Inasmuch as no objection is pending at this time, the stay is lifted.

MAY 6 2008

CLERK'S OFFICE
JUDICIAL PANEL ON
MULTIDISTRICT LITIGATION

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APR 18 2008

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UNITED STATES JUDICIAL PANEL
on
MULTIDISTRICT LITIGATION

FILED
2008 MAY -8 P 3:37
RICHARD W. WIEKING
CLERK
U.S. DISTRICT COURT
NO. DIST. OF CA. S.J.

IN RE: PAPST LICENSING DIGITAL CAMERA PATENT LITIGATION

Hewlett-Packard Co. v. Papst Licensing GmbH & Co. KG,)
N.D. California, C.A. No. 5:08-1732)

MDL No. 1880

CONDITIONAL TRANSFER ORDER (CTO-2)

On November 5, 2007, the Panel transferred three civil actions to the United States District Court for the District of District of Columbia for coordinated or consolidated pretrial proceedings pursuant to 28 U.S.C. § 1407. *See* 528 F.Supp.2d 1357 (J.P.M.L. 2007). Since that time, one additional action has been transferred to the District of District of Columbia. With the consent of that court, all such actions have been assigned to the Honorable Rosemary M. Collyer.

It appears that the action on this conditional transfer order involves questions of fact that are common to the actions previously transferred to the District of District of Columbia and assigned to Judge Collyer.

Pursuant to Rule 7.4 of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation, 199 F.R.D. 425, 435-36 (2001), this action is transferred under 28 U.S.C. § 1407 to the District of District of Columbia for the reasons stated in the order of November 5, 2007, and, with the consent of that court, assigned to the Honorable Rosemary M. Collyer.

This order does not become effective until it is filed in the Office of the Clerk of the United States District Court for the District of District of Columbia. The transmittal of this order to said Clerk shall be stayed 15 days from the entry thereof. If any party files a notice of opposition with the Clerk of the Panel within this 15-day period, the stay will be continued until further order of the Panel.

FOR THE PANEL:

Jeffery N. Lüthi
Clerk of the Panel

5/8/08

IN RE: PAPST LICENSING DIGITAL CAMERA PATENT LITIGATION

MDL No. 1880

INVOLVED COUNSEL LIST (CTO-2)

Heather Nicole Mewes
FENWICK & WEST LLP
555 California Street
12th Floor
San Francisco, CA 94104

Charlene Marie Morrow
FENWICK & WEST LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041-2008

UNITED STATES JUDICIAL PANEL
on
MULTIDISTRICT LITIGATION

CHAIRMAN:
Judge John G. Heyburn II
United States District Court
Western District of Kentucky

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United States District Court
Northern District of California

Judge J. Frederick Motz
United States District Court
District of Maryland

Judge Robert L. Miller, Jr.
United States District Court
Northern District of Indiana

Judge Kathryn H. Vratil
United States District Court
District of Kansas

Judge David R. Hansen
United States Court of Appeals
Eighth Circuit

Judge Anthony J. Scirica
United States Court of Appeals
Third Circuit

DIRECT REPLY TO:

Jeffery N. Lüthi
Clerk of the Panel
One Columbus Circle, NE
Thurgood Marshall Federal
Judiciary Building
Room G-255, North Lobby
Washington, D.C. 20002

Telephone: [202] 502-2800
Fax: [202] 502-2888
http://www.jpml.uscourts.gov

May 6, 2008

Nancy Mayer-Whittington, Clerk
1834 E. Barrett Prettyman U.S. Courthouse
333 Constitution Avenue, N.W.
Washington, DC 20001-2802

FILED
2008 MAY -8 P 4:34
RICHARD W. WIEKING
CLERK
U.S. DISTRICT COURT
NO. DIST. OF CA. S.J.

Re: MDL No. 1880 -- IN RE: Papst Licensing Digital Camera Patent Litigation

(See Attached CTO-2)

Dear Ms. Mayer-Whittington:

I am enclosing a certified copy and one additional copy of a conditional transfer order filed by the Panel in the above-captioned matter on April 18, 2008. As stipulated in Rule 7.4(a) of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation, 199 F.R.D. 425, 435-36 (2001), transmittal of the order has been stayed 15 days to give any party an opportunity to oppose the transfer. The 15-day period has now elapsed, no opposition was received, and the order is directed to you for filing.

The Panel's governing statute, 28 U.S.C. §1407, requires that the transferee clerk "...transmit a certified copy of the Panel's order to transfer to the clerk of the district court from which the action is being transferred."

A list of involved counsel is attached.

Very truly,

Jeffery N. Lüthi
Clerk of the Panel

By: Mecca S. Thompson
Docket Specialist

Attachment

cc: Transferee Judge: Judge Rosemary M. Collyer
Transferor Judge: Judge James Ware
Transferor Clerk: Richard W. Wieking

JPML Form 36

5/5/08

CHARLENE M. MORROW (CSB NO. 136411)
cmorrow@fenwick.com
FENWICK & WEST LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Telephone: (650) 988-8500
Facsimile: (650) 938-5200

HEATHER MEWES (CSB NO. 203690)
hmewes@fenwick.com
JEFFREY V. LASKER (CSB NO. 246029)
jlasker@fenwick.com
FENWICK & WEST LLP
555 California Street, Suite 1200
San Francisco, CA 94104
Telephone: (415) 875-2300
Facsimile: (415) 281-1350

Attorneys for Plaintiff
Hewlett-Packard Company

FILED
2008 MAY 20 PM 4:02
RICHARD W. WIEKING
CLERK, U.S. DISTRICT COURT
NORTHERN DISTRICT OF CA. OAKLAND

E-filing

FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

HEWLETT-PACKARD COMPANY, a Delaware corporation,

Plaintiff,

v.

PAPST LICENSING GMBH & CO. KG, a German company,

Defendant.

Case No. CV 08 1982 JL

COMPLAINT FOR DECLARATORY JUDGMENT

DEMAND FOR JURY TRIAL

Plaintiff Hewlett-Packard Company ("HP"), for its Complaint for Declaratory Judgment against defendant Papst Licensing GmbH & Co. KG ("Papst" or "Defendant"), avers the following:

NATURE OF THE ACTION

1. This action is based on the patent laws of the United States, Title 35 of the United States Code. Defendant has asserted rights under U.S. Patent Nos. 6,470,399 ("the '399 patent)

and 6,895,449 ("the '449 patent") (collectively, "the patents-in-suit") based on certain ongoing activity by HP, and HP contends that it has the right to engage in this activity without license. True and correct copies of the patents-in-suit are attached hereto as Exhibits A and B. HP thus seeks a declaration that it does not infringe the patents-in-suit and/or that the patents-in-suit are invalid.

THE PARTIES

2. Plaintiff HP is a corporation organized under the laws of Delaware, with its headquarters at 3000 Hanover Street, Palo Alto, California.

3. On information and belief, Papst is a company existing under the laws of The Federal Republic of Germany with a place of business at Bahnofstrasse 33, 78112 St. Georgen, Germany.

JURISDICTION AND VENUE

4. This is a civil action regarding allegations of patent infringement arising under the patent laws of the United States, Title 35 of the United States Code, in which HP seeks declaratory relief under the Declaratory Judgment Act. Thus, the court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1338, 2201, and 2202.

5. An actual controversy exists between HP and Defendant by virtue of Defendant's assertion of rights under the patents-in-suit based on certain ongoing activity by HP.

6. HP contends that it has a right to engage in making, using, offering to sell, and selling its products, including its digital camera products, without license from Defendant.

7. The Court has personal jurisdiction over Defendant because Defendant has established certain minimum contacts with California such that the exercise of personal jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice.

8. Venue is proper in this court pursuant to 28 U.S.C. § 1391 because Defendant is an alien entity and therefore subject to suit in any district.

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INTRADISTRICT ASSIGNMENT

9. This is an Intellectual Property Action subject to district-wide assignment under Local Rule 3-2(c).

FACTUAL BACKGROUND

10. HP is a leading provider of imaging and printing-related products and services, including, among other things, digital cameras.

11. On information and belief, Defendant is a patent licensing company that neither makes nor sells any products or services.

12. The '399 patent is entitled "Flexible interface for communication between a host and an analog I/O device connected to the interface regardless the type of the I/O device." The '399 patent on its face states that it issued on October 22, 2002. On its face, the '399 patent appears to have been originally assigned to Labortechnik Tasler GmbH. Defendant has asserted all right, title, and interest in the '399 patent.

13. The '449 patent is entitled "Flexible interface for communication between a host and an analog I/O device connected to the interface regardless the type of the I/O device." The '449 patent on its face states that it issued on May 17, 2005. On its face, the '449 patent appears to have been originally assigned to Labortechnik Tasler GmbH. Defendant has asserted all right, title, and interest in the '449 patent.

14. HP believes that its products, including its digital camera products, do not infringe the patents-in-suit and that the claims of the patents-in-suit are invalid. Accordingly, an actual controversy exists between HP and Defendant as to whether HP's manufacture, use or sale of its products infringes any valid and enforceable claim of the patents-in-suit. Absent a declaration of non-infringement and/or invalidity, Defendant will continue to wrongly assert the patents-in-suit against HP, and thereby cause HP irreparable harm.

FIRST CAUSE OF ACTION

(Declaratory Judgment of Non-Infringement of the '399 Patent)

15. HP hereby incorporates by reference its allegations contained in paragraphs 1 through 14 of this Complaint as though fully set forth herein.

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16. Defendant contends that products imported, made, used, sold or offered for sale by HP infringe the '399 patent.

17. HP denies Defendant's contentions and alleges that HP's products do not directly or indirectly infringe the '399 patent.

18. An actual controversy thus exists between HP and Defendant as to whether the accused products infringe the '399 patent.

19. Accordingly, HP seeks and is entitled to a judgment against Defendant that it does not infringe and has not infringed, directly or indirectly, contributorily or by inducement, the '399 patent.

SECOND CAUSE OF ACTION

(Declaratory Judgment of Invalidity of the '399 Patent)

20. HP hereby incorporates by reference its allegations contained in paragraphs 1 through 14 of this Complaint as though fully set forth herein.

21. Defendant contends that the '399 patent is valid.

22. HP denies Defendant's contention and alleges that the '399 patent is invalid. The '399 patent is invalid for failure to meet at least one of the conditions of patentability specified in Title 35 of the United States Code. No claim of the '399 patent can be validly construed to cover any products imported, made, used, sold or offered for sale by HP and the alleged invention of the '399 patent is taught by, suggested by, and/or obvious in view of, the prior art.

23. An actual controversy thus exists between HP and Defendant as to whether the '399 patent is valid.

24. Accordingly, HP seeks and is entitled to a judgment against Defendant that the '399 patent is invalid.

THIRD CAUSE OF ACTION

(Declaratory Judgment of Non-Infringement of the '449 Patent)

25. HP hereby incorporates by reference its allegations contained in paragraphs 1 through 14 of this Complaint as though fully set forth herein.

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26. Defendant contends that products imported, made, used, sold or offered for sale by HP infringe the '449 patent.

27. HP denies Defendant's contentions and alleges that HP's products do not directly or indirectly infringe the '449 patent.

28. An actual controversy thus exists between HP and Defendant as to whether the accused products infringe the '449 patent.

29. Accordingly, HP seeks and is entitled to a judgment against Defendant that it does not infringe and has not infringed, directly or indirectly, contributorily or by inducement, the '449 patent.

FOURTH CAUSE OF ACTION

(Declaratory Judgment of Invalidity of the '449 Patent)

30. HP hereby incorporates by reference its allegations contained in paragraphs 1 through 14 of this Complaint as though fully set forth herein.

31. Defendant contends that the '449 patent is valid.

32. HP denies Defendant's contention and alleges that the '449 patent is invalid. The '449 patent is invalid for failure to meet at least one of the conditions of patentability specified in Title 35 of the United States Code. No claim of the '449 patent can be validly construed to cover any products imported, made, used, sold or offered for sale by HP and the alleged invention of the '449 patent is taught by, suggested by, and/or obvious in view of, the prior art.

33. An actual controversy thus exists between HP and Defendant as to whether the '449 patent is valid.

34. Accordingly, HP seeks and is entitled to a judgment against Defendant that the '449 patent is invalid.

PRAYER FOR RELIEF

WHEREFORE, HP prays for a declaratory judgment against Defendant as follows:

A. Judgment against Defendant declaring that the '399 patent is not infringed by HP;

B. Judgment against Defendant declaring that the '399 patent is invalid;

A. Judgment against Defendant declaring that the '449 patent is not infringed by HP;

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B. Judgment against Defendant declaring that the '449 patent is invalid;

C. A declaration that HP's case against Defendant is an exceptional case within the meaning of 35 U.S.C. § 285;

D. An award of costs and attorneys' fees to HP; and

E. Such other and further relief as the Court deems just and reasonable.

Dated: March 31, 2008

FENWICK & WEST LLP

By: _____
Charlene M. Morrow

Attorneys for Plaintiff
Hewlett-Packard Company

FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW

DEMAND FOR JURY TRIAL

Plaintiff HP hereby demands a trial by jury of all issues so triable.

Dated: March 31, 2008

FENWICK & WEST LLP

By: _____
Charlene M. Morrow

Attorneys for Plaintiff
Hewlett-Packard Company

FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW

Exhibit A

to HP's Complaint for Declaratory Judgment

US006895449B2

(12) **United States Patent**
Tasler

(10) **Patent No.: US 6,895,449 B2**
(45) **Date of Patent: May 17, 2005**

(54) **FLEXIBLE INTERFACE FOR COMMUNICATION BETWEEN A HOST AND AN ANALOG I/O DEVICE CONNECTED TO THE INTERFACE REGARDLESS THE TYPE OF THE I/O DEVICE**

(75) Inventor: **Michael Tasler**, Wuerzburg (DE)

(73) Assignee: **Labortechnik Tasler GmbH**, Wuerzburg (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 369 days.

(21) Appl. No.: **10/219,105**

(22) Filed: **Aug. 15, 2002**

(65) **Prior Publication Data**

US 2002/0199037 A1 Dec. 26, 2002

Related U.S. Application Data

(62) Division of application No. 09/331,002, filed on Jun. 14, 1999.

(30) **Foreign Application Priority Data**

Mar. 4, 1997 (DE) 197 08 755
Mar. 3, 1998 (EP) PCT/EP98/01187

(51) **Int. Cl.**[7] **G06F 13/14**
(52) **U.S. Cl.** **710/16**; 710/8; 710/64; 709/220
(58) **Field of Search** 710/8, 16, 64, 710/11, 12, 15, 62, 63; 703/23, 24, 25; 709/220, 222

(56) **References Cited**

U.S. PATENT DOCUMENTS

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6,363,081	B1 *	3/2002	Gase	370/466
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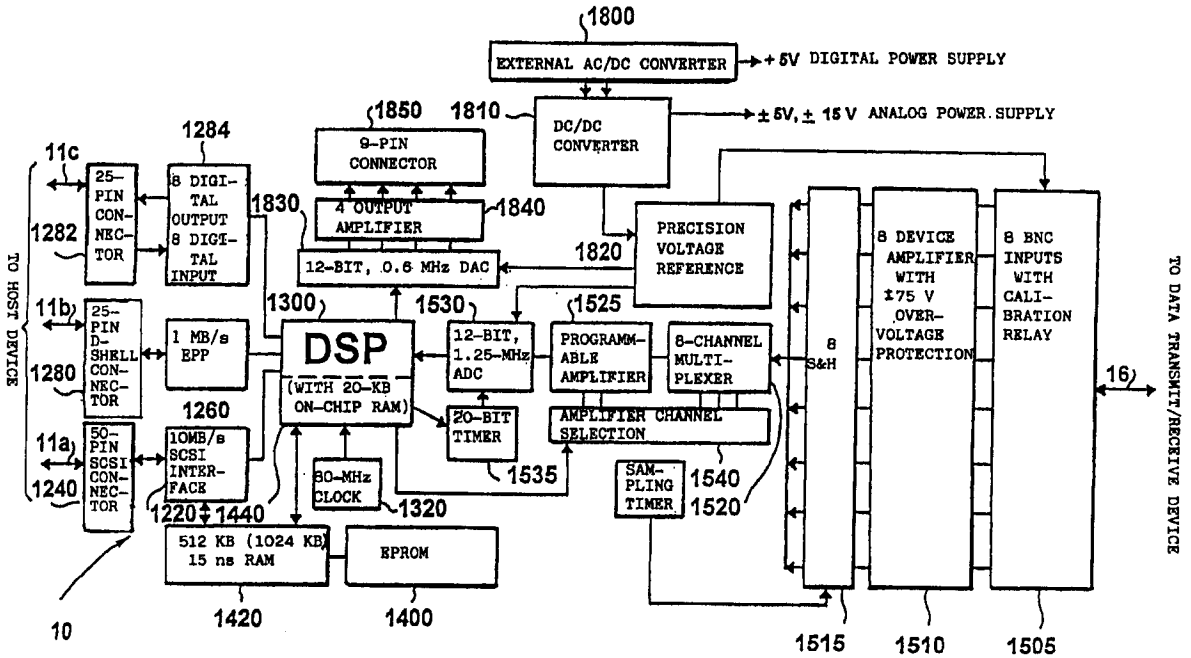
* cited by examiner

Primary Examiner—Jeffrey Gaffin
Assistant Examiner—Harold Kim
(74) *Attorney, Agent, or Firm*—Glenn Patent Group; Michael A. Glenn

(57) **ABSTRACT**

An interface device (**10**) provides fast data communication between a host device with input/output interfaces and a data transmit/receive device, wherein the interface device (**10**) comprises a processor means (**13**), a memory means (**14**), a first connecting device (**12**) for interfacing the host device with the interface device, and a second connecting device (**15**) for interfacing the interface device (**10**) with the data transmit/receive device. The interface device (**10**) is configured by the processor means (**13**) and the memory means (**14**) in such a way that, when receiving an inquiry from the host device via the first connecting device (**12**) as to the type of a device attached to the host device, regardless of the type of the data transmit/receive device, the interface device sends a signal to the host device via the first connecting device (**12**) which signals to the host device that it is communicating with an input/output device.

