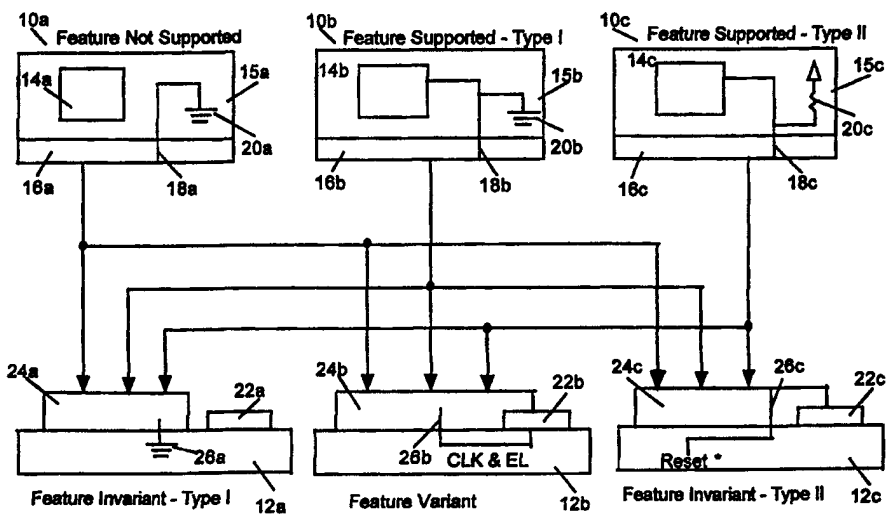




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|--|------------------|--|
| <p>(51) International Patent Classification ⁶ : G06F 12/08</p> | <p>A3</p> | <p>(11) International Publication Number: WO 98/28702 (43) International Publication Date: 2 July 1998 (02.07.98)</p> |
| <p>(21) International Application Number: PCT/US97/22549 (22) International Filing Date: 9 December 1997 (09.12.97) (30) Priority Data: 08/766,728 13 December 1996 (13.12.96) US (71) Applicant: INTEL CORPORATION [US/US]; 2200 Mission College Boulevard, Santa Clara, CA 95052 (US). (72) Inventor: SCHULTZ, Nathan; 6707 N.E. Klickitat, Portland, OR 97123 (US). (74) Agents: TAYLOR, Edwin, H. et al.; Blakely, Sokoloff, Taylor & Zafman LLP, 7th floor, 12400 Wilshire Boulevard, Los Angeles, CA 90025 (US).</p> | | <p>(81) Designated States: AL, AM, AT, AT (Utility model), AU (Petty patent), AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 13 August 1998 (13.08.98)</p> |

(54) Title: METHOD AND APPARATUS FOR ENSURING FEATURE COMPATIBILITY AND COMMUNICATING FEATURE SETTINGS BETWEEN PROCESSORS AND MOTHERBOARDS



(57) Abstract

A handshake mechanism is provided to allow feature compatible processor and motherboard combinations to operate, and incompatible combinations to fail safely. The handshake mechanism also facilitates communication of feature settings between a motherboard (12a-12c) and an attached processor (10a-10c). For each feature, the handshake mechanism includes connection pins (18a-c) correspondingly disposed on complementary connectors (16a-c) of the processors and the motherboards for conveying a feature setting selection signal for the feature. The handshake mechanism further includes particular manners for connecting the processors' connection pins and the motherboards' connection pins to their respective internal circuitry, depending on the manners the feature is supported by the various processors and motherboards.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | | | | | | | |
|-----------|--------------------------|-----------|--|-----------|--|-----------|--------------------------|
| AL | Albania | ES | Spain | LS | Lesotho | SI | Slovenia |
| AM | Armenia | FI | Finland | LT | Lithuania | SK | Slovakia |
| AT | Austria | FR | France | LU | Luxembourg | SN | Senegal |
| AU | Australia | GA | Gabon | LV | Latvia | SZ | Swaziland |
| AZ | Azerbaijan | GB | United Kingdom | MC | Monaco | TD | Chad |
| BA | Bosnia and Herzegovina | GE | Georgia | MD | Republic of Moldova | TG | Togo |
| BB | Barbados | GH | Ghana | MG | Madagascar | TJ | Tajikistan |
| BE | Belgium | GN | Guinea | MK | The former Yugoslav Republic of Macedonia | TM | Turkmenistan |
| BF | Burkina Faso | GR | Greece | | | TR | Turkey |
| BG | Bulgaria | HU | Hungary | ML | Mali | TT | Trinidad and Tobago |
| BJ | Benin | IE | Ireland | MN | Mongolia | UA | Ukraine |
| BR | Brazil | IL | Israel | MR | Mauritania | UG | Uganda |
| BY | Belarus | IS | Iceland | MW | Malawi | US | United States of America |
| CA | Canada | IT | Italy | MX | Mexico | UZ | Uzbekistan |
| CF | Central African Republic | JP | Japan | NE | Niger | VN | Viet Nam |
| CG | Congo | KE | Kenya | NL | Netherlands | YU | Yugoslavia |
| CH | Switzerland | KG | Kyrgyzstan | NO | Norway | ZW | Zimbabwe |
| CI | Côte d'Ivoire | KP | Democratic People's Republic of Korea | NZ | New Zealand | | |
| CM | Cameroon | | Republic of Korea | PL | Poland | | |
| CN | China | KR | Republic of Korea | PT | Portugal | | |
| CU | Cuba | KZ | Kazakstan | RO | Romania | | |
| CZ | Czech Republic | LC | Saint Lucia | RU | Russian Federation | | |
| DE | Germany | LI | Liechtenstein | SD | Sudan | | |
| DK | Denmark | LK | Sri Lanka | SE | Sweden | | |
| EE | Estonia | LR | Liberia | SG | Singapore | | |

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US97/22549

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 12/08

US CL :395/500

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)

U.S. : 395/500, 280, 281, 282, 283, 527, 834

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)

APS

search terms: handshak?, plug (w) play, motherboard, processor, compatib?, clock, pin, ground

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X,P | US 5,586,270 A (ROTIER et al.) 17 December 1996, Figures 2, 6-7, col. 1, line 23 to col. 3, line 10, col. 6, lines 20-39, col. 9, line 54 to col. 10, line 32. | 1-33 |
| A | US 5,555,381 A (LUDWIG et al.) 10 September 1996, abstract, col. 3, line 45 to col. 5, line 24. | 1-33 |
| A | US 5,321,827 A (LU et al.) 14 June 1994, col. 2, line 50 to col. 3, line 29. | 1-33 |
| A | US 5,325,490 A (BRASSEUR) 28 June 1994, abstract, col. 3, line 56 to col. 4, line 10. | 1-33 |
| A, E | US 5,734,841 A (SHIN et al.) 31 March 1998, col. 1, lines 6-39. | 1-33 |

 Further documents are listed in the continuation of Box C.
 See patent family annex.

| | |
|---|--|
| * Special categories of cited documents: | *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 |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "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 |
| "E" earlier document published on or after the international filing date | "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 combination being obvious to a person skilled in the art |
| "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) | "&" document member of the same patent family |
| "O" document referring to an oral disclosure, use, exhibition or other means | |
| "P" document published prior to the international filing date but later than the priority date claimed | |

Date of the actual completion of the international search

26 APRIL 1998

Date of mailing of the international search report

19 JUN 1998

 Name and mailing address of the ISA/US
 Commissioner of Patents and Trademarks
 Box PCT
 Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Kevin Teska

Telephone No. (703) 305-9704