### (19) World Intellectual Property **Organization**

International Bureau





(43) International Publication Date 30 January 2003 (30.01.2003)

PCT

## (10) International Publication Number WO 2003/009117 A3

(51) International Patent Classification<sup>7</sup>: G06F 1/32

(21) International Application Number:

PCT/US2002/022183

(22) International Filing Date: 11 July 2002 (11.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

09/910,479 18 July 2001 (18.07.2001)

(71) Applicant: INTEL CORPORATION [US/US]; 2200 Mission College Boulevard, Santa Clara, CA 95052 (US).

- (72) Inventors: ROSE, Gregory; 11500 Trinity Hill Drive, Austin, TX 78739 (US). FEDDELLER, James; 4103 Aldama Drive, Austin, TX 78739 (US). ANSANULLAH, Zahid; 4114 Lullwood Road, Austin, TX 78722 (US).
- (74) Agents: HARRIS, Scott, C. et al.; Fish & Richardson P.C., Suite 500, 4350 La Jolla Village Drive, San Diego, CA 92122 (US).
- (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, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 15 April 2004

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.

(54) Title: POWER SAVING

(57) Abstract: Power saving method is achieved by weakly holding a signal line in its last in time state, which is responsive to and may be overcome by the state of an external signal. During sleep mode, the weakly held signal line state tracks and holds the external signal using alternatively a controllable weak pull-up or pull-down device, such that weakly held state may be driven to a different state by the external driving signal with slight power consumption. When sleep mode is off, the keeper function is disabled and the signal line maybe driven alternatively internally or externally depending upon the state of an enable line.



# INTERNATIONAL SEARCH REPORT

Internation pplication No PCT/US 02/22183

# A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F1/32

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 GO6F

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, IBM-TDB

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 199 25 374 A (SIEMENS MICROELECTRONICS INC) 16 December 1999 (1999-12-16) page 2, line 3 - page 5, line 40; figures	1-23
X	US 5 517 650 A (BLAND ET AL) 14 May 1996 (1996-05-14)  column 1, line 9 - column 3, line 15 column 3, line 58 - column 4, line 30 column 6, line 22 - column 7, line 49; figures 2,4-7  -/	1,2,6,9, 10,17, 18,21

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
Special categories of cited documents:      A* document defining the general state of the art which is not considered to be of particular relevance      E* earlier document but published on or after the international filling date      L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)      O* document referring to an oral disclosure, use, exhibition or other means      P* document published prior to the international filling date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family
Date of the actual completion of the international search  26 February 2004  Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL – 2280 HV Rijswijk  Tel. (+31–70) 340–2040, Tx. 31 651 epo nl,  Fax: (+31–70) 340–3016	Date of mailing of the international search report  05/03/2004  Authorized officer  Semple, M

# INTERNATIONAL SEARCH REPORT

Internation Replication No
PCT/US 02/22183

		PCT/US 02/22183				
	C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT					
Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.				
X	"INPUT/OUTPUT CIRCUITS PROGRAMMABLE IN A SUSPEND MODE" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 37, no. 12, 1 December 1994 (1994-12-01), pages 189-192, XP000487752 ISSN: 0018-8689 whole article	1,2,6,9, 10,17, 18,21				

# INTERNATIONAL SEARCH REPORT Information on patent family members

Internatio pplication No PCT/US 02/22183

DE 19925374	Α	16-12-1999	US	2002027448 A1	07-03-2002
			DE	19925374 A1	16-12-1999
US 5517650	A	14-05-1996	NONE		