18 Claims, 2 Drawing Sheets



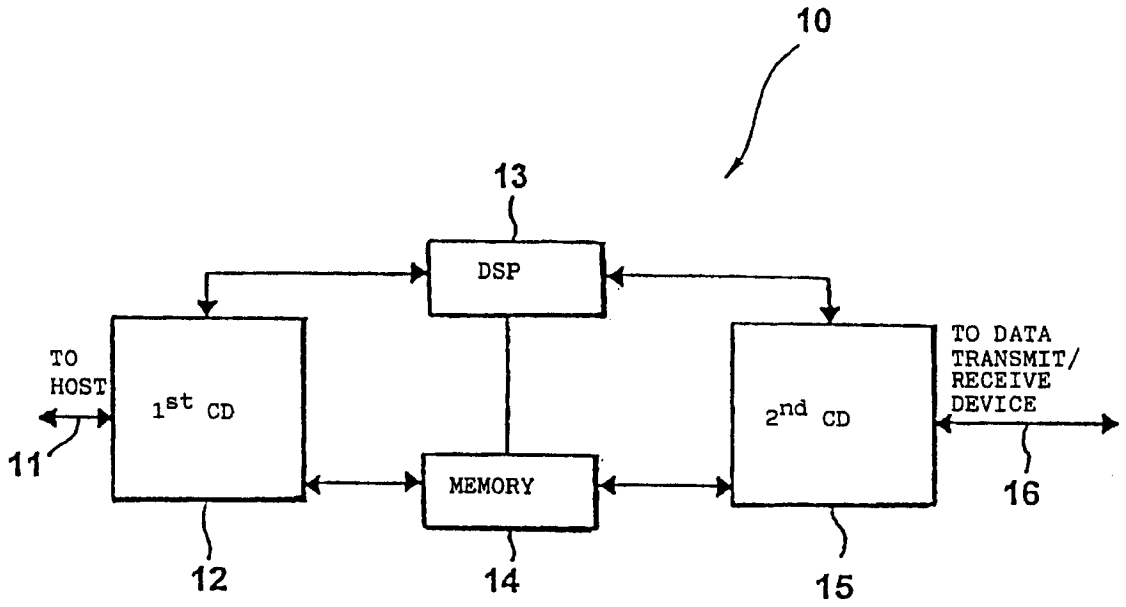

10
13
DSP
TO HOST
1st CD
11
12
MEMORY
14
2nd CD
15
TO DATA TRANSMIT/ RECEIVE DEVICE
16

FIG.1

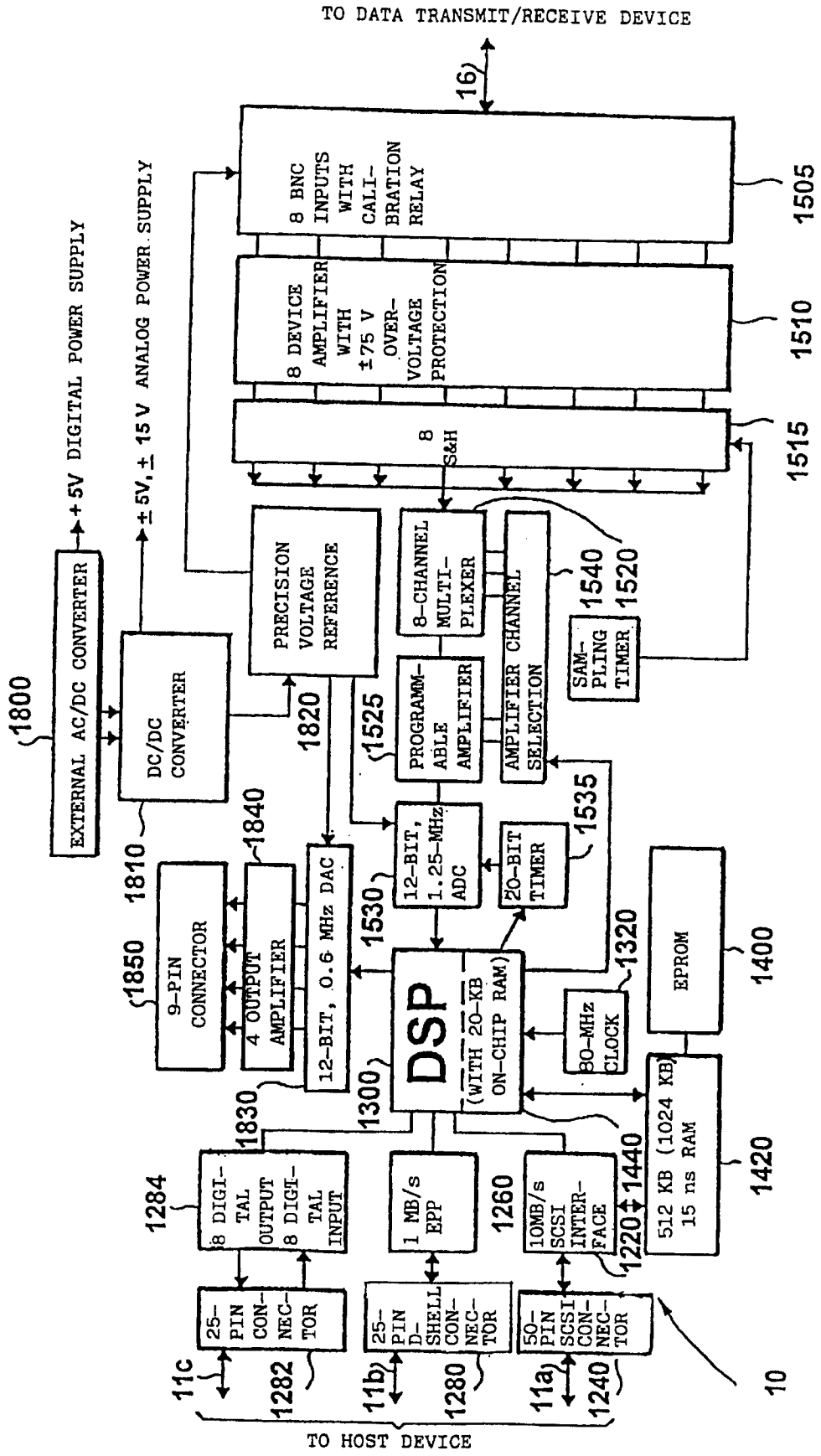

TO DATA TRANSMIT/RECEIVE DEVICE
16
8 BNC INPUTS WITH CALI-BRATION RELAY
1505
8 DEVICE AMPLIFIER WITH ±75 V OVER-VOLTAGE PROTECTION
1510
8 S&H
1515
+5V DIGITAL POWER SUPPLY
±5V, ±15V ANALOG POWER SUPPLY
EXTERNAL AC/DC CONVERTER
1800
DC/DC CONVERTER
PRECISION VOLTAGE REFERENCE
1820
8-CHANNEL MULTI-PLEXER
1540
1520
SAM-PLING TIMER
PROGRAMM-ABLE AMPLIFIER
1525
AMPLIFIER CHANNEL SELECTION
1535
12-BIT, 1.25-MHz ADC
20-BIT TIMER
1530
12-BIT, 0.6 MHz DAC
1840
4 OUTPUT AMPLIFIER
9-PIN CONNECTOR
1850
1810
DSP
(WITH 20-KB ON-CHIP RAM)
1300
1320
80-MHz CLOCK
EPROM
1400
512 KB (1024 KB) 15 ns RAM
1420
1830
8 DIGI-TAL OUTPUT
8 DIGI-TAL INPUT
1284
1 MB/s EPP
1260
10MB/s SCSI INTER-FACE
1220
1440
25-PIN CON-NEC-TOR
1282
25-PIN D-SHELL CON-NEC-TOR
1280
50-PIN SCSI CON-NEC-TOR
1240
11c
11b
11a
10
TO HOST DEVICE

FIG.2

FLEXIBLE INTERFACE FOR COMMUNICATION BETWEEN A HOST AND AN ANALOG I/O DEVICE CONNECTED TO THE INTERFACE REGARDLESS THE TYPE OF THE I/O DEVICE

RELATED APPLICATIONS

This application is a divisional application of copending application Ser. No. 09/331,002 filed Jun. 14, 1999.

DESCRIPTION

The present invention relates to the transfer of data and in particular to interface devices for communication between a computer or host device and a data transmit/receive device from which data is to be acquired or with which two-way communication is to take place.

Existing data acquisition systems for computers are very limited in their areas of application. Generally such systems can be classified into two groups.

In the first group host devices or computer systems are attached by means of an interface to a device whose data is to be acquired. The interfaces of this group are normally standard interfaces which, with specific driver software, can be used with a variety of host systems. An advantage of such interfaces is that they are largely independent of the host device. However, a disadvantage is that they generally require very sophisticated drivers which are prone to malfunction and which limit data transfer rates between the device connected to the interface and the host device and vice versa. Further, it is often very difficult to implement such interfaces for portable systems and they offer few possibilities for adaptation with the result that such systems offer little flexibility.

The devices from which data is to be acquired cover the entire electrical engineering spectrum. In a typical case, it is assumed that a customer who operates, for example, a diagnostic radiology system in a medical engineering environment reports a fault. A field service technician of the system manufacturer visits the customer and reads system log files generated by the diagnostic radiology system by means a portable computer or laptop for example. If the fault cannot be localized or if the fault is intermittent, it will be necessary for the service technician to read not only an error log file but also data from current operation. It is apparent that in this case fast data transfer and rapid data analysis are necessary.

Another case requiring the use of an interface could be, for example, when an electronic measuring device, e.g. a multimeter, is attached to a computer system to transfer the data measured by the multimeter to the computer. Particularly when long-term measurements or large volumes of data are involved is it necessary for the interface to support a high data transfer rate.

From these randomly chosen examples it can be seen that an interface may be put to totally different uses. It is therefore desirable that an interface be sufficiently flexible to permit attachment of very different electrical or electronic systems to a host device by means of the interface. To prevent operator error, it is also desirable that a service technician is not required to operate different interfaces in different ways for different applications but that, if possible, a universal method of operating the interface be provided for a large number of applications.

To increase the data transfer rates across an interface, the route chosen in the second group of data acquisition systems

for the interface devices was to specifically match the interface very closely to individual host systems or computer systems. The advantage of this solution is that high data transfer rates are possible. However, a disadvantage is that the drivers for the interfaces of the second group are very closely matched to a single host system with the result that they generally cannot be used with other host systems or their use is very ineffective. Further, such types of interface have the disadvantage that they must be installed inside the computer casing to achieve maximum data transfer rates as they access the internal host bus system. They are therefore generally not suitable for portable host systems in the form of laptops whose minimum possible size leaves little internal space to plug in an interface card.

A solution to this problem is offered by the interface devices of IOtech (business address: 25971 Cannon Road, Cleveland, Ohio 44146, USA) which are suitable for laptops such as the WaveBook/512 (registered trademark). The interface devices are connected by means of a plug-in card, approximately the size of a credit card, to the PCMCIA interface which is now a standard feature in laptops. The plug-in card converts the PCMCIA interface into an interface known in the art as IEEE 1284. The said plug-in card provides a special printer interface which is enhanced as regards the data transfer rate and delivers a data transfer rate of approximately 2 MBps as compared with a rate of approx. 1 MBps for known printer interfaces. The known interface device generally consists of a driver component, a digital signal processor, a buffer and a hardware module which terminates in a connector to which the device whose data is to be acquired is attached. The driver component is attached directly to the enhanced printer interface thus permitting the known interface device to establish a connection between a computer and the device whose data is to be acquired.

In order to work with the said interface, an interface-specific driver must be installed on the host device so that the host device can communicate with the digital signal processor of the interface card. As described above, the driver must be installed on the host device. If the driver is a driver developed specifically for the host device, a high data transfer rate is achieved but the driver cannot be easily installed on a different host system. However, if the driver is a general driver which is as flexible as possible and which can be used on many host devices, compromises must be accepted with regard to the data transfer rate.

Particularly in an application for multi-tasking systems in which several different tasks such as data acquisition, data display and editing are to be performed quasi-simultaneously, each task is normally assigned a certain priority by the host system. A driver supporting a special task requests the central processing system of the host device for processor resources in order to perform its task. Depending on the particular priority assignment method and on the driver implementation, a particular share of processor resources is assigned to a special task in particular time slots. Conflicts arise if one or more drivers are implemented in such a way that they have the highest priority by default, i.e. they are incompatible, as happens in practice in many applications. It may occur that both drivers are set to highest priority which, in the worst case, can result in a system crash.

EP 0685799 A1 discloses an interface by means of which several peripheral devices can be attached to a bus. An interface is connected between the bus of a host device and various peripheral devices. The interface comprises a finite state machine and several branches each of which is assigned to a peripheral device. Each branch comprises a

data manager, cycle control, user logic and a buffer. This known interface device provides optimal matching between a host device and a specific peripheral device.

The specialist publication IBM Technical Disclosure Bulletin, Vol. 38, No. 05, page 245; "Communication Method between Devices through FDD Interface" discloses an interface which connects a host device to a peripheral device via a floppy disk drive interface. The interface consists in particular of an address generator, an MFM encoder/decoder, a serial/parallel adapter and a format signal generator. The interface makes it possible to attach not only a floppy disk drive but also a further peripheral device to the FDD host controller of a host device. The host device assumes that a floppy disk drive is always attached to its floppy disk drive controller and communication is initiated if the address is correct. However, this document contains no information as to how communication should be possible if the interface is connected to a multi-purpose interface instead of to a floppy disk drive controller.

It is the object of the present invention to provide an interface device for communication between a host device and a data transmit/receive device whose use is host device-independent and which delivers a high data transfer rate.

This object is achieved by an interface device according to claim **1** or **12** and by a method according to claim **15**.

The present invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized. Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices. As however the hard disk interfaces in common host devices which can be, for example, IBM PCs, IBM-compatible PCs, Commodore PCs, Apple computers or even workstations, are the interfaces with the highest data transfer rate, the hard disk driver is utilized in the preferred embodiment of the interface device of the present invention. Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized in order to implement the interface device according to the present invention.

As described in the following, the interface device according to the present invention is to be attached to a host device by means of a multi-purpose interface of the host device which can be implemented, for example, as an SCSI interface or as an enhanced printer interface. Multi-purpose interfaces comprise both an interface card and specific driver software for the interface card. The driver software can be designed so that it can replace the BIOS driver routines. Communication between the host device and the devices attached to the multi-purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface and no longer primarily by means of BIOS routines of the host device. Recently however drivers for multi-purpose interfaces can also already be integrated in the BIOS system of the host device as, alongside classical input/output interfaces, multi-purpose interfaces are becoming increasingly common in host devices. It is of course also possible to use BIOS routines in parallel with the specific driver software for the multi-purpose interface, if this is desired.

The interface device according to the present invention comprises a processor means, a memory means, a first connecting device for interfacing the host device with the interface device, and a second connecting device for interfacing the interface device with the data transmit/receive device. The interface device is configured by the processor means and the memory means in such a way that the interface device, when receiving an inquiry from the host device via the first connecting device as to the type of a device attached to the host device, sends a signal, regardless of the type of the data transmit/receive device, to the host device via the first connecting device which signals to the host device that it is communicating with an input/output device. The interface device according to the present invention therefore simulates, both in terms of hardware and software, the way in which a conventional input/output device functions, preferably that of a hard disk drive. As support for hard disks is implemented as standard in all commercially available host systems, the simulation of a hard disk, for example, can provide host device-independent use. The interface device according to the present invention therefore no longer communicates with the host device or computer by means of a specially designed driver but by means of a program which is present in the BIOS system (Basic Input/Output System) and is normally precisely matched to the specific computer system on which it is installed, or by means of a specific program for the multi-purpose interface. Consequently, the interface device according to the present invention combines the advantages of both groups. On the one hand, communication between the computer and the interface takes place by means of a host device-specific BIOS program or by means of a driver program which is matched to the multi-purpose interface and which could be regarded as a "device-specific driver". On the other hand, the BIOS program or a corresponding multi-purpose interface program which operates one of the common input/output interfaces in host systems is therefore present in all host systems so that the interface device according to the present invention is host device-independent.

In the following, preferred embodiments of the present invention will be explained in more detail with reference to the drawings enclosed, in which:

FIG. **1** shows a general block diagram of the interface device according to the present invention; and

FIG. **2** shows a detailed block diagram of an interface device according to a preferred embodiment of the present invention.

