAEL;

Applicant(s)

Intel Corporation, Santa Clara, CA

Assignment For Published Patent Application

Intel Corporation, Santa Clara, CA

Power of Attorney: The patent practitioners associated with Customer Number 47795

Domestic Priority data as claimed by applicant

This application is a CON of 13/225,677 09/06/2011

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.

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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 03/21/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/780,066**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
Title

Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

Preliminary Class

713

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL.2495C1US (P38410C)

CONFIRMATION NO. 3684

POA ACCEPTANCE LETTER

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



Date Mailed: 02/14/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/05/2014.

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.

/fstephanos/

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



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NOTICE OF ALLOWANCE AND FEE(S) DUE

47795 7590 02/18/2014
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

EXAMINER

STOYNOV, STEFAN

ART UNIT PAPER NUMBER

2116

DATE MAILED: 02/18/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495C1US (P38410C)	3684

TITLE OF INVENTION: Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/19/2014

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.

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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)".

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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.

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IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

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

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

47795 7590 02/18/2014
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HOUSTON, TX 77057-2631

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495CIUS (P38410C)	3684

TITLE OF INVENTION: Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/19/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
STOYNOV, STEFAN	2116	713-300000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

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

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

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495C1US (P38410C)	3684
47795	7590	02/18/2014	EXAMINER	
TROP, PRUNER & HU, P.C.			STOYNOV, STEFAN	
1616 S. VOSS RD., SUITE 750			ART UNIT	
HOUSTON, TX 77057-2631			PAPER NUMBER	

2116

DATE MAILED: 02/18/2014

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

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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. 13/780,066	Applicant(s) ANANTHAKRISHNAN ET AL.	
	Examiner STEFAN STOYNOV	Art Unit 2116	AIA (First Inventor to File) 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 communication filed 02/05/2014.
☐ 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, 3-12, and 14-20 (renumbered as claims 1-18). 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 a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>See Continuation Sheet</u> 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. | <ol style="list-style-type: none"> 5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 7. <input type="checkbox"/> Other _____. |
|---|--|

/STEFAN STOYNOV/
Primary Examiner, Art Unit 2116

Continuation of Attachment(s) 2. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 11/20/13, 11/22/13, and 2/5/14.

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

EXAMINER'S COMMENT

Terminal Disclaimer

The terminal disclaimer filed on 02/05/2014 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 13/225,677 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Accordingly, the nonstatutory obviousness-type double patenting rejection for claims 1-14 against Application No. 13/225,677 has been withdrawn.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFAN STOYNOV whose telephone number is (571)272-4236. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. 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

Art Unit: 2116

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.

/STEFAN STOYNOV/

Primary Examiner, Art Unit 2116

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

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	5287292		1994-02-15	Kenny, et al.	
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	20050288886		2005-12-29	Therien, et al.	
	2	20070106428		2007-05-10	Omizo, et al.	
	3	20080077282		2008-03-27	Hartman, et al.	
	4	20040030940		2004-02-12	Espinoza-Ibarra, et al.	
	5	20120114010		2012-05-10	Branch	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495C1US (P38410C)

	6	20070260895		2007-11-08	Aguilar, et al.	
	7	20060041766		2006-02-23	Adachi	

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

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							<input type="checkbox"/>

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

NON-PATENT LITERATURE DOCUMENTS

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

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

EXAMINER SIGNATURE

Examiner Signature	/Stefan Stoynov/ (02/10/2014)	Date Considered	02/10/2014
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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



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BIB DATA SHEET

CONFIRMATION NO. 3684

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/780,066	02/28/2013 RULE	713	2116	ITL2495C1US (P38410C)		
APPLICANTS Intel Corporation, Santa Clara, CA, Assignee (with 37 CFR 1.172 Interest); INVENTORS Avinash N. Ananthakrishnan, Hillsboro, OR; Efraim Rotem, Haifa, ISRAEL; Doron Rajwan, Rishon Le-Zion, ISRAEL; Eliezer Weissmann, Haifa, ISRAEL; Nadav Shulman, Tel Mond, ISRAEL; ** CONTINUING DATA ***** This application is a CON of 13/225,677 09/06/2011 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 03/21/2013						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /STEFAN STOYNOV/ Acknowledged Examiner's Signature		<input type="checkbox"/> Met after Allowance /S.S./ Initials	STATE OR COUNTRY OR	SHEETS DRAWINGS 8	TOTAL CLAIMS 20 18	INDEPENDENT CLAIMS 3
ADDRESS TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631 UNITED STATES						
TITLE Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor						
FILING FEE RECEIVED 1390	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit	2116		
	Examiner Name	Stefan Stoyanov		
	Attorney Docket Number	ITL.2495C1US (P38410C)		

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	7603577		2009-10-13	Yamaji, et al.	

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	20120096288		2012-04-19	Bates, et al.	

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

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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							<input type="checkbox"/>

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoynov
	Attorney Docket Number	ITL.2495C1US (P38410C)

	1		<input type="checkbox"/>
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If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Stefan Stoynov/ (02/10/2014)	Date Considered	02/10/2014
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.


