

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
18 May 2006 (18.05.2006)

(10) International Publication Number  
**WO 2006/052359 A3**

- (51) International Patent Classification:  
*G06F 1/26* (2006.01)
- (21) International Application Number:  
PCT/US2005/036329
- (22) International Filing Date: 7 October 2005 (07.10.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
10/982,383 5 November 2004 (05.11.2004) US
- (71) Applicant (for all designated States except US): CISCO TECHNOLOGY, INC. [US/US]; 170 West Tasman Drive, San Jose, CA 95134-1706 (US).

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

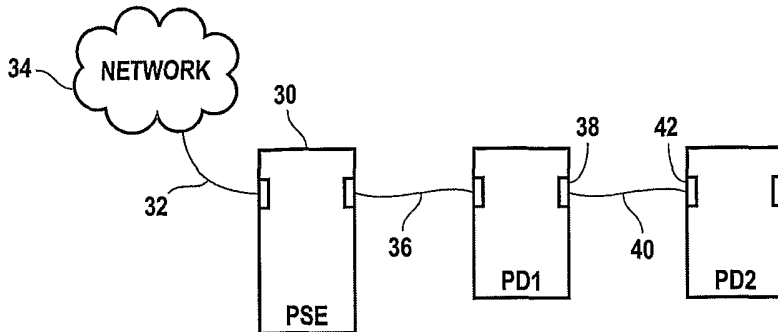
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): KARAM, Roger, A. [US/US]; 981 Bonita Avenue, #15, Mountain View, CA 94040 (US).
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

Published:  
— with international search report

(88) Date of publication of the international search report:  
14 December 2006

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 MANAGEMENT FOR SERIAL-POWERED DEVICE CONNECTIONS



(57) Abstract: A method and apparatus for managing an Inline Power relationship between and among a first network device acting as power sourcing equipment (PSE) to provide Inline Power to a second Powered Device (PD) and a third device. In one aspect of the invention, the powered device(s) and the third device are powered (at least in part) by the PSE using inline power from at least one port (which may include more than one PSE) and they are powered over one or more sets of cables.



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INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2005/036329

<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. G06F1/26</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>											
<p><b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) G06F</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data</p>											
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td> <p>US 5 884 086 A (AMONI ET AL) 16 March 1999 (1999-03-16)</p> <p>abstract column 2, line 30 - line 50 column 3, line 26 - column 4, line 65; figures 1,2,7,8 column 6, line 32 - column 8, line 67; figure 6</p> <p>-----</p> </td> <td> <p>1-13, 27-39, 51-63, 86-89</p> </td> </tr> <tr> <td>X</td> <td> <p>US 2004/073597 A1 (CAVENEY JACK E ET AL) 15 April 2004 (2004-04-15)</p> <p>abstract paragraph [0008] - paragraph [0009] paragraph [0037]; figures 1,2a</p> <p>-----</p> <p style="text-align: center;">-/--</p> </td> <td> <p>1-13, 27-39, 51-63, 86-89</p> </td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	<p>US 5 884 086 A (AMONI ET AL) 16 March 1999 (1999-03-16)</p> <p>abstract column 2, line 30 - line 50 column 3, line 26 - column 4, line 65; figures 1,2,7,8 column 6, line 32 - column 8, line 67; figure 6</p> <p>-----</p>	<p>1-13, 27-39, 51-63, 86-89</p>	X	<p>US 2004/073597 A1 (CAVENEY JACK E ET AL) 15 April 2004 (2004-04-15)</p> <p>abstract paragraph [0008] - paragraph [0009] paragraph [0037]; figures 1,2a</p> <p>-----</p> <p style="text-align: center;">-/--</p>	<p>1-13, 27-39, 51-63, 86-89</p>
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.      <input checked="" type="checkbox"/> See patent family annex.</p>											
<p>* Special categories of cited documents :</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="vertical-align: top;"> <p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p>							
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<p>Date of the actual completion of the international search <b>29 May 2006</b></p>		<p>Date of mailing of the international search report <b>04.09.2006</b></p>									
<p>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</p>		<p>Authorized officer <b>Vieira, A</b></p>									

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2005/036329

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"3COM USER GUIDE" 23 September 2002 (2002-09-23), , XP002297746  page 8 - page 11 -----	1-13, 27-39, 51-63, 86-89
A	US 5 808 660 A (SEKINE ET AL) 15 September 1998 (1998-09-15)  abstract column 2, line 10 - line 40 column 6, line 55 - column 7, line 12; figures 1-3 -----	1-13, 27-39, 51-63, 86-89
A	LYNN K: "UNIVERSAL SERIAL BUS (USB) POWER MANAGEMENT" 15 September 1998 (1998-09-15), WESCON CONFERENCE, IEEE CENTER, HOES LANE, US, PAGE(S) 194-201 , XP000846817 ISSN: 1044-6036 page 194 - page 195; figure 1 page 201, paragraph GANGED-OUTPUT-BUS-POWERED; figure 5 -----	1-13, 27-39, 51-63, 86-89

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2005/036329

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-13, 27-39, 51-63, 86-89

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13, 27-39,51-63,86-89

Relates to communication between devices connected only by power supply lines.

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2. claims: 14-17,40-43,64-67,

Relates to energy saving.

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3. claims: 18-19,44-45, 68-69

Relates to powered device classification.

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4. claims: 20-26, 46-50, 70-85

Relates to reducing amount of power supplies.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/036329

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5884086	A	16-03-1999	NONE
US 2004073597	A1	15-04-2004	NONE
US 5808660	A	15-09-1998	JP 3407838 B2 19-05-2003
			JP 9074551 A 18-03-1997