FIG. **1** shows a general block diagram of an interface device **10** according to the present invention. A first connecting device **12** of the interface device **10** can be attached to a host device (not shown) via a host line **11**. The first connecting device is attached both to a digital signal processor **13** and to a memory means **14**. The digital signal processor **13** and the memory means **14** are also attached to a second connecting device **15** by means of bi-directional communication lines (shown for all lines by means of two directional arrows). The second connecting device can be attached by means of an output line **16** to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device. The data transmit/receive device itself can also communicate actively with the host device via the first and second connecting device, as described in more detail in the following.

Communication between the host system or host device and the interface device is based on known standard access commands as supported by all known operating systems (e.g. DOS, Windows, Unix). Preferably, the interface device according to the present invention simulates a hard disk with

a root directory whose entries are "virtual" files which can be created for the most varied functions. When the host device system with which the interface device according to the present invention is connected is booted and a data transmit/receive device is also attached to the interface device **10**, usual BIOS routines or multi-purpose interface programs issue an instruction, known by those skilled in the art as the INQUIRY instruction, to the input/output interfaces in the host device. The digital signal processor **13** receives this inquiry instruction via the first connecting device and generates a signal which is sent to the host device (not shown) again via the first connecting device **12** and the host line **11**. This signal indicates to the host device that, for example, a hard disk drive is attached at the interface to which the INQUIRY instruction was sent. Optionally, the host device can send an instruction, known by those skilled in the art as "Test Unit Ready", to the interface device to request more precise details regarding the queried device.

Regardless of which data transmit/receive device at the output line **16** is attached to the second connecting device, the digital signal processor **13** informs the host device that it is communicating with a hard disk drive. If the host device receives the response that a drive is present, it then sends a request to the interface device **10** to read the boot sequence which, on actual hard disks, normally resides on the first sectors of the disk. The digital signal processor **13**, whose operating system in stored in the memory means **14**, responds to this instruction by sending to the host device a virtual boot sequence which, in the case of actual drives, includes the drive type, the starting position and the length of the file allocation table (FAT), the number of sectors, etc., known to those skilled in the art. Once the host device has received this data, it assumes that the interface device **10** according to a preferred embodiment of the present invention is a hard disk drive. In reply to an instruction from the host device to display the directory of the "virtual" hard disk drive simulated by the interface device **10** with respect to the host device, the digital signal processor can respond to the host device in exactly the same way as a conventional hard disk would, namely by reading on request the file allocation table or FAT on a sector specified in the boot sequence, normally the first writable sector, and transferring it to the host device, and subsequently by transferring the directory structure of the virtual hard disk. Further, it is possible that the FAT is not read until immediately prior to reading or storing the data of the "virtual" hard disk and not already at initialization.

In a preferred embodiment of the present invention, the digital signal processor **13**, which need not necessarily be implemented as a digital signal processor but may be any other kind of microprocessor, comprises a first and a second command interpreter. The first command interpreter carries out the steps described above whilst the second command interpreter carries out the read/write assignment to specific functions. If the user now wishes to read data from the data transmit/receive device via the line **16**, the host device sends a command, for example "read file xy", to the interface device. As described above, the interface device appears to the host device as a hard disk. The second command interpreter of the digital signal processor now interprets the read command of the host processor as a data transfer command, by decoding whether "xy" denotes, for example, a "real-time input" file, a "configuration" file or an executable file, whereby the same begins to transfer data from the data transmit/receive device via the second connecting device to the first connecting device and via the line **11** to the host device.

Preferably, the volume of data to be acquired by a data transmit/receive device is specified in a configuration file described in the following by the user specifying in the said configuration file that a measurement is to last, for example, five minutes. To the host device the "real-time input" file then appears as a file whose length corresponds to the anticipated volume of data in those five minutes. Those skilled in the art know that communication between a processor and a hard disk consists of the processor transferring to the hard disk the numbers of the blocks or clusters or sectors whose contents it wishes to read. By reference to the FAT the processor knows which information is contained in which block. In this case, communication between the host device and the interface device according to the present invention therefore consists of the very fast transfer of block numbers and preferably of block number ranges because a virtual "real-time input" file will not be fragmented. If the host device now wants to read the "real-time input" file, it transfers a range of block numbers to the interface device, whereupon data commences to be received via the second connecting device and data commences to be sent to the host device via the first connecting device.

In addition to the digital signal processor instruction memory, which comprises the operating system of the digital signal processor and can be implemented as an EPROM or EEPROM, the memory means **14** can have an additional buffer for purposes of synchronizing data transfer from the data transmit/receive device to the interface device **10** and data transfer from the interface device **10** to the host device.

Preferably, the buffer is implemented as a fast random access memory or RAM buffer.

Further, from the host device the user can also create a configuration file, whose entries automatically set and control various functions of the interface device **10**, on the interface device **10** which appears to the host device as a hard disk. These settings can be, for example, gain, multiplex or sampling rate settings. By creating and editing a configuration file, normally a text file which is simple to understand with little prior knowledge, users of the interface device **10** are able to perform essentially identical operator actions for almost any data transmit/receive devices which can be attached to the second connecting device via the line **16**, thus eliminating a source of error arising from users having to know many different command codes for different applications. In the case of the interface device **10** according to the present invention it is necessary for users to note the conventions of the configuration file once only in order to be able to use the interface device **10** as an interface between a host device and almost any data transmit/receive device.

As a result of the option of storing any files in agreed formats in the memory means **14** of the interface device **10**, taking into account the maximum capacity of the memory means, any enhancements or even completely new functions of the interface device **10** can be quickly implemented. Even files executable by the host device, such as batch files or executable files (BAT or EXE files), and also help files can be implemented in the interface device, thus achieving independence of the interface device **10** from any additional software (with the exception of the BIOS routines) of the host device. On the one hand, this avoids licensing and/or registration problems and, on the other hand, installation of certain routines which can be frequently used, for example an FFT routine to examine acquired time-domain data in the frequency domain, is rendered unnecessary as the EXE files are already installed on the interface device **10** and appear in the virtual root directory, by means of which the host device can access all programs stored on the interface device **10**.

In a preferred embodiment of the present invention in which the interface device **10** simulates a hard disk to the host device, the interface device is automatically detected and readied for operation when the host system is powered up or booted. This corresponds to the plug-and-play standard which is currently finding increasingly widespread use. The user is no longer responsible for installing the interface device **10** on the host device by means of specific drivers which must also be loaded; instead the interface device **10** is automatically readied for operation when the host system is booted.

For persons skilled in the art it is however obvious that the interface device **10** is not necessarily signed on when the computer system is powered up but that a special BIOS routine or a driver for a multi-purpose interface can also be started on the host device during current operation of the computer system in order to sign on or mount the interface device **10** as an additional hard disk. This embodiment is suitable for larger workstation systems which are essentially never powered down as they perform, e.g. mail functions or monitor processes which run continuously, for example, in multi-tasking environments.

In the interface device according to the present invention an enormous advantage is to be gained, as apparent in the embodiment described in the following, in separating the actual hardware required to attach the interface device **10** to the data transmit/receive device from the communication unit, which is implemented by the digital signal processor **13**, the memory means **14** and the first connecting device **12**, as this allows a plurality of dissimilar device types to be operated in parallel in identical manner. Accordingly, many interface devices **10** can be connected to a host device which then sees many different "virtual" hard disks. In addition, any modification of the specific hardware symbolized by the second connecting device **15** can be implemented essentially without changing the operation of the interface device according to the present invention. Further, an experienced user can intervene at any time on any level of the existing second connecting device by making use of the above mentioned option of creating a configuration file or adding or storing new program sections for the second connecting device.

An important advantage of the interface device **10** of the present invention is that it also permits extremely high data transfer rates by using, for data interchange, the host device-own BIOS routines which are optimized for each host device by the host device manufacturer or BIOS system manufacturer, or by using driver programs which are normally optimized and included by the manufacturers of multi-purpose interfaces. Furthermore, due to the simulation of a virtual mass storage device, the data is managed and made available in such a way that it can be transferred directly to other storage media, e.g. to an actual hard disk of the host device without, as it were, intervention of the host device processor. The only limitation to long-term data transfer at high speed is therefore imposed exclusively by the speed and the size of the mass storage device of the host device. This is the case as the digital signal processor **13** already formats the data read by the data transmit/receive device via the second connecting device **15** into block sizes suitable for a hard disk of the host device, whereby the data transfer speed is limited only by the mechanical latency of the hard disk system of the host device. At this point, it should be noted that normally data flow from a host device must be formatted in blocks to permit writing to a hard disk and subsequent reading from a hard disk, as known by those skilled in the art.

The said data transfer rate can be increased further by setting up a direct memory access (DMA) or RAM drive in the host system. As those skilled in the art know, the setting up of a RAM drive requires processor resources of the host device, with the result that the advantage of writing the data to a hard disk drive of the host device essentially without the need for processor resources is lost.

As described above, a data buffer can be implemented in the memory means **14** to permit independence in terms of time of the data transmit/receive device attached to the second connecting device from the host device attached to the first connecting device. This guarantees error-free operation of the interface device **10** even for time-critical applications in multi-tasking host systems.

FIG. **2** shows a detailed block diagram of an interface device **10** according to the present invention.

A digital signal processor (DSP) **1300** is, in a manner of speaking, the heart of the interface device **10**. The DSP can be any DSP but preferably has a 20-MB on-chip random access memory (RAM). Certain instruction sets, for example, can be stored in the RAM already integrated in the DSP. An 80-MHz clock generator is attached to the DSP **1300** in order to synchronize the DSP. The DSP implements a fast Fourier transformation (FFT) in real time and also optional data compression of the data to be transferred from the data transmit/receive device to the host device in order to achieve greater efficiency and to permit interoperation with host devices which have a smaller memory.

In the preferred embodiment of the interface device **10** shown in FIG. **2**, the first connecting device **12** of FIG. **1** contains the following components: an SCSI interface **1220** and a 50-pin SCSI connector **1240** for attachment to an SCSI interface present on most host devices or laptops. The SCSI (small computer system interface) interface **1220** translates the data received via the SCSI connector **1240** into data understood by the DSP **1300**, as known by those skilled in the art. Further, the first connecting device **12** comprises an EPP (enhanced parallel port) with a data transfer rate of approx. 1 MBps which delivers a more moderate data transfer rate of 1 MBps by comparison to the data transfer rate of 10 MBps of the SCSI interface. The EPP **1260** is connected to a 25-pin D-shell connector **1280** to permit attachment to a printer interface of a host device for example. Optionally, the first connecting device **12** also comprises a 25-pin connector **1282** which permits the attachment of 8 digital outputs and 8 digital inputs **1284** at a host device.

Preferably, the second connecting device comprises 8 BNC inputs with the calibration relay **1505**, a block **1510** with 8 device amplifiers with an overvoltage protection of ±75 V, this block being connected in turn to 8 sample/hold (S&H) circuits **1515**. The calibration relays are relays which permit controlled changeover between a test voltage and a calibration reference voltage. Each sample/hold circuit is connected to a corresponding input of an 8-channel multiplexer **1520** which feeds its output signals via a programmable amplifier **1525** into an analog/digital converter (ADC) with 12 bit and 1.25 MHz **1530** and to the DSP **1300**. The ADC **1530** is controlled by means of a 20-bit timer **1535**, as known by persons skilled in the art. The programmable amplifier **1525** and the 8-channel multiplexer **1520** are controlled via an amplifier channel selection circuit **1540** which is in turn controlled by the DSP **1300**.

The complete interface device **10** is supplied with power by an external AC/DC converter **1800** which delivers a digital supply voltage of ±5 V and is attached to a DC/DC

converter **1810** which can deliver analog supply voltages of ±5 V and ±15 V as required for the interface device **10**. Further, the DC/DC converter controls a precision voltage reference **1820** which controls the 8 BNC inputs **1505** and the ADC **1530** as well as a digital/analog converter (DAC) **1830** which permits, via an output amplifier block with 4 output amplifiers **1840** and a 9-pin connector **1850**, analog output direct from the DSP **1300** to an output device, e.g. printer device or monitor device, which can be attached via the 9-pin connector **1850**, thus providing the option of monitoring the data transferred to the host device or also, for example, of viewing an FFT to obtain rapid and comprehensive data analysis without using processor time of the host device.

In FIG. **2** the memory means **14** of FIG. **1** is implemented by an EPROM **1400** which, in a preferred embodiment of the present invention, contains the operating system of the digital signal processor **1300**. A random access memory with an access time of 15 ns and a size of 512 KB or optionally 1024 KB **1420** serves as a data buffer to achieve independence in terms of time of the output line **16** from the output lines **11***a*, **11***b* and **11***c* to the data transmit/receive device and to the host device respectively. As described above, in a preferred embodiment of the present invention the digital signal processor **1300** already contains a 20-KB on-chip RAM **1440** which can store certain instruction sets, functions and also smaller application software units.

The connection, symbolized by the line **16**, of the interface device **10** to any data transmit/receive device implements, by means of the blocks **1505–1535**, an analog input with a sampling rate of 1.25 MHz and quantization of 12 bits. There are 8 channels with an overvoltage protection of ±75 V. By means of the programmable amplifier **1525** the channels can be programmed independently of each other in voltage ranges up to a maximum of ±10 V. Unused channels can be grounded internally to reduce channel intermodulation. The block **1515** is implemented as a monolithic high-precision, high-speed sample/hold amplifier for simultaneous sampling of all channels. The precision voltage reference **1820** provides a high-precision, temperature-compensated monolithic energy gap voltage reference for auto-calibration of each channel and each gain. Further, offset fine adjustment for each channel is implemented by the same.

The blocks **1830**, **1840** and **1850** implement a direct analog output for the digital signal processor **1300**, and the DAC **1830** provides a data transfer rate of 625 kHz and a quantization of 12 bits. The block **1840** comprises 4 channels with a common output latch.

Further, the interface device **10** comprises a digital input/output device implemented by the blocks **1284** and **1282**. Here there are 8 digital inputs, 8 digital outputs with a common latch, and the digital port can be attached preferably to a side panel of the interface device **10** so that the port itself can easily be accessed.

The digital signal processor **1300** provides on-board digital data processing. In particular, it is a high-performance DSP with a clock speed of 80 MHz and a 20-bit timer **1535**.

As described above, the first connecting device **12** comprises the SCSI interface **1220** with a peak transfer rate of 10 MBps. An optional PCMCIA-to-SCSI adapter permits high-speed communication with laptop computers which are desirable and in widespread use, particularly by mobile service technicians. The EPP **1260** with its associated connector **1280** permits data transfer at a more moderate rate.

As described above, the interface device **10** is supplied with power by means of an external AC/DC adapter which has a universal power input (85–264 VAC, 47–63 Hz). Interference suppression complies with the standards EN 55022, curve B and FFC, Class B). Further, it is also in accordance with international safety regulations (TÜV, UL, CSA). The interface device **10** is externally shielded and achieves a value of 55 dB at 30–60 MHz and a value of approximately 40 dB at 1 GHz, and therefore complies with the MILSTD 285-1 standard.

As described above, communication between the host device and the multi-purpose interface can take place not only via drivers for input/output device customary in a host device which reside in the BIOS system of the host device but also via specific interface drivers which, in the case of SCSI interfaces, are known as multi-purpose interface ASPI (advanced SCSI programming interface) drivers. This ASPI driver, which can also be referred to as an ASPI manager, is specific to a special SCSI host adapter, i.e. to a special multi-purpose interface, and is normally included by the manufacturer of the multi-purpose interface. Generally speaking, this multi-purpose interface driver has the task of moving precisely specified SCSI commands from the host system program to the host system SCSI adapter. For this reason, the command set is almost identical to that of the SCSI interface itself. Essentially, only status and reset commands for the host adapter have been added.

The ASPI driver can be used if the hard disk was not already addressable at boot time or if the SCSI-related BIOS routines of the host computer were still disabled. Here too, the steps needed to initialize the interface device, preferably as a virtual hard disk, are similar to the steps taken when initializing at boot time.

In general terms, the ASPI manager comprises two sides. One side is the proprietary, hardware-oriented side. It is responsible for converting all commands into a form required by the corresponding multi-purpose interface. The hardware-oriented side of the ASPI driver is therefore matched to a very specific type of multi-purpose interface or SCSI interface. The other side is known as the user software side. This side is totally independent of the proprietary operating characteristics of the SCSI adapter and is therefore identical for all SCSI interfaces. This permits SCSI programming which is however independent of the individual SCSI adapter types.

In contrast to communication between the host device and the interface device according to the present invention on the basis of a BIOS driver, the use of such an ASPI driver for communication between the host device and the interface device according to the present invention allows various further possibilities of the SCSI multi-purpose interface to be exploited. In the case described above, the interface device which preferably signs on and behaves as a virtual hard disk is detected by the BIOS driver of the host computer at boot time and is configured as a hard disk. This step does not however support active requests sent by the interface device to the host computer. If however the virtual hard disk wishes to write data actively to, for example, a hard disk of the host computer or wishes to initiate communication with the processor of the host computer, the host computer must recognize the request of the virtual hard disk and tolerate a further issuer of instructions on its bus. If the interface device behaves solely like a virtual hard disk, it would always receive and never issue commands. The BIOS has no objections to an additional issuer of commands that actively wishes to place data on the bus of the host device but the BIOS does not support the host device in recognizing corresponding requests of the interface device or in granting the interface device permission to access the bus.