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

Issue Classification 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

CPC		
Symbol	Type	Version


CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/STEFAN STOYNOV/ Primary Examiner.Art Unit 2116	02/11/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116


US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION									
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED				
713		300				G	0	6	F	1 / 00 (2006.01.01)					
CROSS REFERENCE(S)						G	0	6	F	15 / 00 (2006.01.01)					
						G	0	5	D	3 / 12 (2006.01.01)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)														
345	501														
700	286														
712	28														

NONE		Total Claims Allowed:	
		18	
(Assistant Examiner)	(Date)		
/STEFAN STOYNOV/ Primary Examiner.Art Unit 2116	02/11/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	19												
2	3	18	20												
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15	17														
16	18														

NONE		Total Claims Allowed:	
		18	
(Assistant Examiner)	(Date)		
/STEFAN STOYNOV/ Primary Examiner.Art Unit 2116	02/11/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Search Notes 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
713	300	11/10/13	SS
345	501	11/10/13	SS
700	286	11/10/13	SS
712	28	11/10/13	SS

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search for USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB (see attached file).	11/10/13	SS
713/300, 345/501, 700/286, 712/28 text search only for USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB (see attached file).	11/10/13	SS
Inventor's search.	11/10/13	SS
Updated search (see attached file).	2/11/14	SS
Updated text search only for 713/300, 345/501, 700/286, 712/28 in USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB (see attached file).	2/11/14	SS
Updated Inventor's search.	2/11/14	SS

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
713	300	11/10/13	SS

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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	See attached Interference Search printout.	11/10/13	SS
713	300	2/11/14	SS
	See attached Interference Search printout.	2/11/14	SS

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	22212	(control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:37
L2	4	L1 same (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:37
L3	4	L1 with (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:37
L4	30	L1 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:37
L5	75	((determin\$5 or decid\$3 or establish\$3 or set\$4 or estimat\$4 or calculat\$3 or compute or computes or computing or defin\$3 or select\$3 or choos\$3) same ((power or energy) adj budget)) same (((past or previous\$2 or earlier or previous\$3) near2 (time\$1 or interval\$1 or period\$1 or duration\$1)) or histor\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:38
L6	19	((determin\$5 or decid\$3 or establish\$3 or set\$4 or estimat\$4 or calculat\$3 or compute or computes or computing or defin\$3 or select\$3 or choos\$3) with ((power or energy) adj budget)) with (((past or previous\$2 or earlier or previous\$3) near2 (time\$1 or interval\$1 or period\$1 or duration\$1)) or histor\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:38
L7	2	L5 same ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:38
L8	2	L6 with ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:38

L9	2	L5 and ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:38
L10	2	L6 and ((thermal or temperature or heat or power) near2 (decay\$3 or deteriorat\$4 or declin\$3 or worsen\$3 or degrad\$6 or degenerat\$4) adj (value\$1 or rate\$1 or degree or amount or level or scale))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:39
L11	1287	L1 same (dynamic\$4 or adaptive\$2 or runtime or (run adj time))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:39
L12	633	L1 with (dynamic\$4 or adaptive\$2 or runtime or (run adj time))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:39
L13	14	L11 same (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or only or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:39
L14	3	L12 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or only or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:40
L15	2	L13 same (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:40
L16	2	L14 with (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:40
L17	4	L13 and (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:40
L18	2	L14 and (workload or (work adj load))	US-PGPUB; USPAT; EPO; JPO; DERWENT;	OR	OFF	2014/02/10 16:40

			BM_TDB			
L19	205	((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1)) same ((power or energy) adj budget)	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:40
L20	104	((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1)) with ((power or energy) adj budget)	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:41
L21	2	L19 same (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:42
L22	2	L20 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:42
L23	1177	L1 same ((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:42
L24	545	L1 with ((preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or minim\$2 or set or defined or reserv\$5 or registered) near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; BM_TDB	OR	OFF	2014/02/10 16:43
L25	4	L23 same (shar\$3 near2 (polic\$3 or	US-PGPUB;	OR	OFF	2014/02/10

		rule\$1 or strateg\$3))	USPAT; EPO; JPO; DERWENT; IBM_TDB			16:43
L26	2	L24 with (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:43
L27	6	L23 same (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:43
L28	2	L24 with (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:43
L29	4	L23 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:43
L30	2	L24 and (shar\$3 near2 (polic\$3 or rule\$1 or strateg\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:44
L31	16	L23 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:44
L32	6	L24 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:44
L33	209	((power or energy) near2 shar\$3) same ((control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3 or var\$5) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy))))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:44
L34	108	((power or energy) near2 shar\$3) with ((control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distrubut\$3 or split\$3 or divid\$3 or var\$5) near5 (((power or energy) adj budget) or ((total or global or full or entire or available) adj (power or energy))))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:45
L35	9	L33 same (plural\$3 or multi\$3 or (more	US-PGPUB;	OR	OFF	2014/02/10

		adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	USPAT; EPO; JPO; DERWENT; IBM_TDB			16:45
L36	2	L34 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or individual or independent or each or every or all) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:45
L37	2	L35 same (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:46
L38	2	L36 with (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:46
L39	2	L35 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:46
L40	2	L36 and (shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:46
L41	301	(plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1))) same (((graphic\$2 or video or image or media or multimedia or (multi adj media)) adj (processor\$1 or microprocessor\$1 or cpu\$1 or core\$1)) or (graphic\$2 adj ((processing adj unit\$1) or engine\$1 or chip or controller)) or GPU\$1) same ((system adj (agent or chip or controller)) or ((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU or ((display or monitor or graphic\$2 or video) adj (controller or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:46

