

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 November 2002 (21.11.2002)

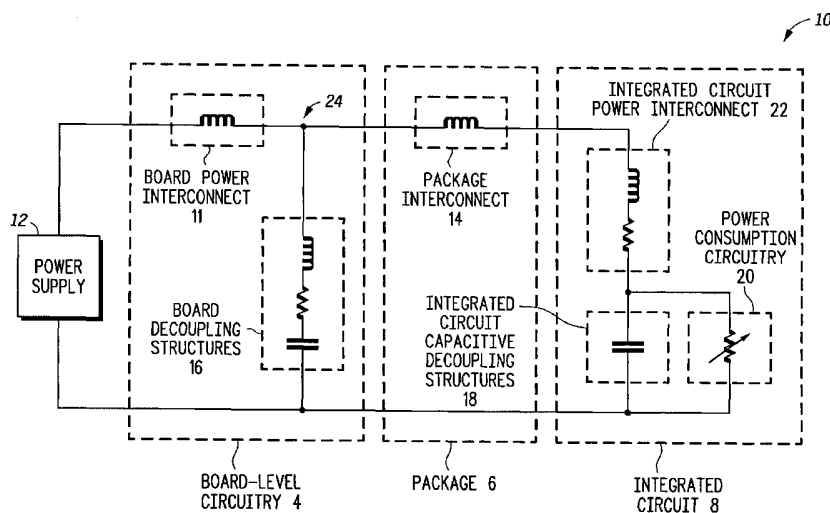
PCT

(10) International Publication Number  
**WO 02/093341 A3**

- (51) International Patent Classification<sup>7</sup>: **G06F 1/30**, G05F 1/46
- (21) International Application Number: PCT/US02/10872
- (22) International Filing Date: 5 April 2002 (05.04.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
09/858,126 15 May 2001 (15.05.2001) US
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR CONTROLLING CURRENT DEMAND IN AN INTEGRATED CIRCUIT



(57) Abstract: The present invention relates generally methods and apparatus for controlling current demand in an integrated circuit. One embodiment relates to a method that includes detecting if a supply voltage overshoot or an undershoot is present or anticipated, and if detected, controlling current consumed by a power consumption circuitry to ensure that the power supply voltage remains within acceptable levels. Other embodiments relate to an integrated circuit having a capacitive decoupling structure (18), power consumption circuitry (20), and power consumption control circuitry (62) for controlling current consumed by at least a portion of the power consumption circuitry. Therefore, embodiments of the invention relate to monitoring and controlling power consumption (i.e. current demand) of a power consumption circuit (such as an integrated circuit) in order to prevent devastating supply voltage undershoots, overshoots, and oscillations.



WO 02/093341 A3



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**(88) Date of publication of the international search report:**

9 October 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/10872

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G06F1/30 G05F1/46

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)

IPC 7 G06F G05F H02M

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 practical, search terms used)

EPO-Internal, PAJ, INSPEC, IBM-TDB

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                    | Relevant to claim No. |
|------------|-------------------------------------------------------------------------------------------------------|-----------------------|
| X          | EP 1 089 217 A (FUJITSU LTD)<br>4 April 2001 (2001-04-04)<br>paragraph '0007!                         | 1-3                   |
| Y          | paragraph '0022! - paragraph '0023!<br>paragraph '0044! - paragraph '0050!<br>figures 1-10            | 4,5,7,8,<br>10        |
| X          | EP 0 724 209 A (IBM)<br>31 July 1996 (1996-07-31)<br>column 1, line 18 - line 23                      | 6,9                   |
| Y          | column 1, line 44 - line 56<br>column 3, line 2 - line 8<br>column 4, line 1 - line 23<br>figures 1-3 | 4,5,7,8,<br>10        |
|            | -/--                                                                                                  |                       |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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\* & \* document member of the same patent family

Date of the actual completion of the international search

4 June 2003

Date of mailing of the international search report

11/06/2003

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/10872

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                           | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | <p>US 5 838 145 A (TSE CHI KONG ET AL)<br/> 17 November 1998 (1998-11-17)<br/> column 4, line 9 - line 31<br/> column 5, line 30 - line 54<br/> figures 1-5</p> <p>-----</p> | 1-3                   |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/10872

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