Using the ASPI manager the interface device according to the present invention can now obtain active access to an SCSI hard disk of the host device connected to the same SCSI bus which, in contrast to the interface device, cannot be a virtual but a real SCSI mass storage device or also a further interface device according to the present invention. Thereupon, the interface device according to the present invention can write the desired data to the SCSI hard disk of the host computer totally independently of the host computer or can communicate with the same in some other manner. The interface device according to the present invention therefore initially behaves passively as a virtual hard disk and then, as required and using the driver software for the multi-purpose interface, actively on the same SCSI bus. This means however that the interface device according to the present invention, using a driver software for the multi-purpose interface which comprises the BIOS routines customary in host devices and simultaneously provides the option of active participation, can, regardless of the type of the data transmit/receive device attached to the second connecting device, behave initially as a virtual and at the same time passive hard disk but can, as required, participate actively on the bus so as to be able to initiate communication directly with other SCSI hard disks of the host device by bypassing the processor of the host device.

Using a standard interface of a host device, the interface device according to the present invention permits communication with any host device. By simulating an input/output device to the host device and, in a preferred embodiment, by simulating a virtual mass storage device, the interface device **10** is automatically supported by all known host systems without any additional sophisticated driver software. The simulation of a freely definable file structure on the "virtual" hard disk provides simple operation and expansion options and, through the implementation of any programs, independence from special software implemented on the host device. Help files included on the interface device **10** and plug-and-play support ensure ease of use even in portable, flexible host devices. Despite the very simple user interface, experienced users are free at any time to intervene in the functions of the interface device **10** on system level. The interface device **10** thus provides a universal solution which can cover the entire spectrum of possible data transmit/receive devices.

What is claimed is:

1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device comprising the following features:

a processor;

a memory;

a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and

a second connecting device for interfacing the interface device with the data transmit/receive device,

wherein the interface device is configured by the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the storage device customary in a host device, and

wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a directory structure.

2. An interface device in accordance with claim **1**, in which the directory structure has a configuration file for setting and controlling functions of the interface device or an executable or a batch file for conducting a routine stored in the memory or a data file used for transferring data from the data transmit/receive device to the host device or a help file for giving help on handling the interface device.

3. An interface device in accordance with claim **2** wherein the configuration file is a text file.

4. An interface device in accordance with claim **2** wherein the executable file includes a Fast Fourier Transform routine for transforming data acquired by the second connecting device into the frequency domain and for examining frequency domain data.

5. An interface device in accordance with claim **2** wherein the executable file includes a data compression routine for compressing data to be transmitted from the data transmit/receive device to the host device.

6. An interface device in accordance with claim **1** wherein, in response to a request from the host to read a boot sequence, the processor is arranged to send a virtual boot sequence to the host.

7. An interface device in accordance with claim **6** wherein the virtual boot sequence includes a starting position and a length of a file allocation table, an indication of a type of the storage device or a number of sectors of the storage device.

8. An interface device in accordance with claim **7** wherein, in response to a request from the host to display a directory of the storage device, a processor is arranged for transferring the file allocation table and the directory structure to the host.

9. An interface device in accordance with claim **1** wherein the file allocation table and the directory structure is transferred to the host in response to a request from the host to read data from or store data to the storage device.

10. An interface device in accordance with claim **1** wherein the directory structure includes a data file for transferring data from the data transmit/receive device to the host device wherein the processor is arranged to interpret a request from the host to read the data file as a request for a data transfer from the data transmit/receive device to the host, so that data is transmitted from the second connecting device to the first connecting device and to the host.

11. An interface device in accordance with claim **10** wherein the directory structure further includes a configuration file for specifying a time period for a measurement by the data transmit/receive device, wherein the interface device is arranged for simulating a length of the data file to the host that corresponds to an anticipated volume of data produced by the data transmit/receive device in the specified time period.

12. An interface device in accordance with claim **1** wherein the file allocation table includes information on numbers of blocks occupied by the data file wherein the interface device is arranged for receiving block numbers or a block number range from the host when the host wants to read the data file, and wherein the interface device is arranged to start a data transfer to the host, when the block numbers or the block number range is received from the host.

13. An interface device in accordance with claim **12** wherein the processor is arranged for formatting the data

acquired by the second connecting device into blocks having a predetermined size, the predetermined size being suited for the storage device.

14. An interface device in accordance with claim **1** wherein the functions are gain, multiplex or synchronization settings of the second connecting device.

15. An interface device in accordance with claim **1** wherein the storage device is a hard disk.

16. An interface device in accordance with claim **1** wherein the memory has a data buffer for permitting independence in terms of time of the data transmit/receive device attachable to the second connecting device from the host device attachable to the first connecting device.

17. An interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device comprising the following features:

a processor;

a memory;

a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and

a second connecting device for interfacing the interface device with the data transmit/receive device,

where the interface device is configured using the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface, and

wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a file allocation table and a directory structure.

18. A method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device via an interface device comprising the following steps:

interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device;

interfacing of the data transmit/receive device with a second connecting device of the interface device;

inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;

regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the storage device, and

wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a file allocation table and a directory structure.

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Exhibit B

to HP's Complaint for Declaratory Judgment

US 6470399B1

(12) **United States Patent**
Tasler

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(45) **Date of Patent: Oct. 22, 2002**

(54) **FLEXIBLE INTERFACE FOR COMMUNICATION BETWEEN A HOST AND AN ANALOG I/O DEVICE CONNECTED TO THE INTERFACE REGARDLESS THE TYPE OF THE I/O DEVICE**

(75) Inventor: **Michael Tasler**, Würzburg (DE)

(73) Assignee: **Labortechnik Tasler GmbH**, Wuerzburg (DE)

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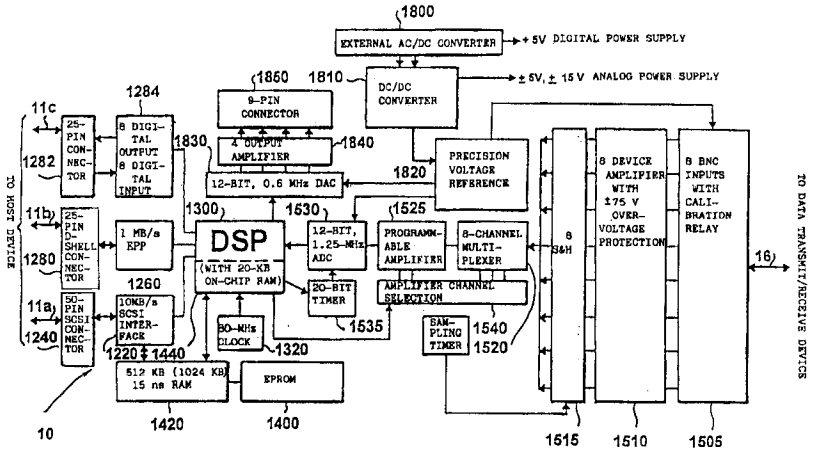
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Primary Examiner—Thomas Lee
Assistant Examiner—Thuan Du
(74) *Attorney, Agent, or Firm*—Patton Boggs LLP

(57) **ABSTRACT**

An interface device **(10)** provides fast data communication between a host device with input/output interfaces and a data transmit/receive device, wherein the interface device **(10)** comprises a processor means **(13)**, a memory means **(14)**, a first connecting device **(12)** for interfacing the host device with the interface device, and a second connecting device **(15)** for interfacing the interface device **(10)** with the data transmit/receive device. The interface device **(10)** is configured by the processor means **(13)** and the memory means **(14)** in such a way that, when receiving an inquiry from the host device via the first connecting device **(12)** as to the type of a device attached to the host device, regardless of the type of the data transmit/receive device, the interface device sends a signal to the host device via the first connecting device **(12)** which signals to the host device that it is communicating with an input/output device.

15 Claims, 2 Drawing Sheets



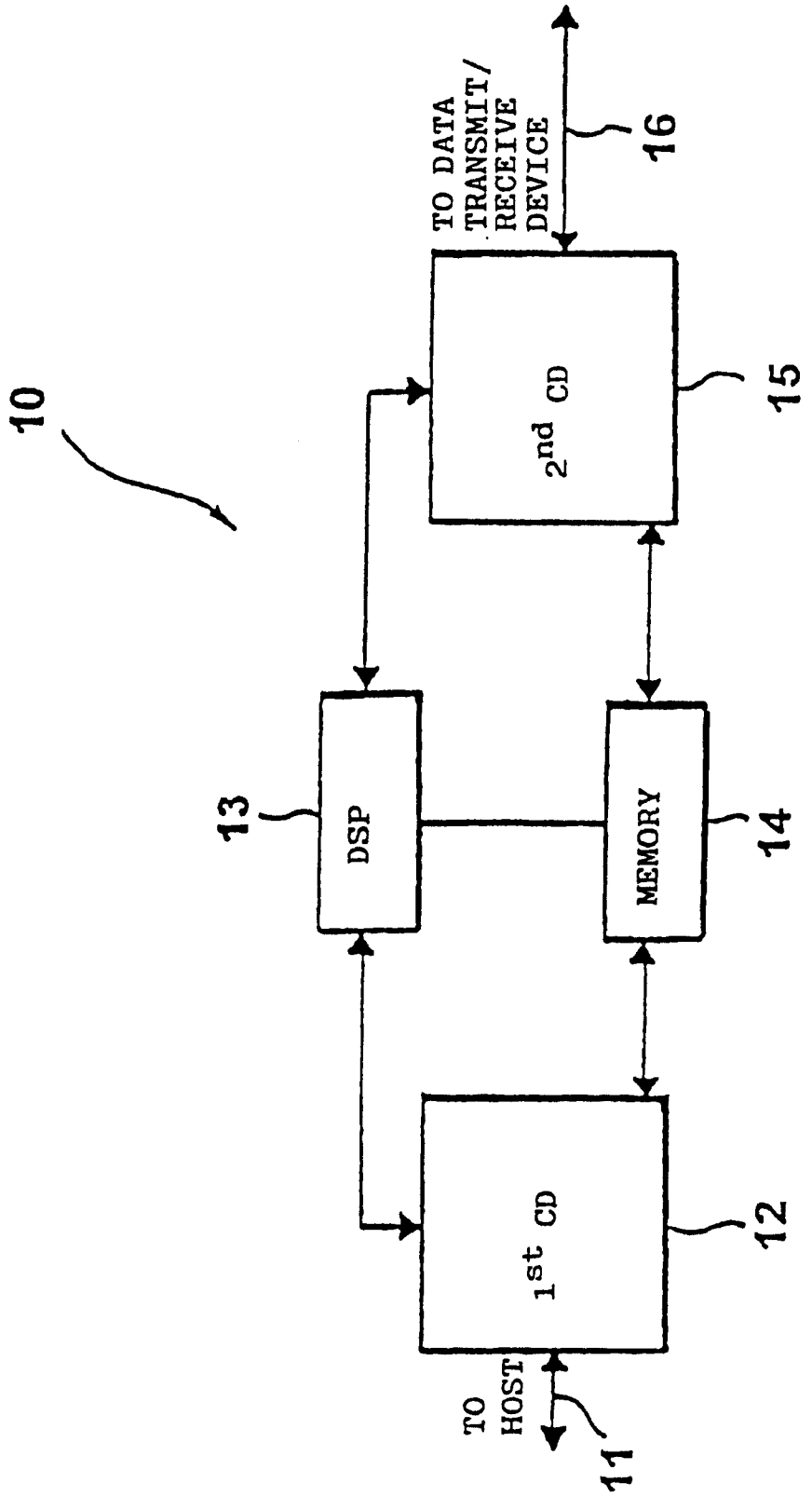

10
TO DATA TRANSMIT/ RECEIVE DEVICE
16
2nd CD
15
DSP
13
MEMORY
14
1st CD
12
TO HOST
11

FIG. 1

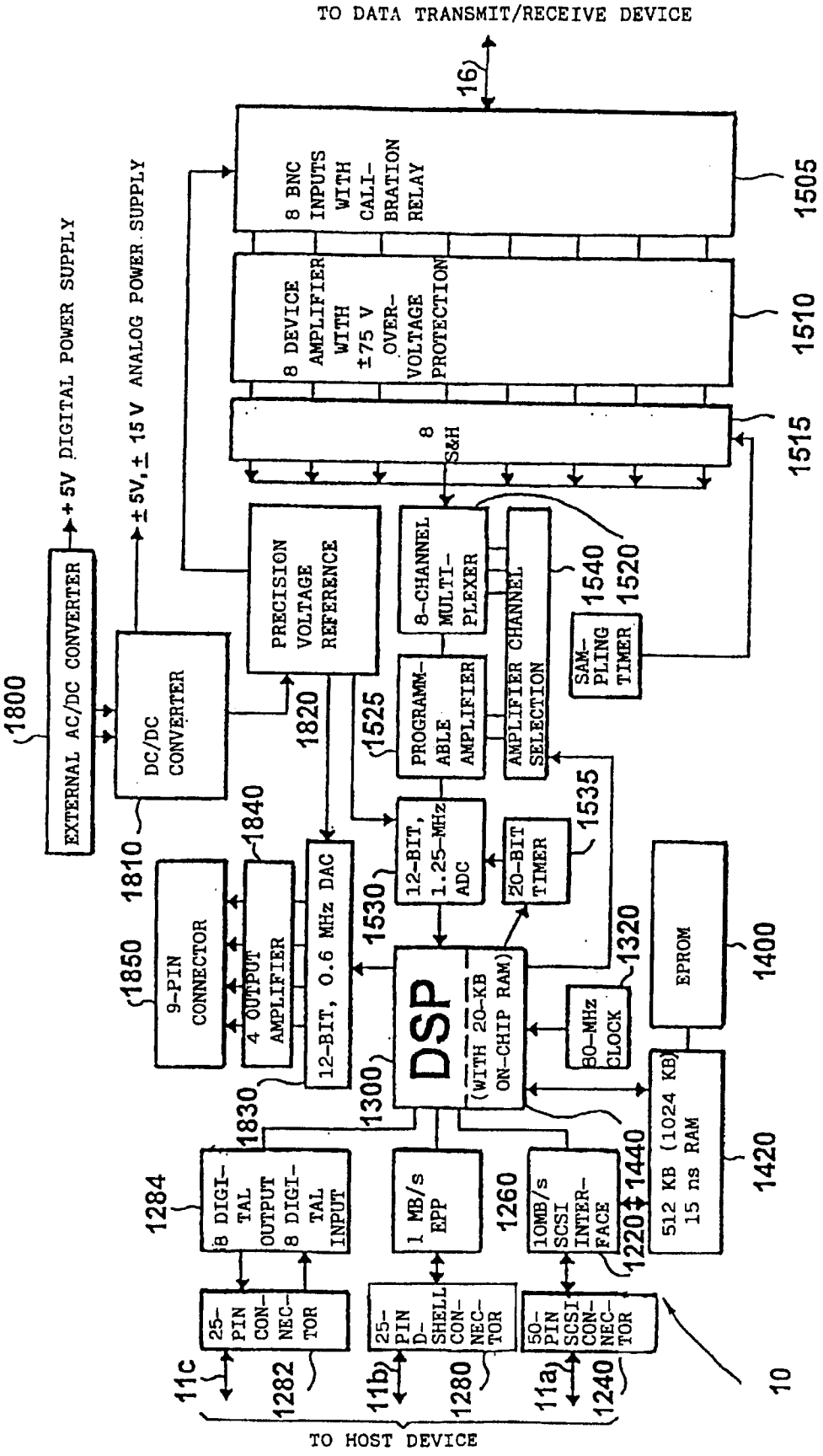

TO DATA TRANSMIT/RECEIVE DEVICE
16
8 BNC INPUTS WITH CALI-BRATION RELAY
1505
8 DEVICE AMPLIFIER WITH ±75 V OVER-VOLTAGE PROTECTION
1510
8 S&H
1515
+5V DIGITAL POWER SUPPLY
±5V, ± 15 V ANALOG POWER SUPPLY
EXTERNAL AC/DC CONVERTER
1800
DC/DC CONVERTER
1810
PRECISION VOLTAGE REFERENCE
1820
8-CHANNEL MULTI-PLEXER
1540
PROGRAMM-ABLE AMPLIFIER
1525
AMPLIFIER CHANNEL SELECTION
1520
SAM-PLING TIMER
12-BIT, 1.25-MHz ADC
1530
20-BIT TIMER
1535
4 OUTPUT AMPLIFIER
1840
12-BIT, 0.6 MHz DAC
9-PIN CONNECTOR
1850
DSP
(WITH 20-KB ON-CHIP RAM)
1300
80-MHz CLOCK
1320
EPROM
1400
512 KB (1024 KB) 15 ns RAM
1420
1830
8 DIGI-TAL OUTPUT
8 DIGI-TAL INPUT
1284
1 MB/s EPP
1260
10MB/s SCSI INTER-FACE
1220
1440
25-PIN CON-NEC-TOR
1282
25-PIN D-SHELL CON-NEC-TOR
1280
50-PIN SCSI CON-NEC-TOR
1240
11c
11b
11a
10
TO HOST DEVICE

FIG.2

FLEXIBLE INTERFACE FOR COMMUNICATION BETWEEN A HOST AND AN ANALOG I/O DEVICE CONNECTED TO THE INTERFACE REGARDLESS THE TYPE OF THE I/O DEVICE

FIELD OF THE INVENTION

The present invention relates to the transfer of data and in particular to interface devices for communication between a computer or host device and a data transmit/receive device from which data is to be acquired or with which two-way communication is to take place.