		adapter or card)))				
L42	85	(plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1))) with (((graphic\$2 or video or image or media or multimedia or (multi adj media)) adj (processor\$1 or microprocessor\$1 or cpu\$1 or core\$1)) or (graphic\$2 adj ((processing adj unit\$1) or engine\$1 or chip or controller)) or GPU\$1) with ((system adj (agent or chip or controller)) or ((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU or ((display or monitor or graphic\$2 or video) adj (controller or adapter or card)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:48
L43	2	L41 same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:49
L44	2	L42 with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:49
L45	12	L41 and ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:49
L46	4	L42 and ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:49
L47	19039	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:49
L48	11983	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:50
L49	85	L47 same (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:50

		segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))				
L50	20	L48 with (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:51
L51	2746	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) same ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1) near3 (supplied or provid\$3 or feed\$3 or fed or coupl\$3 or connect\$3 or receiv\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:52
L52	1615	((((power or energy) adj (control\$4 or manag\$5 or logic)) or PCU or PMU) with ((fixed or preset or (pre adj set) or constant\$2 or permanent\$2 or continuous\$2 or always) near3 (power\$2 or voltage\$1) near3 (supplied or provid\$3 or feed\$3 or fed or coupl\$3 or connect\$3 or receiv\$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:52
L53	317	L51.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:53
L54	253	L52.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:53
L55	26	L53 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:53
L56	22	L54 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:53

		(domain\$1 or section\$1 or area\$1 or block\$1)))				
L57	203	L51 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:54
L58	119	L52 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:54
L59	21	L57 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:54
L60	7	L58 and (plural\$3 or multi\$3 or (more adj2 one) or two or dual or several or separate or different or first or second or third or individual or independent or other or another) adj (domain\$1 or island\$1 or partition\$1 or section\$1 or area\$1 or segment\$1 or sector\$1 or block\$1 or subdomain\$1 or subsection\$1 or subarea\$1 or subblock\$1 or (sub adj (domain\$1 or section\$1 or area\$1 or block\$1)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:55
L61	1	L41 same ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:57
L62	1	L42 with ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:57
L63	2	L41 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:57
L64	2	L42 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:57
L65	2	L41 same (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:58
L66	1	L42 with (shar\$3 near3 (power or	US-PGPUB;	OR	OFF	2014/02/10

		energy))	USPAT; EPO; JPO; DERWENT; IBM_TDB			16:58
L67	63	L41 and (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:58
L68	2	L42 and (shar\$3 near3 (power or energy))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 16:58
L69	30	("20120096288" "7603577" "20040030940" "20050288886" "20060041766" "20070106428" "20070260895" "20080077282" "20120114010" "5287292").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:05
L70	0	L69 and L51	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:06
L71	39	L41.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:06
L72	28	L42.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:06
L73	2	L71 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:06
L74	2	L72 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:08
L75	54	L41 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:08
L76	6	L42 and 713/3\$2.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:08
L77	2	L75 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:09
L78	2	L76 and ((power or energy) near2 shar\$3	US-PGPUB;	OR	OFF	2014/02/10

		near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	USPAT; EPO; JPO; DERWENT; IBM_TDB			17:09
L79	110	L41 and "345".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:09
L80	45	L42 and "345".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:09
L81	0	L79 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:09
L82	2	L41 and "700".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:09
L83	1	L42 and "700".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L84	0	L82 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L85	8	L41 and "712".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L86	1	L42 and "712".clas.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L87	0	L85 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L88	2	L41 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:10
L89	2	L42 and ((power or energy) near2 shar\$3 near2 (value\$1 or limit\$1 or threshold\$1 or setting\$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2014/02/10 17:11

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L90	1	(((multicore or (multi adj core)) adj (processor or microprocessor)) and ((first or second or third) adj domain\$1) and ((plural\$3 or multi\$3 or (more adj2 one) or two or several or separate or individual or different or first or second or dual) adj core\$1) and (graphic\$2 adj engine) and (system adj agent) and ((fixed or constant or preset or predetermined or preestablished or preconfigured or preprogrammed or predefined or prestored or (pre adj (determined or established or configured or programmed or defined or stored)) or set or defined or reserv\$5 or registered) adj ((power or energy) adj budget)) and ((power or energy) adj shar\$3 adj logic) and (dynamic\$4 adj (control\$4 or manag\$5 or adjust\$5 or regulat\$4 or chang\$3 or modif\$8 or alter\$3 or vary\$3 or allocat\$4 or reallocate\$3 or (re adj allocate\$3) or assign\$5 or distribut\$3 or split\$3 or divid\$3)) and ((power or energy) adj shar\$3 adj (value\$1 or limit\$1 or threshold\$1 or setting\$1)) and ((first or second) adj storage\$1) and (dynamic adj random adj access adj memory)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/02/10 17:11
L91	1	(((first or second or plural\$3 or multi\$3) adj domain\$1) and voltage\$1 and frequenc\$3 and (memory adj controller) and interface\$1 and ((power or energy) adj (budget\$1 or limit\$1)) and (allocat\$4 or assign\$5 or designat\$4) and (dynamic\$4 or adaptive\$2 or runtime or (run adj time)) and (shar\$3 near2 (polic\$3 or rule\$1)) and user\$1).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/02/10 17:28
L92	2	(((first or second or plural\$3 or multi\$3) adj domain\$1) and (processor\$1 or microprocessor\$1 or cpu\$1 or core\$1) and ((power or energy) adj controller) and ((power or energy) adj (budget\$1 or limit\$1)) and (minim\$3 adj reservation adj value\$1) and (shar\$3 near2 (polic\$3 or rule\$1)) and frequenc\$3).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/02/10 17:31

