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**Declarations under Rule 4.17**:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

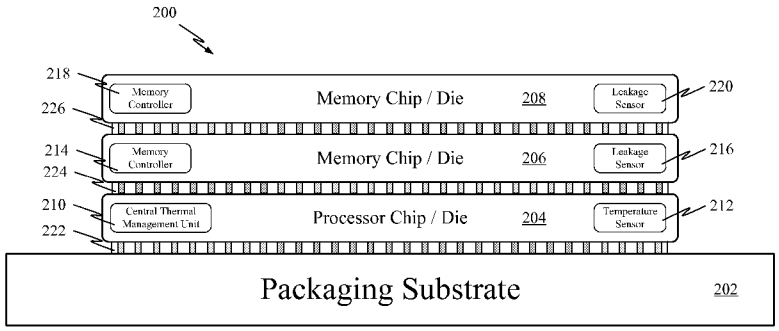
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(88) Date of publication of the international search report:
10 April 2014

(54) Title: THERMAL MANAGEMENT OF TIGHTLY INTEGRATED SEMICONDUCTOR DEVICE, SYSTEM AND/OR PACKAGE




(57) Abstract: Some implementations provide a semiconductor package that includes a first die and a second die adjacent to the first die. The second die is capable of heating the first die. The semiconductor package also includes a leakage sensor configured to measure a leakage current of the first die. The semiconductor package also includes a thermal management unit coupled to the leakage sensor. The thermal management unit configured to control a temperature of the first die based on the leakage current of the first die.

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# INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H01L23/34 G06F1/20 G06F1/32
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H01L G06F H05K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| Y | CHIH-HAO CHAO ET AL: "Traffic and Thermal-Aware Run-Time Thermal Management Scheme for 3D NoC Systems", NETWORKS-ON-CHIP (NOCS), 2010 FOURTH ACM/IEEE INTERNATIONAL SYMPOSIUM ON, IEEE, PISCATAWAY, NJ, USA, 3 May 2010 (2010-05-03), pages 223-230, XP031707246, ISBN: 978-1-4244-7085-3 abstract; figures 1,2,8,9,10 page 223, column 2, line 15 - line 33 page 224, column 1, line 27 - line 54 page 224, column 2, line 17 - line 30 page 226, column 2, line 1 - page 227, column 1, line 27 ----- -/-- | 1-55 |

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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| Date of the actual completion of the international search | Date of mailing of the international search report |
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| 14 February 2014 | 24/02/2014 |

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| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Rousset, Antoine |

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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| A | COSKUN A K ET AL: "Dynamic thermal management in 3D multicore architectures",<br>DESIGN, AUTOMATION&TEST IN EUROPE CONFERENCE&EXHIBITION, 2009. DATE '09,<br>IEEE, PISCATAWAY, NJ, USA,<br>20 April 2009 (2009-04-20), pages 1410-1415, XP032317705,<br>DOI: 10.1109/DATE.2009.5090885<br>ISBN: 978-1-4244-3781-8<br>abstract; figure 1<br>page 1410, column 2, line 4 - line 52<br>page 1411, column 2, line 14 - page 1412, column 1, line 43<br>page 1412, column 2, line 26 - page 1413, column 1, line 15 | 1-55 |
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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| A | US 2006/052970 A1 (ARABI TAWFIK [US] ET AL) 9 March 2006 (2006-03-09) abstract; figures 2,5 paragraph [0017] - paragraph [0024] paragraph [0037] - paragraph [0040] | 1-55 |

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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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