BACKGROUND OF THE INVENTION

Existing data acquisition systems for computers are very limited in their areas of application. Generally such systems can be classified into two groups.

In the first group host devices or computer systems are attached by means of an interface to a device whose data is to be acquired. The interfaces of this group are normally standard interfaces which, with specific driver software, can be used with a variety of host systems. An advantage of such interfaces is that they are largely independent of the host device. However, a disadvantage is that they generally require very sophisticated drivers which are prone to malfunction and which limit data transfer rates between the device connected to the interface and the host device and vice versa. Further, it is often very difficult to implement such interfaces for portable systems and they offer few possibilities for adaptation with the result that such systems offer little flexibility.

The devices from which data is to be acquired cover the entire electrical engineering spectrum. In a typical case, it is assumed that a customer who operates, for example, a diagnostic radiology system in a medical engineering environment reports a fault. A field service technician of the system manufacturer visits the customer and reads system log files generated by the diagnostic radiology system by means a portable computer or laptop for example. If the fault cannot be localized or if the fault is intermittent, it will be necessary for the service technician to read not only an error log file but also data from current operation. It is apparent that in this case fast data transfer and rapid data analysis are necessary.

Another case requiring the use of an interface could be, for example, when an electronic measuring device, e.g. a multimeter, is attached to a computer system to transfer the data measured by the multimeter to the computer. Particularly when long-term measurements or large volumes of data are involved is it necessary for the interface to support a high data transfer rate.

From these randomly chosen examples it can be seen that an interface may be put to totally different uses. It is therefore desirable that an interface be sufficiently flexible to permit attachment of very different electrical or electronic systems to a host device by means of the interface. To prevent operator error, it is also desirable that a service technician is not required to operate different interfaces in different ways for different applications but that, if possible, a universal method of operating the interface be provided for a large number of applications.

To increase the data transfer rates across an interface, the route chosen in the second group of data acquisition systems for the interface devices was to specifically match the

interface very closely to individual host systems or computer systems. The advantage of this solution is that high data transfer rates are possible. However, a disadvantage is that the drivers for the interfaces of the second group are very closely matched to a single host system with the result that they generally cannot be used with other host systems or their use is very ineffective. Further, such types of interface have the disadvantage that they must be installed inside the computer casing to achieve maximum data transfer rates as they access the internal host bus system. They are therefore generally not suitable for portable host systems in the form of laptops whose minimum possible size leaves little internal space to plug in an interface card.

DESCRIPTION OF PRIOR ART

A solution to this problem is offered by the interface devices of IOtech (business address: 25971 Cannon Road, Cleveland, Ohio 44146, USA) which are suitable for laptops such as the WaveBook/512 (registered trademark). The interface devices are connected by means of a plug-in card, approximately the size of a credit card, to the PCMCIA interface which is now a standard feature in laptops. The plug-in card converts the PCMCIA interface into an interface known in the art as IEEE 1284. The said plug-in card provides a special printer interface which is enhanced as regards the data transfer rate and delivers a data transfer rate of approximately 2 MBps as compared with a rate of approx. 1 MBps for known printer interfaces. The known interface device generally consists of a driver component, a digital signal processor, a buffer and a hardware module which terminates in a connector to which the device whose data is to be acquired is attached. The driver component is attached directly to the enhanced printer interface thus permitting the known interface device to establish a connection between a computer and the device whose data is to be acquired.

In order to work with the said interface, an interface-specific driver must be installed on the host device so that the host device can communicate with the digital signal processor of the interface card. As described above, the driver must be installed on the host device. If the driver is a driver developed specifically for the host device, a high data transfer rate is achieved but the driver cannot be easily installed on a different host system. However, if the driver is a general driver which is as flexible as possible and which can be used on many host devices, compromises must be accepted with regard to the data transfer rate.

Particularly in an application for multi-tasking systems in which several different tasks such as data acquisition, data display and editing are to be performed quasi-simultaneously, each task is normally assigned a certain priority by the host system. A driver supporting a special task requests the central processing system of the host device for processor resources in order to perform its task. Depending on the particular priority assignment method and on the driver implementation, a particular share of processor resources is assigned to a special task in particular time slots. Conflicts arise if one or more drivers are implemented in such a way that they have the highest priority by default, i.e. they are incompatible, as happens in practice in many applications. It may occur that both drivers are set to highest priority which, in the worst case, can result in a system crash.

EP 0685799 A1 discloses an interface by means of which several peripheral devices can be attached to a bus. An interface is connected between the bus of a host device and various peripheral devices. The interface comprises a finite

state machine and several branches each of which is assigned to a peripheral device. Each branch comprises a data manager, cycle control, user logic and a buffer. This known interface device provides optimal matching between a host device and a specific peripheral device.

The specialist publication IBM Technical Disclosure Bulletin, Vol. 38, No. 05, page 245; "Communication Method between Devices through FDD Interface" discloses an interface which connects a host device to a peripheral device via a floppy disk drive interface. The interface consists in particular of an address generator, an MFM encoder/decoder, a serial/parallel adapter and a format signal generator. The interface makes it possible to attach not only a floppy disk drive but also a further peripheral device to the FDD host controller of a host device. The host device assumes that a floppy disk drive is always attached to its floppy disk drive controller and communication is initiated if the address is correct. However, this document contains no information as to how communication should be possible if the interface is connected to a multi-purpose interface instead of to a floppy disk drive controller.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an interface device for communication between a host device and a data transmit/receive device whose use is host device-independent and which delivers a high data transfer rate.

In accordance with a first aspect of the present invention, this object is met by an interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device comprising: a processor; a memory; a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and a second connecting device for interfacing the interface device with the data transmit/receive device, wherein the interface device is configured by the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device.

In accordance with a second aspect of the present invention, this object is met by an interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device comprising: a processor; a memory; a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and a second connecting device for interfacing the interface device with the data transmit/receive device, wherein the interface device is configured using the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device,

whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface.

In accordance with a third aspect of the present invention, this object is met by a method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device via an interface device comprising the steps of interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device; interfacing of the data transmit/receive device with a second connecting device of the interface device; inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached; regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the input/output device.

The present invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized. Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices. As however the hard disk interfaces in common host devices which can be, for example, IBM PCs, IBM-compatible PCs, Commodore PCs, Apple computers or even workstations, are the interfaces with the highest data transfer rate, the hard disk driver is utilized in the preferred embodiment of the interface device of the present invention. Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized in order to implement the interface device according to the present invention.

As described in the following, the interface device according to the present invention is to be attached to a host device by means of a multi-purpose interface of the host device which can be implemented, for example, as an SCSI interface or as an enhanced printer interface. Multi-purpose interfaces comprise both an interface card and specific driver software for the interface card. The driver software can be designed so that it can replace the BIOS driver routines. Communication between the host device and the devices attached to the multi-purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface and no longer primarily by means of BIOS routines of the host device. Recently however drivers for multi-purpose interfaces can also already be integrated in the BIOS system of the host device as, alongside classical input/output interfaces, multi-purpose interfaces are becoming increasingly common in host devices. It is of course also possible to use BIOS routines in parallel with the specific driver software for the multi-purpose interface, if this is desired.

The interface device according to the present invention comprises a processor means, a memory means, a first connecting device for interfacing the host device with the interface device, and a second connecting device for interfacing the interface device with the data transmit/receive device. The interface device is configured by the processor means and the memory means in such a way that the interface device, when receiving an inquiry from the host

device via the first connecting device as to the type of a device attached to the host device, sends a signal, regardless of the type of the data transmit/receive device, to the host device via the first connecting device which signals to the host device that it is communicating with an input/output device. The interface device according to the present invention therefore simulates, both in terms of hardware and software, the way in which a conventional input/output device functions, preferably that of a hard disk drive. As support for hard disks is implemented as standard in all commercially available host systems, the simulation of a hard disk, for example, can provide host device-independent use. The interface device according to the present invention therefore no longer communicates with the host device or computer by means of a specially designed driver but by means of a program which is present in the BIOS system (Basic Input/Output System) and is normally precisely matched to the specific computer system on which it is installed, or by means of a specific program for the multi-purpose interface. Consequently, the interface device according to the present invention combines the advantages of both groups. On the one hand, communication between the computer and the interface takes place by means of a host device-specific BIOS program or by means of a driver program which is matched to the multi-purpose interface and which could be regarded as a "device-specific driver". On the other hand, the BIOS program or a corresponding multi-purpose interface program which operates one of the common input/output interfaces in host systems is therefore present in all host systems so that the interface device according to the present invention is host device-independent.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following, preferred embodiments of the present invention will be explained in more detail with reference to the drawings enclosed, in which:

FIG. **1** shows a general block diagram of the interface device according to the present invention; and

FIG. **2** shows detailed block diagram of an interface device according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIG. **1** shows a general block diagram of an interface device **10** according to the present invention. A first connecting device **12** of the interface device **10** can be attached to a host device (not shown) via a host line **11**. The first connecting device is attached both to a digital signal processor **13** and to a memory means **14**. The digital signal processor **13** and the memory means **14** are also attached to a second connecting device **15** by means of bidirectional communication lines (shown for all lines by means of two directional arrows). The second connecting device can be attached by means of an output line **16** to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device. The data transmit/receive device itself can also communicate actively with the host device via the first and second connecting device, as described in more detail in the following.

Communication between the host system or host device and the interface device is based on known standard access commands as supported by all known operating systems (e.g. DOS, Windows, Unix). Preferably, the interface device

according to the present invention simulates a hard disk with a root directory whose entries are "virtual" files which can be created for the most varied functions. When the host device system with which the interface device according to the present invention is connected is booted and a data transmit/receive device is also attached to the interface device **10**, usual BIOS routines or multi-purpose interface programs issue an instruction, known by those skilled in the art as the INQUIRY instruction, to the input/output interfaces in the host device. The digital signal processor **13** receives this inquiry instruction via the first connecting device and generates a signal which is sent to the host device (not shown) again via the first connecting device **12** and the host line **11**. This signal indicates to the host device that, for example, a hard disk drive is attached at the interface to which the INQUIRY instruction was sent. Optionally, the host device can send an instruction, known by those skilled in the art as "Test Unit Ready", to the interface device to request more precise details regarding the queried device.

Regardless of which data transmit/receive device at the output line **16** is attached to the second connecting device, the digital signal processor **13** informs the host device that it is communicating with a hard disk drive. If the host device receives the response that a drive is present, it then sends a request to the interface device **10** to read the boot sequence which, on actual hard disks, normally resides on the first sectors of the disk. The digital signal processor **13**, whose operating system in stored in the memory means **14**, responds to this instruction by sending to the host device a virtual boot sequence which, in the case of actual drives, includes the drive type, the starting position and the length of the file allocation table (FAT), the number of sectors, etc., known to those skilled in the art. Once the host device has received this data, it assumes that the interface device **10** according to a preferred embodiment of the present invention is a hard disk drive. In reply to an instruction from the host device to display the directory of the "virtual" hard disk drive simulated by the interface device **10** with respect to the host device, the digital signal processor can respond to the host device in exactly the same way as a conventional hard disk would, namely by reading on request the file allocation table or FAT on a sector specified in the boot sequence, normally the first writable sector, and transferring it to the host device, and subsequently by transferring the directory structure of the virtual hard disk. Further, it is possible that the FAT is not read until immediately prior to reading or storing the data of the "virtual" hard disk and not already at initialization.

In a preferred embodiment of the present invention, the digital signal processor **13**, which need not necessarily be implemented as a digital signal processor but may be any other kind of microprocessor, comprises a first and a second command interpreter. The first command interpreter carries out the steps described above whilst the second command interpreter carries out the read/write assignment to specific functions. If the user now wishes to read data from the data transmit/receive device via the line **16**, the host device sends a command, for example "read file xy", to the interface device. As described above, the interface device appears to the host device as a hard disk. The second command interpreter of the digital signal processor now interprets the read command of the host processor as a data transfer command, by decoding whether "xy" denotes, for example, a "real-time input" file, a "configuration" file or an executable file, whereby the same begins to transfer data from the data transmit/receive device via the second connecting device to the first connecting device and via the line **11** to the host device.

Preferably, the volume of data to be acquired by a data transmit/receive device is specified in a configuration file described in the following by the user specifying in the said configuration file that a measurement is to last, for example, five minutes. To the host device the "real-time input" file then appears as a file whose length corresponds to the anticipated volume of data in those five minutes. Those skilled in the art know that communication between a processor and a hard disk consists of the processor transferring to the hard disk the numbers of the blocks or clusters or sectors whose contents it wishes to read. By reference to the FAT the processor knows which information is contained in which block. In this case, communication between the host device and the interface device according to the present invention therefore consists of the very fast transfer of block numbers and preferably of block number ranges because a virtual "real-time input" file will not be fragmented. If the host device now wants to read the "real-time input" file, it transfers a range of block numbers to the interface device, whereupon data commences to be received via the second connecting device and data commences to be sent to the host device via the first connecting device.

In addition to the digital signal processor instruction memory, which comprises the operating system of the digital signal processor and can be implemented as an EPROM or EEPROM, the memory means **14** can have an additional buffer for purposes of synchronizing data transfer from the data transmit/receive device to the interface device **10** and data transfer from the interface device **10** to the host device.

Preferably, the buffer is implemented as a fast random access memory or RAM buffer.

Further, from the host device the user can also create a configuration file, whose entries automatically set and control various functions of the interface device **10**, on the interface device **10** which appears to the host device as a hard disk. These settings can be, for example, gain, multiplex or sampling rate settings. By creating and editing a configuration file, normally a text file which is simple to understand with little prior knowledge, users of the interface device **10** are able to perform essentially identical operator actions for almost any data transmit/receive devices which can be attached to the second connecting device via the line **16**, thus eliminating a source of error arising from users having to know many different command codes for different applications. In the case of the interface device **10** according to the present invention it is necessary for users to note the conventions of the configuration file once only in order to be able to use the interface device **10** as an interface between a host device and almost any data transmit/receive device.

As a result of the option of storing any files in agreed formats in the memory means **14** of the interface device **10**, taking into account the maximum capacity of the memory means, any enhancements or even completely new functions of the interface device **10** can be quickly implemented. Even files executable by the host device, such as batch files or executable files (BAT or EXE files), and also help files can be implemented in the interface device, thus achieving independence of the interface device **10** from any additional software (with the exception of the BIOS routines) of the host device. On the one hand, this avoids licensing and/or registration problems and, on the other hand, installation of certain routines which can be frequently used, for example an FFT routine to examine acquired time-domain data in the frequency domain, is rendered unnecessary as the EXE files are already installed on the interface device **10** and appear in the virtual root directory, by means of which the host device can access all programs stored on the interface device **10**.

In a preferred embodiment of the present invention in which the interface device **10** simulates a hard disk to the host device, the interface device is automatically detected and readied for operation when the host system is powered up or booted. This corresponds to the plug-and-play standard which is currently finding increasingly widespread use. The user is no longer responsible for installing the interface device **10** on the host device by means of specific drivers which must also be loaded; instead the interface device **10** is automatically readied for operation when the host system is booted.

For persons skilled in the art it is however obvious that the interface device **10** is not necessarily signed on when the computer system is powered up but that a special BIOS routine or a driver for a multi-purpose interface can also be started on the host device during current operation of the computer system in order to sign on or mount the interface device **10** as an additional hard disk. This embodiment is suitable for larger workstation systems which are essentially never powered down as they perform, e.g. mail functions or monitor processes which run continuously, for example, in multi-tasking environments.

In the interface device according to the present invention an enormous advantage is to be gained, as apparent in the embodiment described in the following, in separating the actual hardware required to attach the interface device **10** to the data transmit/receive device from the communication unit, which is implemented by the digital signal processor **13**, the memory means **14** and the first connecting device **12**, as this allows a plurality of dissimilar device types to be operated in parallel in identical manner. Accordingly, many interface devices **10** can be connected to a host device which then sees many different "virtual" hard disks. In addition, any modification of the specific hardware symbolized by the second connecting device **15** can be implemented essentially without changing the operation of the interface device according to the present invention. Further, an experienced user can intervene at any time on any level of the existing second connecting device by making use of the above mentioned option of creating a configuration file or adding or storing new program sections for the second connecting device.

An important advantage of the interface device **10** of the present invention is that it also permits extremely high data transfer rates by using, for data interchange, the host device-own BIOS routines which are optimized for each host device by the host device manufacturer or BIOS system manufacturer, or by using driver programs which are normally optimized and included by the manufacturers of multi-purpose interfaces. Furthermore, due to the simulation of a virtual mass storage device, the data is managed and made available in such a way that it can be transferred directly to other storage media, e.g. to an actual hard disk of the host device without, as it were, intervention of the host device processor. The only limitation to long-term data transfer at high speed is therefore imposed exclusively by the speed and the size of the mass storage device of the host device. This is the case as the digital signal processor **13** already formats the data read by the data transmit/receive device via the second connecting device **15** into block sizes suitable for a hard disk of the host device, whereby the data transfer speed is limited only by the mechanical latency of the hard disk system of the host device. At this point, it should be noted that normally data flow from a host device must be formatted in blocks to permit writing to a hard disk and subsequent reading from a hard disk, as known by those skilled in the art.