2/ 10/ 2014 5:33:17 PM**C:\ Users\ sstoynov1\ Documents\ EAST\ Workspaces\ 13780066_2.wsp**

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit	2116		
	Examiner Name	Stefan Stoyanov		
	Attorney Docket Number	ITL.2495C1US (P38410C)		

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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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	2116
	Examiner Name	Stefan Stoynov
	Attorney Docket Number	ITL.2495C1US (P38410C)

1	INTEL DEVELOPER FORUM, IDF2010, Opher Kahn, et al., "Intel Next Generation Microarchitecture Codename Sandy Bridge: New Processor Innovations," September 13, 2010, 58 pages.	<input type="checkbox"/>
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Examiner Signature	/Stefan Stoynov/ (02/10/2014)	Date Considered	02/10/2014
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<i>Index of Claims</i> 	Application/Control No. 13780066	Applicant(s)/Patent Under Reexamination ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116

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

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant				<input type="checkbox"/> CPA				<input checked="" type="checkbox"/> T.D.				<input type="checkbox"/> R.1.47			
CLAIM		DATE													
Final	Original	11/10/2013	02/11/2014												
1	1	✓	=												
	2	✓	-												
2	3	✓	=												
3	4	✓	=												
4	5	✓	=												
5	6	✓	=												
6	7	✓	=												
7	8	✓	=												
8	9	✓	=												
9	10	✓	=												
10	11	✓	=												
11	12	✓	=												
	13	✓	-												
12	14	✓	=												
13	15	=	=												
14	16	=	=												
15	17	=	=												
16	18	=	=												
17	19	=	=												
18	20	=	=												

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		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

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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	7146514		2006-12-05	Kaushik, et al.	
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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	20110283124		2011-11-07	Branover, et al.	
	2	20120173907		2012-07-05	Moses, et al.	
	3	20130246825		2013-09-19	Shannon	
	4	20090271141		2009-10-29	Coskun, et al.	
	5	20080028778		2008-02-07	Millet	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

	6	20120053897		2012-03-01	Naffziger	
	7	20050223258		2005-10-06	Watts	
	8	20050046400		2005-03-03	Rotem	
	9	20120110352		2012-05-03	Branover, et al.	
	10	20090235108		2009-09-17	Gold, et al.	
	11	20120066535		2012-03-15	Naffziger	
	12	20080077813		2008-03-27	Keller, 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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495C1US (P38410C)

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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ITL.2495C1US (P38410C)

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)	2014-02-18
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.**

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Electronic Patent Application Fee Transmittal				
Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

Electronic Acknowledgement Receipt	
EFS ID:	18226181
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	18-FEB-2014
Filing Date:	28-FEB-2013
Time Stamp:	14:21:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180
RAM confirmation Number	532
Deposit Account	201504
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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)	ITL2495C1USIDS.pdf	612572	no	5
			011e0e7e9f8c52b804612cd9d7bf6cd737f6d974		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30822	no	2
			022bd4ce518c34d47b87d10eca56203f3cdc9474		
Warnings:					
Information:					
Total Files Size (in bytes):			643394		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

2495C1

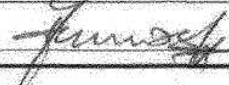
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input type="checkbox"/> The attached application, or <input checked="" type="checkbox"/> United States application or PCT international application number <u>13/780,066</u> filed on <u>February 28, 2013</u></p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p style="text-align: center;">WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p>	
LEGAL NAME OF INVENTOR	
Inventor: <u>AVINASH N. ANANTHAKRISHNAN</u> Date (Optional): _____	
Signature: <u></u>	
<p>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/AIA/01 form for each additional inventor.</p>	

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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	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR
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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 13/780,066
filed on February 28, 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.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

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LEGAL NAME OF INVENTOR

Inventor: EFRAIM ROTEM

Date (Optional):

Feb 13 2014Signature: 

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	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input type="checkbox"/> The attached application, or <input checked="" type="checkbox"/> United States application or PCT international application number <u>13/780,066</u> filed on <u>February 28, 2013</u></p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p style="text-align: center;">WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p> <p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>DORON RAJWAN</u> Date (Optional): <u>21/Apr/2013</u></p> <p>Signature: <u>[Signature]</u></p> <p>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.</p>	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR
-------------------------------	---

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 13/780,066

filed on February 28, 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.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTORInventor: ELIEZER WEISSMANNDate (Optional): 13 Feb 2014Signature: 

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.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	DYNAMICALLY ALLOCATING A POWER BUDGET OVER MULTIPLE DOMAINS OF A PROCESSOR
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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 13/780,066
filed on February 28, 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.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

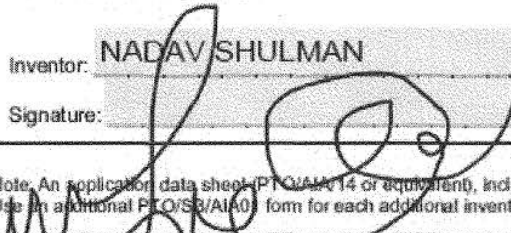
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LEGAL NAME OF INVENTOR

Inventor: NADAV SHULMAN

Date (Optional): 5 Feb 14

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/AIA 01 form for each additional inventor.

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Electronic Acknowledgement Receipt	
EFS ID:	18230647
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	18-FEB-2014
Filing Date:	28-FEB-2013
Time Stamp:	16:52:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	ITL2495C1USExDecs.pdf	1066758 d2b1401167ce49ca86feb730c7d89ee7185c82e4	no	5

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Information:

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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

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New International Application Filed with the USPTO as a Receiving Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495CIUS (P38410C)	3684
47795 7590 03/24/2014 TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631			EXAMINER STOYNOV, STEFAN	
			ART UNIT 2116	PAPER NUMBER
			MAIL DATE 03/24/2014	DELIVERY MODE PAPER

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.



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U.S. Patent and Trademark Office

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
13/780,066 (P38410C)	28 February, 2013	ANANTHAKRISHNAN ET AL.	ITL2495C1US

TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631		EXAMINER	
		STEFAN STOYNOV	
		ART UNIT	PAPER
		2116	20140321

DATE MAILED:

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Commissioner for Patents

The Information Disclosure Statement, filed 02/18/2014 has been considered and made of record.

/STEFAN STOYNOV/
Primary Examiner, Art Unit 2116

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		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

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	7146514		2006-12-05	Kaushik, et al.	
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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	20110283124		2011-11-07	Branover, et al.	
	2	20120173907		2012-07-05	Moses, et al.	
	3	20130246825		2013-09-19	Shannon	
	4	20090271141		2009-10-29	Coskun, et al.	
	5	20080028778		2008-02-07	Millet	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan, et al.		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		ITL.2495C1US (P38410C)	

	6	20120053897		2012-03-01	Naffziger	
	7	20050223258		2005-10-06	Watts	
	8	20050046400		2005-03-03	Rotem	
	9	20120110352		2012-05-03	Branover, et al.	
	10	20090235108		2009-09-17	Gold, et al.	
	11	20120066535		2012-03-15	Naffziger	
	12	20080077813		2008-03-27	Keller, et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		ITL.2495C1US (P38410C)

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
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EXAMINER SIGNATURE

Examiner Signature	/Stefan Stoynov/ (03/21/2014)	Date Considered	03/21/2014
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***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066	
	Filing Date		2013-02-28	
	First Named Inventor	Avinash N. Ananthakrishnan		
	Art Unit	2116		
	Examiner Name	Stefan Stoyanov		
	Attorney Docket Number	ITL.2495C1US (P38410C)		

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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		
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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	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
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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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan
	Art Unit	2116
	Examiner Name	Stefan Stoyinov
	Attorney Docket Number	ITL.2495C1US (P38410C)

1	U.S. Patent Application Serial No. 14/143,939, filed December 30, 2013, entitled, "Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor," by Avinash N. Ananthakrishnan.	<input type="checkbox"/>
If you wish to add additional non-patent literature document citation information please click the Add button Add		
EXAMINER SIGNATURE		
Examiner Signature		Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		
<small> 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. </small>		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	13780066
	Filing Date	2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan
	Art Unit	2116
	Examiner Name	Stefan Stoynov
	Attorney Docket Number	ITL.2495C1US (P38410C)

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)	2014-04-29
Name/Print	Mark J. Rozman	Registration Number	42,117

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

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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.
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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.

Electronic Patent Application Fee Transmittal				
Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

Electronic Acknowledgement Receipt	
EFS ID:	18891749
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	29-APR-2014
Filing Date:	28-FEB-2013
Time Stamp:	15:26:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180
RAM confirmation Number	2094
Deposit Account	201504
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)</p>	

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)	ITL2495C1USIDS.pdf	612060	no	4
			82cf134f1652ed863d244ea830e37102dc3e3796		
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	Non Patent Literature	NPLDOcITL2495C2App.pdf	112934	no	23
			652699e1c1bbab16fa142515c1e92d4fb085e7a		
Warnings:					
Information:					
3	Non Patent Literature	NPLDOcITL2495C2Xings.pdf	69100	no	8
			486ace572cc677ee31fbb9e2ec88ad635df50ef		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30822	no	2
			310892600db7aaed27fbd96909a3e8750607233bf		
Warnings:					
Information:					
Total Files Size (in bytes):			824916		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL.2495C1US (P38410C)	3684
7590 05/08/2014 TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631			EXAMINER STOYNOV, STEFAN	
			ART UNIT	PAPER NUMBER
			2116	
			MAIL DATE	DELIVERY MODE
			05/08/2014	PAPER

NOTICE OF NON-COMPLIANT INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement (IDS) filed 4/29/14 in the above-identified application fails to meet the requirements of 37 CFR 1.97(d) for the reason(s) specified below. Accordingly, the IDS will be placed in the file, but the information referred to therein has not been considered.