The said data transfer rate can be increased further by setting up a direct memory access (DMA) or RAM drive in the host system. As those skilled in the art know, the setting up of a RAM drive requires processor resources of the host device, with the result that the advantage of writing the data to a hard disk drive of the host device essentially without the need for processor resources is lost.

As described above, a data buffer can be implemented in the memory means **14** to permit independence in terms of time of the data transmit/receive device attached to the second connecting device from the host device attached to the first connecting device. This guarantees error-free operation of the interface device **10** even for time-critical applications in multi-tasking host systems.

FIG. **2** shows a detailed block diagram of an interface device **10** according to the present invention.

A digital signal processor (DSP) **1300** is, in a manner of speaking, the heart of the interface device **10**. The DSP can be any DSP but preferably has a 20-MB on-chip random access memory (RAM). Certain instruction sets, for example, can be stored in the RAM already integrated in the DSP. An 80-MHz clock generator is attached to the DSP **1300** in order to synchronize the DSP. The DSP implements a fast Fourier transformation (FFT) in real time and also optional data compression of the data to be transferred from the data transmit/receive device to the host device in order to achieve greater efficiency and to permit interoperation with host devices which have a smaller memory.

In the preferred embodiment of the interface device **10** shown in FIG. **2**, the first connecting device **12** of FIG. **1** contains the following components: an SCSI interface **1220** and a 50-pin SCSI connector **1240** for attachment to an SCSI interface present on most host devices or laptops. The SCSI (small computer system interface) interface **1220** translates the data received via the SCSI connector **1240** into data understood by the DSP **1300**, as known by those skilled in the art. Further, the first connecting device **12** comprises an EPP (enhanced parallel port) with a data transfer rate of approx. 1 MBps which delivers a more moderate data transfer rate of 1 MBps by comparison to the data transfer rate of 10 MBps of the SCSI interface. The EPP **1260** is connected to a 25-pin D-shell connector **1280** to permit attachment to a printer interface of a host device for example. Optionally, the first connecting device **12** also comprises a 25-pin connector **1282** which permits the attachment of 8 digital outputs and 8 digital inputs **1284** at a host device.

Preferably, the second connecting device comprises 8 BNC inputs with the calibration relay **1505**, a block **1510** with 8 device amplifiers with an overvoltage protection of ±75 V, this block being connected in turn to 8 sample/hold (S&H) circuits **1515**. The calibration relays are relays which permit controlled changeover between a test voltage and a calibration reference voltage. Each sample/hold circuit is connected to a corresponding input of an 8-channel multiplexer **1520** which feeds its output signals via a programmable amplifier **1525** into an analog/digital converter (ADC) with 12 bit and 1.25 MHz **1530** and to the DSP **1300**. The ADC **1530** is controlled by means of a 20-bit timer **1535**, as known by persons skilled in the art. The programmable amplifier **1525** and the 8-channel multiplexer **1520** are controlled via an amplifier channel selection circuit **1540** which is in turn controlled by the DSP **1300**.

The complete interface device **10** is supplied with power by an external AC/DC converter **1800** which delivers a digital supply voltage of ±5 V and is attached to a DC/DC converter **1810** which can deliver analog supply voltages of ±5 V and ±15 V as required for the interface device **10**. Further, the DC/DC converter controls a precision voltage reference **1820** which controls the 8 BNC inputs **1505** and the ADC **1530** as well as a digital/analog converter (DAC) **1830** which permits, via an output amplifier block with 4 output amplifiers **1840** and a 9-pin connector **1850**, analog output direct from the DSP **1300** to an output device, e.g. printer device or monitor device, which can be attached via the 9-pin connector **1850**, thus providing the option of monitoring the data transferred to the host device or also, for example, of viewing an FFT to obtain rapid and comprehensive data analysis without using processor time of the host device.

In FIG. **2** the memory means **14** of FIG. **1** is implemented by an EPROM **1400** which, in a preferred embodiment of the present invention, contains the operating system of the digital signal processor **1300**. A random access memory with an access time of 15 ns and a size of 512 KB or optionally 1024 KB **1420** serves as a data buffer to achieve independence in terms of time of the output line **16** from the output lines **11***a*, **11***b* and **11***c* to the data transmit/receive device and to the host device respectively. As described above, in a preferred embodiment of the present invention the digital signal processor **1300** already contains a 20-KB on-chip RAM **1440** which can store certain instruction sets, functions and also smaller application software units.

The connection, symbolized by the line **16**, of the interface device **10** to any data transmit/receive device implements, by means of the blocks 1505–1535, an analog input with a sampling rate of 1.25 MHz and quantization of 12 bits. There are 8 channels with an overvoltage protection of ±75 V. By means of the programmable amplifier **1525** the channels can be programmed independently of each other in voltage ranges up to a maximum of ±10 V. Unused channels can be grounded internally to reduce channel intermodulation. The block **1515** is implemented as a monolithic high-precision, high-speed sample/hold amplifier for simultaneous sampling of all channels. The precision voltage reference **1820** provides a high-precision, temperature-compensated monolithic energy gap voltage reference for auto-calibration of each channel and each gain. Further, offset fine adjustment for each channel is implemented by the same.

The blocks **1830**, **1840** and **1850** implement a direct analog output for the digital signal processor **1300**, and the DAC **1830** provides a data transfer rate of 625 kHz and a quantization of 12 bits. The block **1840** comprises 4 channels with a common output latch.

Further, the interface device **10** comprises a digital input/output device implemented by the blocks **1284** and **1282**. Here there are 8 digital inputs, 8 digital outputs with a common latch, and the digital port can be attached preferably to a side panel of the interface device **10** so that the port itself can easily be accessed.

The digital signal processor **1300** provides on-board digital data processing. In particular, it is a high-performance DSP with a clock speed of 80 MHz and a 20-bit timer **1535**.

As described above, the first connecting device **12** comprises the SCSI interface **1220** with a peak transfer rate of 10 MBps. An optional PCMCIA-to-SCSI adapter permits high-speed communication with laptop computers which are desirable and in widespread use, particularly by mobile service technicians. The EPP **1260** with its associated connector **1280** permits data transfer at a more moderate rate.

As described above, the interface device **10** is supplied with power by means of an external AC/DC adapter which

has a universal power input (85–264 VAC, 47–63 Hz). Interference suppression complies with the standards EN **55022**, curve B and FFC, Class B). Further, it is also in accordance with international safety regulations (TÜV, UL, CSA). The interface device **10** is externally shielded and achieves a value of 55 dB at 30–60 MHz and a value of approximately 40 dB at 1 GHz, and therefore complies with the MILSTD 285-1 standard.

As described above, communication between the host device and the multi-purpose interface can take place not only via drivers for input/output device customary in a host device which reside in the BIOS system of the host device but also via specific interface drivers which, in the case of SCSI interfaces, are known as multi-purpose interface ASPI (advanced SCSI programming interface) drivers. This ASPI driver, which can also be referred to as an ASPI manager, is specific to a special SCSI host adapter, i.e. to a special multi-purpose interface, and is normally included by the manufacturer of the multi-purpose interface. Generally speaking, this multi-purpose interface driver has the task of moving precisely specified SCSI commands from the host system program to the host system SCSI adapter. For this reason, the command set is almost identical to that of the SCSI interface itself. Essentially, only status and reset commands for the host adapter have been added.

The ASPI driver can be used if the hard disk was not already addressable at boot time or if the SCSI-related BIOS routines of the host computer were still disabled. Here too, the steps needed to initialize the interface device, preferably as a virtual hard disk, are similar to the steps taken when initializing at boot time.

In general terms, the ASPI manager comprises two sides. One side is the proprietary, hardware-oriented side. It is responsible for converting all commands into a form required by the corresponding multi-purpose interface. The hardware-oriented side of the ASPI driver is therefore matched to a very specific type of multi-purpose interface or SCSI interface. The other side is known as the user software side. This side is totally independent of the proprietary operating characteristics of the SCSI adapter and is therefore identical for all SCSI interfaces. This permits SCSI programming which is however independent of the individual SCSI adapter types.

In contrast to communication between the host device and the interface device according to the present invention on the basis of a BIOS driver, the use of such an ASPI driver for communication between the host device and the interface device according to the present invention allows various further possibilities of the SCSI multi-purpose interface to be exploited. In the case described above, the interface device which preferably signs on and behaves as a virtual hard disk is detected by the BIOS driver of the host computer at boot time and is configured as a hard disk. This step does not however support active requests sent by the interface device to the host computer. If however the virtual hard disk wishes to write data actively to, for example, a hard disk of the host computer or wishes to initiate communication with the processor of the host computer, the host computer must recognize the request of the virtual hard disk and tolerate a further issuer of instructions on its bus. If the interface device behaves solely like a virtual hard disk, it would always receive and never issue commands. The BIOS has no objections to an additional issuer of commands that actively wishes to place data on the bus of the host device but the BIOS does not support the host device in recognizing corresponding requests of the interface device or in granting the interface device permission to access the bus.

Using the ASPI manager the interface device according to the present invention can now obtain active access to an SCSI hard disk of the host device connected to the same SCSI bus which, in contrast to the interface device, cannot be a virtual but a real SCSI mass storage device or also a further interface device according to the present invention. Thereupon, the interface device according to the present invention can write the desired data to the SCSI hard disk of the host computer totally independently of the host computer or can communicate with the same in some other manner. The interface device according to the present invention therefore initially behaves passively as a virtual hard disk and then, as required and using the driver software for the multi-purpose interface, actively on the same SCSI bus. This means however that the interface device according to the present invention, using a driver software for the multi-purpose interface which comprises the BIOS routines customary in host devices and simultaneously provides the option of active participation, can, regardless of the type of the data transmit/receive device attached to the second connecting device, behave initially as a virtual and at the same time passive hard disk but can, as required, participate actively on the bus so as to be able to initiate communication directly with other SCSI hard disks of the host device by bypassing the processor of the host device.

Using a standard interface of a host device, the interface device according to the present invention permits communication with any host device. By simulating an input/output device to the host device and, in a preferred embodiment, by simulating a virtual mass storage device, the interface device **10** is automatically supported by all known host systems without any additional sophisticated driver software. The simulation of a freely definable file structure on the "virtual" hard disk provides simple operation and expansion options and, through the implementation of any programs, independence from special software implemented on the host device. Help files included on the interface device **10** and plug-and-play support ensure ease of use even in portable, flexible host devices. Despite the very simple user interface, experienced users are free at any time to intervene in the functions of the interface device **10** on system level. The interface device **10** thus provides a universal solution which can cover the entire spectrum of possible data transmit/receive devices.

What is claimed is:

1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:

a processor;

a memory;

a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and

a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,

wherein the interface device is configured by the processor and the memory to include a first command interpreter and a second command interpreter,

wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the

host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device, and

wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.

2. An interface device according to claim **1**,

wherein the drivers for input/output drivers customary in a host device comprise a hard disk driver, and the signal indicates to the host device that the host device is communicating with a hard disk.

3. An interface device according to claim **1**,

wherein the memory means comprises a buffer to buffer data to be transferred between the data transmit/receive device and the host device.

4. An interface device according to claim **1**,

wherein the multi-purpose interface of the host device is an SCSI interface and the first connecting device also comprises an SCSI interface.

5. An interface device according to claim **1**,

wherein the processor is a digital signal processor.

6. An interface device according to claim **2**,

wherein the data to be transferred from the data transmit/receive device to the host device in the interface device is formatted in a suitable format for a hard disk present in the host device.

7. An interface device according to claim **2**,

which further comprises a root directory and virtual files which are present on the signaled hard disk drive and which can be accessed from the host device.

8. An interface device according to claim **7**,

wherein the virtual files comprise a configuration file in text format which are stored in the memory means and using which the user can configure the interface device for a specific data transmit/receive device.

9. An interface device according to claim **7**,

wherein the virtual files comprise batch files or executable files for the microprocessor means which are stored in the interface device in order to perform data processing, independently of the host device, of data received via the second connecting device.

10. An interface device according to claim **7**,

wherein the virtual files comprise batch files or executable files for the host device which are stored in the interface device.

11. An interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:

a processor;

a memory;

a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and

a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,

where the interface device is configured using the processor and the memory to include a first command interpreter and a second command interpreter,

wherein the first command interpreter is configured in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface, and

wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.

12. An interface device according to claim **11**, wherein in addition to the first connecting device of the interface device, there is a further input/output device at the multi-purpose interface of the host device, and wherein the interface device can communicate directly with said further input/output device via the specific driver for the multi-purpose interface.

13. An interface device according to claim **11**,

wherein the multi-purpose interface is an SCSI interface, and wherein the specific driver for the multi-purpose interface is an ASPI manager.

14. A method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, via an interface device, comprising:

interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device;

interfacing of the data transmit/receive device with a second connecting device of the interface device, the second connecting device including a sampling circuit for sampling the analog data provided by the data/transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data;

inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;

regardless of the type of the data transmit/receive data attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the input/output device, and

interpreting a data request command from the host device to the type of input/output device customary in the host device as a data transfer command for initiating a transfer of the digital data to the host device.

15. A method according to claim **14**,

wherein the drivers for input/output devices customary in a host device comprise a driver for a storage device and in particular for a hard disk drive.

* * * * *

JS 44 (Rev. 12/07) (cand rev 1-08)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON PAGE TWO OF THE FORM.)

I. (a) PLAINTIFFS
Hewlett Packard Company, a Delaware corporation

DEFENDANTS
Papst Licensing GMBH & CO. KG, a German company

(b) County of Residence of First Listed Plaintiff Santa Clara County, CA
(EXCEPT IN U.S. PLAINTIFF CASES)

County of Residence of First Listed Defendant
(IN U.S. PLAINTIFF CASES ONLY)
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE LAND INVOLVED.

(c) Attorney's (Firm Name, Address, and Telephone Number)
Charlene M. Morrow, FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
Tel: (650) 988-8500

Attorneys (If Known)

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)
(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated or Principal Place of Business In This State.	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT
- ☐ 110 Insurance
- ☐ 120 Marine
- ☐ 130 Miller Act
- ☐ 140 Negotiable Instrument
- ☐ 150 Recovery of Overpayment & Enforcement of Judgment
- ☐ 151 Medicare Act
- ☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)
- ☐ 153 Recovery of Overpayment of Veteran's Benefits
- ☐ 160 Stockholders' Suits
- ☐ 190 Other Contract
- ☐ 195 Contract Product Liability
- ☐ 196 Franchise

REAL PROPERTY
- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

TORTS

PERSONAL INJURY
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault, Libel & Slander
- ☐ 330 Federal Employers' Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury

PERSONAL INJURY
- ☐ 362 Personal Injury — Med. Malpractice
- ☐ 365 Personal Injury — Product Liability
- ☐ 368 Asbestos Personal Injury Product Liability

PERSONAL PROPERTY
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

CIVIL RIGHTS
- ☐ 441 Voting
- ☐ 442 Employment
- ☐ 443 Housing/ Accommodations
- ☐ 444 Welfare
- ☐ 445 Amer. w/Disabilities - Employment
- ☐ 446 Amer. w/Disabilities – Other
- ☐ 440 Other Civil Rights

PRISONER PETITIONS
- ☐ 510 Motions to Vacate Sentence

Habeas Corpus:
- ☐ 530 General
- ☐ 535 Death Penalty
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition

FORFEITURE/PENALTY
- ☐ 610 Agriculture
- ☐ 620 Other Food & Drug
- ☐ 625 Drug Related Seizure of Property 21 USC 881
- ☐ 630 Liquor Laws
- ☐ 640 R.R.& Truck
- ☐ 650 Airline Regs.
- ☐ 660 Occupational Safety/Health
- ☐ 690 Other

LABOR
- ☐ 710 Fair Labor Standards Act
- ☐ 720 Labor/Mgmt. Relations
- ☐ 730 Labor/Mgmt.Reporting & Disclosure Act
- ☐ 740 Railway Labor Act
- ☐ 790 Other Labor Litigation
- ☐ 791 Empl. Ret. Inc. Security Act

IMMIGRATION
- ☐ 462 Naturalization Application
- ☐ 463 Habeas Corpus - Alien Detainee
- ☐ 465 Other Immigration Actions

BANKRUPTCY
- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

PROPERTY RIGHTS
- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 840 Trademark

SOCIAL SECURITY
- ☐ 861 HIA(1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g))
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g))

FEDERAL TAX SUITS
- ☐ 870 Taxes (U.S. Plaintiff or Defendant)
- ☐ 871 IRS—Third Party 26 USC 7609

OTHER STATUTES
- ☐ 400 State Reapportionment
- ☐ 410 Antitrust
- ☐ 430 Banks and Banking
- ☐ 450 Commerce
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced and Corrupt Organizations
- ☐ 480 Consumer Credit
- ☐ 490 Cable/Sat TV
- ☐ 810 Selective Service
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 875 Customer Challenge 12 USC 3410
- ☐ 890 Other Statutory Actions
- ☐ 891 Agricultural Acts
- ☐ 892 Economic Stabilization Act
- ☐ 893 Environmental Matters
- ☐ 894 Energy Allocation Act
- ☐ 895 Freedom of Information Act
- ☐ 900 Appeal of Fee Determination Under Equal Access to Justice
- ☐ 950 Constitutionality of State Statutes