The IDS is not compliant with 37 CFR 1.97(d) because:

- ☒ The IDS lacks a statement as specified in 37 CFR 1.97(e).
- ☐ The IDS lacks the fee set forth in 37 CFR 1.17(p).
- ☐ The IDS was filed after the issue fee was paid. Applicant may wish to consider filing a petition to withdraw the application from issue under 37 CFR 1.313(c) to have the IDS considered. See MPEP 1308.

For *LH*
571-272-4200 or 1-888-786-0101
Application Assistance Unit
Office of Data Management

PART B - FEE(S) TRANSMITTAL

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

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

47795 7590 02/18/2014
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL.2495C1US (P38410C)	3684

TITLE OF INVENTION: Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/19/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
STOYNOV, STEFAN	2116	713-300000

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

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☒ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Trop, Pruner & Hu, P.C.

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Intel Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Santa Clara, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

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

☐ A check is enclosed.

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

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 20-1504 (enclose an extra copy of this form).

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

Mark J. Rozman

Date

5/13/14

Typed or printed name

Registration No. 42,117

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Ananthakrishnan, et al.	§	Group Art Unit:	2116
		§		
Serial No.:	13/780,066	§	Conf. No.:	3684
		§		
Filed:	February 28, 2013	§	Examiner:	Stoynov, Stefan
		§		
		§	Atty. Dkt. No.:	ITL.2495C1US
		§		(P38410C)
For:	Dynamically Allocating A	§		
	Power Budget Over Multiple	§		
	Domains Of A Processor	§		

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.

Amendments to the Claims:

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

Listing of Claims:

1. (Previously Presented) A processor comprising:
a first domain and a second domain, each of the first and second domains to operate at an independent voltage and frequency;
a memory controller coupled to the first and second domains;
at least one interface; and
first logic to dynamically allocate a power budget for the processor between the first and second domains at run time according to a first sharing policy value for the first domain and a second sharing policy value for the second domain, the first and second sharing policy values controllable by user-level software.
2. (Canceled)
3. (Previously Presented) The processor of claim 1, wherein the first logic is to determine a portion of the power budget to allocate to the first domain based on the first sharing policy value.
4. (Previously Presented) The processor of claim 1, wherein the first logic is to dynamically allocate the power budget further according to a first minimum reservation value for the first domain and a second minimum reservation value for the second domain, the first and second minimum reservation values controllable by the user-level software.
5. (Original) The processor of claim 4, wherein the first logic is to provide at least a first portion of the power budget to the first domain, the first portion corresponding to the first minimum reservation value.
6. (Original) The processor of claim 1, wherein the first logic is to determine the power budget for a current time interval based at least in part on a power budget carried forward

from a previous time interval, a power consumed in the previous time interval, and a power budget decay value.

7. (Original) The processor of claim 6, wherein the first logic is to determine the power budget according to $E_n = E_{n-1} * \alpha + (1-\alpha)*(Power_Limit*\delta T - Energy)$, where:

E_n is the power budget for the current time interval;

E_{n-1} is the power budget carried forward from the previous time interval;

$Power_limit$ is a threshold power level;

δT is a length of the time interval;

$Energy$ is the power consumed during the previous time interval; and

α is the power budget decay value.

8. (Original) The processor of claim 1, wherein the first logic is to dynamically allocate substantially all of the power budget to the first domain for a first workload, and to dynamically allocate substantially all of the power budget to the second domain for a second workload executed after the first workload.

9. (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:

determining, in a power controller of a multi-domain processor, a power budget for the multi-domain processor, the multi-domain processor including at least a first domain and a second domain;

determining, in the power controller, a portion of the power budget to be allocated to the first and second domains, including allocating a minimum reservation value to the first domain and a minimum reservation value to the second domain, and sharing a remaining portion of the power budget according to a first sharing policy value for the first domain and a second sharing policy value for the second domain; and

controlling a frequency of the first domain and a frequency of the second domain based on the allocated portions.

10. (Previously Presented) The non-transitory machine-readable medium of claim 9, wherein determining the portion of the power budget to be allocated to the first and second domains includes allocating the power budget to the second domain and not to the first domain if the power budget is less than the minimum reservation value for the second domain.

11. (Previously Presented) The non-transitory machine-readable medium of claim 10, wherein the method further comprises obtaining the minimum reservation value for the second domain from a configuration register written by user-level software.

12. (Previously Presented) The non-transitory machine-readable medium of claim 10, wherein the method further comprises allocating the minimum reservation value for the second domain to the second domain, and allocating a remaining portion of the power budget to the first domain when the power budget is greater than the minimum reservation value for the second domain but less than a sum of the minimum reservation value for the second domain and a minimum reservation value for the first domain.

13. (Canceled)

14. (Previously Presented) The non-transitory machine-readable medium claim 9, wherein the first sharing policy value is controllable by software executing on the first domain, the first sharing policy value to be incremented when a request for a higher frequency for the first domain is not granted, and the second sharing policy value is controllable by software executing on the second domain, the second sharing policy value to be incremented when a request for a higher frequency for the second domain is not granted.

15. (Original) A system comprising:
a multicore processor having a first domain including a plurality of cores, a second domain including a graphics engine, and a third domain including system agent circuitry, the third domain to operate at a fixed power budget and including a power sharing logic to dynamically allocate a variable power budget between the first and second domains based at

least in part on a first power sharing value for the first domain stored in a first storage and a second power sharing value for the second domain stored in a second storage; and
a dynamic random access memory (DRAM) coupled to the multicore processor.

16. (Currently Amended) The system of claim 15, wherein the ~~system agent circuitry~~ ~~includes a~~ power sharing logic is to determine the variable power budget for a current time interval and to allocate a first portion of the variable power budget to the first domain according to the first power sharing value, and to allocate a second portion of the variable power budget to the second domain according to the second power sharing value.

17. (Original) The system of claim 16, wherein the power sharing logic is to dynamically allocate substantially all of the variable power budget to the first domain for a first workload, and to dynamically allocate substantially all of the variable power budget to the second domain for a second workload executed after the first workload.

18. (Original) The system of claim 16, wherein the power sharing logic is to increment the first power sharing value when a request for a higher frequency for the first domain is not granted, and to increment the second power sharing value when a request for a higher frequency for the second domain is not granted.

19. (Original) The system of claim 16, wherein the power sharing logic is to further allocate the first portion of the variable power budget according to a first minimum reservation value for the first domain and allocate the second portion of the variable power budget according to a second minimum reservation value for the second domain.

20. (Original) The system of claim 16, wherein the power sharing logic is to further allocate the variable power budget according to a preference value, the preference value to favor the second domain over the first domain.

REMARKS/ARGUMENTS

Claim 16 has been amended to correct a potential antecedent basis issue. Applicants respectfully submit that amended claim 16 continues to be patentable, as no substantive amendment has been made to the claim.

In view of 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: May 15, 2014

/Mark J. Rozman/
Mark J. Rozman
Registration No. 42,117
TROP, PRUNER & HU, P.C.
1616 S. Voss Road, Suite 750
Houston, Texas 77057-2631
(512) 418-9944 [Phone]
(713) 468-8883 [Fax]
Customer No.: 47795

"FEE ADDRESS" INDICATION FORM

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

Fax to:
571-273-6500

- OR -

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, 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. **When to check the first box below:** If you have a Customer Number to represent the fee address. **When to check the second box below:** If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:



Customer Number:

00197

OR



The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
	13/780,066

Completed by (check one):



Applicant/Inventor

/Mark J. Rozman/

Signature



Attorney or Agent of record 42,117
(Reg. No.)

Mark J. Rozman

Typed or printed name



Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

512-418-9944

Requester's telephone number



Assignee recorded at Reel _____ Frame _____

May 15, 2015

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.



* Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.363. 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 5 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 COMPLETE FORMS TO THIS ADDRESS.

SEND TO: Mail Stop M Correspondence, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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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 Patent Application Fee Transmittal				
Application Number:		13780066		
Filing Date:		28-Feb-2013		
Title of Invention:		Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor		
First Named Inventor/Applicant Name:		Avinash N. Ananthakrishnan		
Filer:		Mark J. Rozman/Stephanie Petreas		
Attorney Docket Number:		ITL.2495C1US (P38410C)		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt	
EFS ID:	19043302
Application Number:	13780066
International Application Number:	
Confirmation Number:	3684
Title of Invention:	Dynamically Allocating A Power Budget Over Multiple Domains Of A Processor
First Named Inventor/Applicant Name:	Avinash N. Ananthakrishnan
Customer Number:	47795
Filer:	Mark J. Rozman/Stephanie Petreas
Filer Authorized By:	Mark J. Rozman
Attorney Docket Number:	ITL.2495C1US (P38410C)
Receipt Date:	15-MAY-2014
Filing Date:	28-FEB-2013
Time Stamp:	16:50:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 960
RAM confirmation Number	3503
Deposit Account	201504
Authorized User	ROZMAN, MARK J.
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)</p>	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	ITL2495C1IssueFeeTrans.pdf	173577 8689bba1bcc3444eabd7a5f09df8096ffa9b4ec	no	1
Warnings:					
Information:					
2	Amendment after Notice of Allowance (Rule 312)	ITL2495C1US312.pdf	106852 9250de3b425efb113f6d76c037eeb545cafe47ca	no	6
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	ITL2495C1FeeAddress.pdf	204656 f5eb6c98a1c3d85e1ad9a430442c9233e67137d4	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30913 a5d34244257db3e5114d0260804652c3223a177c	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			515998		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Ananthakrishnan, et al.	§	Group Art Unit:	2116
		§		
Serial No.:	13/780,066	§	Conf. No.:	3684
		§		
Filed:	February 28, 2013	§	Examiner:	Stoynov, Stefan
		§		
		§	Atty. Dkt. No.:	ITL.2495C1US
		§		(P38410C)
For:	Dynamically Allocating A	§		
	Power Budget Over Multiple	§		
	Domains Of A Processor	§		

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

OK to Enter.
/S.S./

AMENDMENT UNDER 37 C.F.R. § 1.312

05/27/2014

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.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	02/28/2013	Avinash N. Ananthakrishnan	ITL2495CIUS (P38410C)	3684
47795 7590 05/29/2014 TROP, PRUNER & HU, P.C. 1616 S. VOSS RD., SUITE 750 HOUSTON, TX 77057-2631			EXAMINER STOYNOV, STEFAN	
			ART UNIT 2116	PAPER NUMBER
			MAIL DATE 05/29/2014	DELIVERY MODE PAPER

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.