V. ORIGIN (Place an "X" in One Box Only)

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multidistrict Litigation ☐ 7 Appeal to District Judge from Magistrate Judgment

VI. CAUSE OF ACTION
Cite the U.S. Civil Statute under which you are filing **(Do not cite jurisdictional statutes unless diversity):**
35 U.S.C. §§ 1, et seq
Brief description of cause:
Complaint for Declaratory Judgment of Non-Infringement and Invalidity

VII. REQUESTED IN COMPLAINT: ☐ CHECK IF THIS IS A **CLASS ACTION** UNDER F.R.C.P. 23 **DEMAND $**
CHECK YES only if demanded in complaint: **JURY DEMAND:** ☒ Yes ☐ No

VIII. RELATED CASE(S) IF ANY **PLEASE REFER TO CIVIL L.R. 3-12 CONCERNING REQUIREMENT TO FILE "NOTICE OF RELATED CASE".**

IX. DIVISIONAL ASSIGNMENT (CIVIL L.R. 3-2) (PLACE AND "X" IN ONE BOX ONLY) ☐ SAN FRANCISCO/OAKLAND ☐ SAN JOSE

DATE
March 31, 2008

SIGNATURE OF ATTORNEY OF RECORD
Charlene M. Morrow

American LegalNet, Inc.
www.FormsWorkflow.com

AO 120 (Rev. 2/99)

TO: Mail Stop 8 Director of the U.S. Patent & Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450 E-filing	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Northern District of California on the following X Patents or ☐ Trademarks:

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
CV 08-01732 JL	3/31/08	Northern District of California, San Francisco Division

PLAINTIFF	DEFENDANT
HEWLETT-PACKARD CO	PAPST LICENSING GMBH

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1			
2			
3			
4			
5			

In the above—entitled case, the following patent(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
Richard W. Wieking	Gloria Acevedo	April 2, 2008

Copy 1—Upon initiation of action, mail this copy to Commissioner Copy 3—Upon termination of action, mail this copy to Commissioner
Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner Copy 4—Case file copy

ADRMOP, AO279, CLOSED, E-Filing, TRANSF

U.S. District Court
California Northern District (San Jose)
CIVIL DOCKET FOR CASE #: 5:08-cv-01732-JW
Internal Use Only

Hewlett-Packard Company v. Papst Licensing GMBH & Co.KG
Assigned to: Hon. James Ware
Cause: 35:145 Patent Infringement

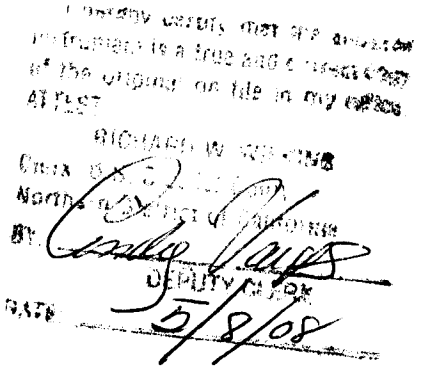
Date Filed: 03/31/2008
Date Terminated: 05/08/2008
Jury Demand: Plaintiff
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

Plaintiff

Hewlett-Packard Company

represented by **Charlene Marie Morrow**
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041-2008
650/988-8500
Email: cmorrow@fenwick.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Heather Nicole Mewes
Fenwick & West LLP
555 California Street, 12th Floor
San Francisco, CA 94104
415-875-2300
Fax: 415-281-1350
Email: hmewes@fenwick.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED



Jeffrey Virnelson Lasker
Fenwick & West LLP
555 California Street, 12th Floor
San Francisco, CA 94104
415-875-2422
Fax: 415-281-1350
Email: jlasker@fenwick.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

V.

Defendant

Papst Licensing GMBH & Co.KG

Date Filed	#	Docket Text
03/31/2008	1	COMPLAINT /issued summons against Papst Licensing GMBH & Co.KG (Filing fee $ 350, receipt number 34611017592.). Filed byHewlett-Packard Company. (ga, COURT STAFF) (Filed on 3/31/2008) (Entered: 04/02/2008)
03/31/2008	2	Certificate of Interested Entities by Hewlett-Packard Company re 1 Complaint (ga, COURT STAFF) (Filed on 3/31/2008) (Entered: 04/02/2008)
03/31/2008	3	NOTICE OF PENDENCY OF other actions. The Judicial Panel Multidistrict Litigation has transferred all the cases, except for the Papst .v Ricoh case, to the United States District Court for the District of Columbia for cooordinated and consolidated pretrial proceedings with MDL 1180,D.D.C. docket no. 1:07-mc-00493 RMC.by Hewlett-Packard Company (ga, COURT STAFF) (Filed on 3/31/2008) Modified on 4/7/2008 (cv, COURT STAFF). (Entered: 04/02/2008)
03/31/2008	4	ADR SCHEDULING ORDER: Case Management Statement due by 6/25/2008. Case Management Conference set for 7/2/2008 10:30 AM.. Signed by Judge James Larson on 3/31/08. (Attachments: # 1 Judge Standing Order, # 2 Court Standing Order, # 3 Consent/Decline Form)(ga, COURT STAFF) (Filed on 3/31/2008) (Entered: 04/02/2008)
03/31/2008		CASE DESIGNATED for Electronic Filing. (ga, COURT STAFF) (Filed on 3/31/2008) (Entered: 04/02/2008)
03/31/2008	9	Summons Issued as to Papst Licensing GMBH & Co.KG. (cv, COURT STAFF) (Filed on 3/31/2008) (Entered: 04/08/2008)
04/02/2008	5	REPORT on the filing of an action regarding PATENT INFRINGEMENT (cc: form mailed to register). (ga, COURT STAFF) (Filed on 4/2/2008) (Entered: 04/02/2008)
04/03/2008	6	Declination to Proceed Before a U.S. Magistrate Judge by Hewlett-Packard Company. (Lasker, Jeffrey) (Filed on 4/3/2008) (Entered: 04/03/2008)
04/04/2008	7	CLERK'S NOTICE of Impending Reassignment to U.S. District Judge (wh, COURT STAFF) (Filed on 4/4/2008) (Entered: 04/04/2008)
04/07/2008	8	ORDER REASSIGNING CASE. Case reassigned to Judge Hon. James Ware for all further proceedings. Judge Magistrate Judge James Larson no longer assigned to the case. Signed by Executive Committee on 4/7/08. (mab, COURT STAFF) (Filed on 4/7/2008) (Entered: 04/07/2008)

04/09/2008	10	CLERK'S NOTICE Setting Case Management Conference.Case Management Statement due by 6/26/2008. Case Management Conference set for 7/7/2008 10:00 AM in Courtroom 8, 4th Floor, San Jose before Hon. James Ware. (ecg, COURT STAFF) (Filed on 4/9/2008) (Entered: 04/09/2008)
05/08/2008	11	CONDITIONAL TRANSFER ORDER (CTO-2) from the Judicial Panel on Multidistrict Litigation, pursuant to 28 USC 1407, stay is LIFTED, TRANSFERRING CASE to the District of District of Columbia case assigned to the Honorable Rosemary M. Collyer to become part of MDL No. 1880.. Signed by MDL Panel on 5/8/08. (cv, COURT STAFF) (Filed on 5/8/2008) Modified on 5/8/2008 (sp, COURT STAFF). (Entered: 05/08/2008)
05/08/2008	12	Letter from Clerk, JPMDL, to Ms. Mayer-Whittington dated 5/6/08 re: enclosing a certified copy of a conditional transfer order filed by the Panel on 4/18/08 in this matter. The Panel's governing statute, 28 USC 1407, requires that the transferee clerk"..transmit a certified copy of the Panel's order to transfer to the clerk of the district court from which the action is being transferred" Re:MDL No.1880 --In Re: Papst Licensing Digital Camera Patent Litigation. (cv, COURT STAFF) (Filed on 5/8/2008) (Entered: 05/08/2008)
05/08/2008	13	CLERK mailed certified copy of docket sheet, Conditional Transferral Order, along with the original case file, to U. S. District Court for District of Columbia, 333 Constitution Avenue, NW Washington, DC 20001. (cv, COURT STAFF) (Filed on 5/8/2008) (Entered: 05/08/2008)

Type E
08-865
RMC

CIVIL COVER SHEET

JS-44
(Rev.1/05 DC)

I (a) PLAINTIFFS
Hewlett-Packard Co.

(b) COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF 88888
(EXCEPT IN U.S. PLAINTIFF CASES)

MDL 1880

(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)

DEFENDANTS
Papst Licensing GmbH & Co. KG

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT _____
(IN U.S. PLAINTIFF CASES ONLY)
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF

ATTORNEYS

Case: 1:08-cv-00865
Assigned To : Collyer, Rosemary M.
Assign. Date : 5/20/2008
Description: General Civil

II. BASIS OF JURISDICTION
(PLACE AN x IN ONE BOX ONLY)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in item III)

III CITIZENSHIP OF PRINCIPAL PARTIES (PLACE AN x IN ONE BOX FOR PLAINTIFF AND ONE BOX FOR DEFENDANT) FOR DIVERSITY CASES ONLY!

	PTF	DFT		PTF	DFT
Citizen of this State	☐ 1	☐ 1	Incorporated or Principal Place of Business in This State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated and Principal Place of Business in Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. CASE ASSIGNMENT AND NATURE OF SUIT
(Place a X in one category, A-N, that best represents your cause of action and one in a corresponding Nature of Suit)

☐ A. *Antitrust*
- ☐ 410 Antitrust

☐ B. *Personal Injury/ Malpractice*
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault, Libel & Slander
- ☐ 330 Federal Employers Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury
- ☐ 362 Medical Malpractice
- ☐ 365 Product Liability
- ☐ 368 Asbestos Product Liability

☐ C. *Administrative Agency Review*
- ☐ 151 Medicare Act

Social Security:
- ☐ 861 HIA ((1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g)
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g)

Other Statutes
- ☐ 891 Agricultural Acts
- ☐ 892 Economic Stabilization Act
- ☐ 893 Environmental Matters
- ☐ 894 Energy Allocation Act
- ☐ 890 Other Statutory Actions (If Administrative Agency is Involved)

☐ D. *Temporary Restraining Order/Preliminary Injunction*

Any nature of suit from any category may be selected for this category of case assignment.

(If Antitrust, then A governs)

☒ E. *General Civil (Other)* OR ☐ F. *Pro Se General Civil*

Real Property
- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent, Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

Personal Property
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

Bankruptcy
- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

Prisoner Petitions
- ☐ 535 Death Penalty
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition

Property Rights
- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 840 Trademark

Federal Tax Suits
- ☐ 870 Taxes (US plaintiff or defendant
- ☐ 871 IRS-Third Party 26 USC 7609

Forfeiture/Penalty
- ☐ 610 Agriculture
- ☐ 620 Other Food &Drug
- ☐ 625 Drug Related Seizure of Property 21 USC 881
- ☐ 630 Liquor Laws
- ☐ 640 RR & Truck
- ☐ 650 Airline Regs
- ☐ 660 Occupational Safety/Health
- ☐ 690 Other

Other Statutes
- ☐ 400 State Reapportionment
- ☐ 430 Banks & Banking
- ☐ 450 Commerce/ICC Rates/etc.
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced & Corrupt Organizations
- ☐ 480 Consumer Credit
- ☐ 490 Cable/Satellite TV
- ☐ 810 Selective Service
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 875 Customer Challenge 12 USC 3410
- ☐ 900 Appeal of fee determination under equal access to Justice
- ☐ 950 Constitutionality of State Statutes
- ☐ 890 Other Statutory Actions (if not administrative agency review or Privacy Act

— o —

☐ G. *Habeas Corpus/ 2255* ☐ 530 Habeas Corpus-General ☐ 510 Motion/Vacate Sentence	☐ H. *Employment Discrimination* ☐ 442 Civil Rights-Employment (criteria: race, gender/sex, national origin, discrimination, disability age, religion, retaliation) *(If pro se, select this deck)*	☐ I. *FOIA/PRIVACY ACT* ☐ 895 Freedom of Information Act ☐ 890 Other Statutory Actions (if Privacy Act) *(If pro se, select this deck)*	☐ J. *Student Loan* ☐ 152 Recovery of Defaulted Student Loans (excluding veterans)
☐ K. *Labor/ERISA (non-employment)* ☐ 710 Fair Labor Standards Act ☐ 720 Labor/Mgmt. Relations ☐ 730 Labor/Mgmt. Reporting & Disclosure Act ☐ 740 Labor Railway Act ☐ 790 Other Labor Litigation ☐ 791 Empl. Ret. Inc. Security Act	☐ L. *Other Civil Rights (non-employment)* ☐ 441 Voting (if not Voting Rights Act) ☐ 443 Housing/Accommodations ☐ 444 Welfare ☐ 440 Other Civil Rights ☐ 445 American w/Disabilities-Employment ☐ 446 Americans w/Disabilities-Other	☐ M. *Contract* ☐ 110 Insurance ☐ 120 Marine ☐ 130 Miller Act ☐ 140 Negotiable Instrument ☐ 150 Recovery of Overpayment & Enforcement of Judgment ☐ 153 Recovery of Overpayment of Veteran's Benefits ☐ 160 Stockholder's Suits ☐ 190 Other Contracts ☐ 195 Contract Product Liability ☐ 196 Franchise	☐ N. *Three-Judge Court* ☐ 441 Civil Rights-Voting (if Voting Rights Act)

V. ORIGIN

☐ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☒ 6 Multi district Litigation ☐ 7 Appeal to District Judge from Mag. Judge

VI. CAUSE OF ACTION (CITE THE U.S. CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE A BRIEF STATEMENT OF CAUSE.)

28:2201 Declaratory Judgment

VII. REQUESTED IN COMPLAINT CHECK IF THIS IS A CLASS ☐ ACTION UNDER F.R.C.P. 23 **DEMAND $** Check YES only if demanded in complaint **JURY DEMAND:** ☐ YES ☒ NO

VIII. RELATED CASE(S) IF ANY (See instruction) ☐ YES ☐ NO If yes, please complete related case form.

DATE 5/20/08 **SIGNATURE OF ATTORNEY OF RECORD** ucl

INSTRUCTIONS FOR COMPLETING CIVIL COVER SHEET JS-44
Authority for Civil Cover Sheet

The JS-44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. Consequently a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. Listed below are tips for completing the civil cover sheet. These tips coincide with the Roman Numerals on the Cover Sheet.

I. COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF/DEFENDANT (b) County of residence: Use 11001 to indicate plaintiff is resident of Washington, D.C.; 88888 if plaintiff is resident of the United States but not of Washington, D.C., and 99999 if plaintiff is outside the United States.

III. CITIZENSHIP OF PRINCIPAL PARTIES: This section is completed only if diversity of citizenship was selected as the Basis of Jurisdiction under Section II.

IV. CASE ASSIGNMENT AND NATURE OF SUIT: The assignment of a judge to your case will depend on the category you select that best represents the primary cause of action found in your complaint. You may select only one category. You must also select one corresponding nature of suit found under the category of case.

VI. CAUSE OF ACTION: Cite the US Civil Statute under which you are filing and write a brief statement of the primary cause.

VIII. RELATED CASES, IF ANY: If you indicated that there is a related case, you must complete a related case form, which may be obtained from the Clerk's Office.

Because of the need for accurate and complete information, you should ensure the accuracy of the information provided prior to signing the form.

United States District Court
For the Northern District of California

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

HEWLETT-PACKARD COMPANY,

Plaintiff(s),

v.

PAPST LICENSING GMBH & CO.KG,

Defendant(s).

_____/

No. C 08-01732 JW

CLERK'S NOTICE SETTING CASE MANAGEMENT CONFERENCE

TO ALL PARTIES AND COUNSEL OF RECORD:

YOU ARE NOTIFIED THAT due to case reassignment a Case Management Conference has been set before Judge James Ware **July 7, 2008 at 10:00 AM** Courtroom 8, 4th Floor, 280 S. 1st Street, San Jose, California. The parties are to file a joint case management conference statement by **June 27, 2008.**

Dated: April 9, 2008

FOR THE COURT,
Richard W. Wieking, Clerk

by: /s/
Elizabeth Garcia
Courtroom Deputy

UNITED STATES DISTRICT COURT

for the

Northern District of California

Hewlett-Packard Company, a Delaware Corporation
Plaintiff

v.

Papst Licensing GMBH & CO. KG, a German Company
Defendant

E-filing

Civil Action No. C 9

Summons in a Civil Action

To: Papst Licensing GMBH & CO. KG
(Defendant's name)

A lawsuit has been filed against you.

Within 20 days after service of this summons on you (not counting the day you received it), you must serve on the plaintiff an answer to the attached complaint or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff's attorney, whose name and address are

Charlene M. Morrow (136411)
FENWICK & WEST
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Telephone: (650) 988-8500
Facsimile: (650) 938-5200

Heather Mewes (203690)
Jeffrey V. Lasker (246029)
FENWICK & WEST
555 California Street, Suite 1200
San Francisco CA, 94104
Telephone: (415) 875-2300
Facsimile: (415) 281-1350

If you fail to do so, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

Richard W. Wieking
Name of clerk of court

Date: SEP 2 1 2008

MARY ANN BUCKLEY

(Use 60 days if the defendant is the United States or a United States agency, or is an officer or employee of the United States allowed 60 days by Rule 12(a)(3).)