Response to Rule 312 Communication	Application No. 13/780,066	Applicant(s) ANANTHAKRISHNAN ET AL.
	Examiner STEFAN STOYNOV	Art Unit 2116
<p align="center">-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</p> <p>1. <input checked="" type="checkbox"/> The amendment filed on <u>15 May 2014</u> under 37 CFR 1.312 has been considered, and has been:</p> <p>a) <input checked="" type="checkbox"/> entered.</p> <p>b) <input type="checkbox"/> entered as directed to matters of form not affecting the scope of the invention.</p> <p>c) <input type="checkbox"/> 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.</p> <p>d) <input type="checkbox"/> disapproved. See explanation below.</p> <p>e) <input type="checkbox"/> entered in part. See explanation below.</p>		
		/STEFAN STOYNOV/ Primary Examiner, Art Unit 2116

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780046
	Filing Date		2013-2-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL24956us	

	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	7111179		2006-09-19	Girson, et al.	
	19	6823516		2004-11-23	Cooper	

Change(s) applied
to document,
/N.W.S./
4/9/2014

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13780066
	Filing Date		2013-02-28
	First Named Inventor	Avinash N. Ananthakrishnan, et al.	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	ITL2495CIUS	

	14	20070106827		2007-05-10	Boatright, et al.	
	15	20080028240		2008-01-31	Arai, et al.	
	16	20090158061		2009-06-18	Schmitz, et al.	
	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		⁴ 2007-07-15	Ma	
	23	20070239398		2007-10-11	Song, et al.	
	24	20060069936		2006-03-30	Lint, et al.	

Change(s) applied
to document,
/N.W.S./
4/10/2014



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/780,066	07/08/2014	8775833	ITL.2495C1US (P38410C)	3684

47795 7590 06/18/2014
TROP, PRUNER & HU, P.C.
1616 S. VOSS RD., SUITE 750
HOUSTON, TX 77057-2631

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):

Intel Corporation, Santa Clara, CA, Assignee (with 37 CFR 1.172 Interest);
Avinash N. Ananthakrishnan, Hillsboro, OR;
Efraim Rotem, Haifa, ISRAEL;
Doron Rajwan, Rishon Le-Zion, ISRAEL;
Eliezer Weissmann, Haifa, ISRAEL;
Nadav Shulman, Tel Mond, ISRAEL;

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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 District of Delaware on the following

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

DOCKET NO.	DATE FILED 8/23/2022	U.S. DISTRICT COURT District of Delaware
PLAINTIFF Daedalus Prime LLC		DEPENDANT Mazda Motor Corporation, Mazda North American Operations, Mazda Motor of America, Inc., MediaTek Inc., MediaTek USA Inc., Mercedes-Benz Group AG, Mercedes-Benz AG, Mercedes-Benz USA, LLC, and Visteon Corporation
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 See Attached		
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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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

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 8,775,833 B2	7/8/2014	Daedalus Prime LLC
2	US 8,898,494 B2	11/25/2014	Daedalus Prime LLC
3	US 9,575,895 B2	2/21/2017	Daedalus Prime LLC
4	US 10,049,080 B2	8/14/2018	Daedalus Prime LLC
5	US 10,394,300 B2	8/27/2019	Daedalus Prime LLC
6	US 10,705,588 B2	7/7/2020	Daedalus Prime LLC

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PLAINTIFF Daedalus Prime LLC		DEPENDANT Arrow Electronics, Inc.; Avent, Inc.; Digi-Key Electronics; Future Electronics Inc.; Mazda Motor Corporation, Mazda North American Operations, Mazda Motor of America, Inc.; Mercedes-Benz Group AG, Mercedes-Benz AG, Mercedes-Benz USA, LLC; Mouser Electronics, Inc.; Newark, NXP Semiconductors N.V., NXP USA, Inc.; Rochester Electronics, LLC; and Visteon Corporation
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2	US 8,898,494 B2	11/25/2014	Daedalus Prime LLC
3	US 9,575,895 B2	2/21/2017	Daedalus Prime LLC
4	US 10,049,080 B2	8/14/2018	Daedalus Prime LLC
5	US 10,394,300 B2	8/27/2019	Daedalus Prime LLC
6	US 10,705,588 B2	7/7/2020	Daedalus Prime LLC

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DOCKET NO. 2:22cv352	DATE FILED 9/12/2022	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF Daedalus Prime LLC		DEPENDANT Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Taiwan Semiconductor Manufacturing Company Limited
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,775,833	7/8/2014	Daedalus Prime LLC
2 8,898,494	11/25/2014	Daedalus Prime LLC
3 10,049,080	8/14/2018	Daedalus Prime LLC
4 10,705,588	7/7/2020	Daedalus Prime LLC
5 9,831,306	11/28/2017	Daedalus Prime LLC

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DOCKET NO. 2:22cv352	DATE FILED 9/12/2022	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF Daedalus Prime LLC		DEPENDANT Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Taiwan Semiconductor Manufacturing Company Limited
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 10,319,812	6/11/2019	Daedalus Prime LLC
2 10,700,178	6/30/2020	Daedalus Prime LLC
3 11,251,281	2/15/2022	Daedalus Prime LLC
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