American LegalNet, Inc.
www.FormsWorkflow.com

UNITED STATES DISTRICT COURT
Northern District of California
450 Golden Gate Avenue
San Francisco, California 94102

www.cand.uscourts.gov

Richard W. Wieking
Clerk

General Court Number
415.522.2000

April 7, 2008

CASE NUMBER: CV 08-01732 JL
CASE TITLE: HEWLETT-PACKARD CO-v-PAPST LICENSING GMBH

REASSIGNMENT ORDER

GOOD CAUSE APPEARING THEREFOR,

IT IS ORDERED that this case is reassigned to the **SAN JOSE** division.

Honorable JAMES WARE for all further proceedings.

Counsel are instructed that all future filings shall bear the initials **JW** immediately after the case number.

ALL MATTERS PRESENTLY SCHEDULED FOR HEARING ARE VACATED AND SHOULD BE RENOTICED FOR HEARING BEFORE THE JUDGE TO WHOM THE CASE HAS BEEN REASSIGNED.

Date: 4/7/08

FOR THE EXECUTIVE COMMITTEE:

Richard W. Wieking
Clerk

NEW CASE FILE CLERK:

Copies to: Courtroom Deputies
Log Book Noted

Special Projects
Entered in Computer 4/7/08 MAB

CASE SYSTEMS ADMINISTRATOR:
Copies to: All Counsel

Transferor CSA

CHARLENE M. MORROW (CSB NO. 136411)
cmorrow@fenwick.com
FENWICK & WEST LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Telephone:(650) 988-8500
Facsimile:(650) 938-5200

HEATHER N. MEWES (CSB NO. 203690)
hmewes@fenwick.com
JEFFREY V. LASKER (CSB No. 246029)
jlasker@fenwick.com
FENWICK & WEST LLP
555 California Street, Suite 1200
San Francisco, CA 94104
Telephone: (415) 875-2300
Facsimile: (415) 281-1350

Attorneys for Plaintiff
Hewlett-Packard Company

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

HEWLETT-PACKARD COMPANY, a Delaware corporation,
Plaintiff,

v.

PAPST LICENSING GMBH & CO. KG, a German company,
Defendant.
_____/

No. 3:08-CV-01732-JL

DECLINATION TO PROCEED BEFORE A MAGISTRATE JUDGE AND REQUEST FOR REASSIGNMENT TO A UNITED STATES DISTRICT JUDGE

American LegalNet, Inc.
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AO 120 (Rev. 2/99)

TO: **Mail Stop 8** **Director of the U.S. Patent & Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Northern District of California on the following X Patents or ☐ Trademarks:

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
CV 08-01732 JL	3/31/08	Northern District of California, San Francisco Division
PLAINTIFF		DEFENDANT
HEWLETT-PACKARD CO		PAPST LICENSING GMBH

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following patent(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
Richard W. Wieking	Gloria Acevedo	April 2, 2008

Copy 1—Upon initiation of action, mail this copy to Commissioner **Copy 3—Upon termination of action, mail this copy to Commissioner**
Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner **Copy 4—Case file copy**

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

FILED
2008 MAR 31 PM 4:28
RICHARD W. WIEKING
CLERK, U.S. DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

HEWLETT-PACKARD CO,

Plaintiff (s),

v.

PAPST LICENSING GMBH,

Defendant(s).

E-filing

No. **C 08-01732 JL**

ORDER SETTING INITIAL CASE MANAGEMENT CONFERENCE AND ADR DEADLINES

IT IS HEREBY ORDERED that this action is assigned to the Honorable James Larson. When serving the complaint or notice of removal, the plaintiff or removing defendant must serve on all other parties a copy of this order , the Notice of Assignment of Case to a United States Magistrate Judge for Trial, and all other documents specified in Civil Local Rule 4-2. Counsel must comply with the case schedule listed below unless the Court otherwise orders.

IT IS FURTHER ORDERED that this action is assigned to the Alternative Dispute Resolution (ADR) Multi-Option Program governed by ADR Local Rule 3. Counsel and clients shall familiarize themselves with that rule and with the material entitled "Dispute Resolution Procedures in the Northern District of California" on the Court ADR Internet site at www.adr.cand.uscourts.gov. A limited number of printed copies are available from the Clerk's Office for parties in cases not subject to the court's Electronic Case Filing program (ECF).

CASE SCHEDULE -ADR MULTI-OPTION PROGRAM

Date	Event	Governing Rule
3/31/2008	Complaint filed	
6/11/2008	*Last day to: • meet and confer re: initial disclosures, early settlement, ADR process selection, and discovery plan	FRCivP 26(f) & ADR L.R.3-5
	• file Joint ADR Certification with Stipulation to ADR Process or Notice of Need for ADR Phone Conference	Civil L.R. 16-8
6/25/2008	*Last day to file Rule 26(f) Report, complete initial disclosures or state objection in Rule 26(f) Report and file Case Management Statement per attached Standing Order re Contents of Joint Case Management Statement (also available at http://www.cand.uscourts.gov)	FRCivP 26(a) (1) Civil L.R . 16-9
7/2/2008	INITIAL CASE MANAGEMENT CONFERENCE (CMC) in Ctrm F,15th Floor,SF at 10:30 AM	Civil L.R. 16-10

* If the Initial Case Management Conference is continued, the other deadlines are continued accordingly.

Magistrate Judge James Larson
San Francisco
Courtroom F, 15th Floor

(415) 522-2112

James Larson, Magistrate Judge

Wings Hom, Courtroom Deputy (415) 522-2046

Venice Thomas, Secretary (415) 522-2112

Kathleen Campbell, Career Law Clerk

NOTICES

1. Civil Law & Motion is heard on Wednesdays at 9:30 a.m. Counsel need not reserve a hearing date for civil matters, but should confirm the judge's availability in the legal newspapers and on the district court web site, www.cand.uscourts.gov.

2. Criminal motions are scheduled with the courtroom deputy for any Thursday morning at 9:30 a.m. when the judge is available. Motions are governed by the Federal Rules and the Civil and Criminal Local Rules.

3. Status and Case Management Conferences are heard on Wednesdays at 10:30 a.m.

4. Pretrial Conferences are heard Wednesdays at 11:00 a.m.

5. The Magistrate Judge's Settlement Conference Order is also available on the Court web site or from the Clerk's Office.

6. Parties with questions regarding scheduling of settlement conferences should contact Judge Larson's secretary, Venice Thomas, at (415) 522-2112. All other scheduling questions should be addressed to Judge Larson's courtroom deputy, Wings Hom, at (415) 522-2046.

7. Discovery disputes in cases referred by the district court are handled in one of three ways:

a. Motions noticed for a hearing before the district court and then referred to this court will be re-scheduled on Magistrate Judge Larson's Law and Motion calendar. Parties will be notified in writing.

b. In disputes which arise after the case has been referred, but before a motion has been filed before the district judge, the parties shall follow the following procedure:

Parties shall meet and confer in person, or, if counsel are located outside the Bay Area, by telephone, to attempt to resolve their dispute informally. A mere exchange of letters, telephone calls, or facsimile transmissions does not satisfy the requirement to meet and confer.

If, after a good faith effort, the parties have not resolved their dispute, they shall prepare a concise joint statement without affidavits or exhibits, stating the nature and status of their dispute. If a joint statement is not possible, each side may submit a brief individual statement. The Court will advise the parties regarding the need, if any, for formal briefing or a hearing.

Law and motion matters, including discovery motions, shall be filed in accordance with Civil Local Rule 7-2. Pursuant to Civil Local Rule 5-2(a), any papers filed in connection with any motion referred to Magistrate Judge Larson by a district judge must be filed in the Clerk's Office at the division where the chambers of the district judge is located, whether Oakland, San Francisco or San Jose. Pursuant to Civil Local Rule 5-2(b), the courtesy copies of papers filed in connection with any motion assigned to Magistrate Judge Larson, including those in cases where the assigned district judge sits in Oakland, or San Jose, must be delivered to the Clerk's Office or to Magistrate Judge Larson's chambers, at 450 Golden Gate Avenue, San Francisco.

Any party seeking an award of attorney fees or other expenses as sanctions in connection with a discovery dispute shall file a separate motion as required by Civil Local Rule 37-1(e).

c. Telephone conferences in discovery disputes are not encouraged but will be arranged at the court's discretion and are usually reserved for questions arising in the course of a deposition or other emergency.

d. In cases referred to Magistrate Judge Larson for discovery, if a party wishes to file a document under seal, that party shall first file a written request for a sealing order setting forth the good cause and accompanied by a proposed order, as provided by Civil Local Rule 79-5.

8. In all "E-Filing" cases when filing papers in connection with any motion for determination by the judge, the parties shall, in addition to filing papers electronically, lodge with chambers a printed copy of the papers by the close of the next court day following the day the papers are filed electronically. These printed copies shall be marked "Chambers Copy" and shall be submitted to the Clerk's Office, in an envelope clearly marked with the judge's name, case number and "E-Filing Chambers Copy." Parties shall not file a paper copy of any document with the Clerk's Office that has already been filed electronically.

9. Any proposed order in a case subject to electronic filing shall be e-filed.

10. Motions for summary judgment in cases assigned to Magistrate Judge Larson for trial shall be accompanied by a statement of the material facts not in dispute supported by citations to admissible evidence. The parties shall file a joint statement of undisputed facts wherever possible. If the parties are unable to reach complete agreement after meeting and conferring, they shall file a joint statement of the undisputed facts about which they do agree. Any party may then file a separate statement of the additional facts which the party contends are undisputed.

C:\Documents and Settings\usdc\Local Settings\Temp\notes56FD74\standingord-2004amended.wpd

STANDING ORDER FOR ALL JUDGES OF THE NORTHERN DISTRICT OF CALIFORNIA

CONTENTS OF JOINT CASE MANAGEMENT STATEMENT

Commencing March 1, 2007, all judges of the Northern District of California will require the identical information in Joint Case Management Statements filed pursuant to Civil Local Rule 16-9. The parties must include the following information in their statement which, except in unusually complex cases, should not exceed ten pages:

1. Jurisdiction and Service: The basis for the court's subject matter jurisdiction over plaintiff's claims and defendant's counterclaims, whether any issues exist regarding personal jurisdiction or venue, whether any parties remain to be served, and, if any parties remain to be served, a proposed deadline for service.

2. Facts: A brief chronology of the facts and a statement of the principal factual issues in dispute.

3. Legal Issues: A brief statement, without extended legal argument, of the disputed points of law, including reference to specific statutes and decisions.

4. Motions: All prior and pending motions, their current status, and any anticipated motions.

5. Amendment of Pleadings: The extent to which parties, claims, or defenses are expected to be added or dismissed and a proposed deadline for amending the pleadings.

6. Evidence Preservation: Steps taken to preserve evidence relevant to the issues reasonably evident in this action, including interdiction of any document-destruction program and any ongoing erasures of e-mails, voice mails, and other electronically-recorded material.

7. Disclosures: Whether there has been full and timely compliance with the initial disclosure requirements of Fed. R. Civ. P. 26 and a description of the disclosures made.

8. Discovery: Discovery taken to date, if any, the scope of anticipated discovery, any proposed limitations or modifications of the discovery rules, and a proposed discovery plan pursuant to Fed. R. Civ. P. 26(f).

9. Class Actions: If a class action, a proposal for how and when the class will be certified.

10. Related Cases: Any related cases or proceedings pending before another judge of this court, or before another court or administrative body.

11. Relief: All relief sought through complaint or counterclaim, including the amount of any

damages sought and a description of the bases on which damages are calculated. In addition, any party from whom damages are sought must describe the bases on which it contends damages should be calculated if liability is established.

12. Settlement and ADR: Prospects for settlement, ADR efforts to date, and a specific ADR plan for the case, including compliance with ADR L.R. 3-5 and a description of key discovery or motions necessary to position the parties to negotiate a resolution.

13. Consent to Magistrate Judge For All Purposes: Whether all parties will consent to have a magistrate judge conduct all further proceedings including trial and entry of judgment.

14. Other References: Whether the case is suitable for reference to binding arbitration, a special master, or the Judicial Panel on Multidistrict Litigation.

15. Narrowing of Issues: Issues that can be narrowed by agreement or by motion, suggestions to expedite the presentation of evidence at trial (e.g., through summaries or stipulated facts), and any request to bifurcate issues, claims, or defenses.

16. Expedited Schedule: Whether this is the type of case that can be handled on an expedited basis with streamlined procedures.

17. Scheduling: Proposed dates for designation of experts, discovery cutoff, hearing of dispositive motions, pretrial conference and trial.

18. Trial: Whether the case will be tried to a jury or to the court and the expected length of the trial.

19. Disclosure of Non-party Interested Entities or Persons: Whether each party has filed the "Certification of Interested Entities or Persons" required by Civil Local Rule 3-16. **In addition**, each party must restate in the case management statement the contents of its certification by identifying any persons, firms, partnerships, corporations (including parent corporations) or other entities known by the party to have either: (i) a financial interest in the subject matter in controversy or in a party to the proceeding; or (ii) any other kind of interest that could be substantially affected by the outcome of the proceeding.

20. Such other matters as may facilitate the just, speedy and inexpensive disposition of this matter.

CHARLENE M. MORROW (CSB NO. 136411)
cmorrow@fenwick.com
FENWICK & WEST LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Telephone: (650) 988-8500
Facsimile: (650) 938-5200

HEATHER MEWES (CSB NO. 203690)
hmewes@fenwick.com
JEFFREY V. LASKER (CSB No. 246029)
jlasker@fenwick.com
FENWICK & WEST LLP
555 California Street, Suite 1200
San Francisco, CA 94104
Telephone: (415) 875-2300
Facsimile: (415) 281-1350

Attorneys for Plaintiff
Hewlett-Packard Company

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NORTHERN DISTRICT OF CALIFORNIA

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FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

HEWLETT-PACKARD COMPANY, a Delaware corporation,

Plaintiff,

v.

PAPST LICENSING GMBH & CO. KG, a German company,

Defendant.

Case No. CV 08 1732

NOTICE OF PENDENCY OF OTHER ACTIONS

Pursuant to Civil L.R. 3-12, Plaintiff Hewlett-Packard Company ("HP") hereby provides notice of pendency of other actions:

The following cases involve U.S. Patent Nos. 6,470,399 and 6,895,449 -- the same patents that are at issue in the above captioned case:

Case Name	Court	Docket No.
Papst Licensing GMBH & Co. KG v. Olympus Corp.	D.D.C. (originally filed in D. Del.)	1:07cv2086
Papst Licensing GMBH & Co. KG v. Fujifilm Corp.	D.D.C. (originally filed in N.D. Ill.)	1:07cv2087
Papst Licensing GMBH & Co. KG v. Samsung Techwin Co.	D.D.C. (originally filed in C.D. Cal., and transferred to D.N.J.)	1:07cv2088
Matsushita Electric Industrial Co., Ltd.; Victor Company of Japan, Ltd. v. Papst Licensing GMBH & Co. KG	D.D.C.	1:07cv1222
Fujifilm Corp.; Fujifilm U.S.A., Inc. v. Papst Licensing GMBH & Co. KG	D.D.C.	1:07cv1118
Casio America, Inc v. Papst Licensing GMBH & Co. KG	D.D.C.	1:06cv1751
Papst Licening GmbH & Co. KG v. Ricoh Company, Ltd.; Ricoh Americas Corp.; Ricoh Corp.	N.D. Ill.	1:08cv1218

The Judicial Panel on Multidistrict Litigation has transferred all of the above cases, except for the *Papst v. Ricoh* case, to the United States District Court for the District of Columbia for coordinated and consolidated pretrial proceedings. With regard to the *Papst v. Ricoh* case, the Judicial Panel on Multidistrict Litigation issued a Conditional Transfer Order on March 13, 2008 which likely will result in the transfer of the case to the United States District Court for the District of Columbia. The Multidistrict Litigation case is *In re: Papst Licensing Digital Camera*

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Patent Litigation – MDL 1180, D.D.C. Docket No. 1:07-mc-00493-RMC. It is expected that these cases will be transferred back to the districts where they were filed for trial.

Dated: March 31, 2008

FENWICK & WEST LLP

By: _____
Charlene M. Morrow

Attorneys for Plaintiff
Hewlett-Packard Company

FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW

CHARLENE M. MORROW (CSB NO. 136411)
cmorrow@fenwick.com
FENWICK & WEST LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Telephone: (650) 988-8500
Facsimile: (650) 938-5200

HEATHER MEWES (CSB NO. 203690)
hmewes@fenwick.com
JEFFREY V. LASKER (CSB No. 246029)
jlasker@fenwick.com
FENWICK & WEST LLP
555 California Street, Suite 1200
San Francisco, CA 94104
Telephone: (415) 875-2300
Facsimile: (415) 281-1350

Attorneys for Plaintiff
Hewlett-Packard Company

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Defendant.

Case No.

JL

1732

CERTIFICATION OF INTERESTED ENTITIES OR PERSONS

Pursuant to Civil L.R. 3-16, the undersigned certifies that as of this date, other than the named parties, there is no such interest to report.

Dated: March 31, 2008

FENWICK & WEST LLP

By: Charlene M. Morrow

Charlene M. Morrow

Attorneys for Plaintiff
Hewlett-Packard Company

FENWICK & WEST LLP
ATTORNEYS AT LAW
MOUNTAIN VIEW