EUROPEAN PATENT SPECIFICATION

SYSTEM FOR STORING AND TRANSMITTING HOME NETWORK SYSTEM DATA
SYSTEM ZUR SPEICHERUNG UND ÜBERTRAGUNG VON HAUSNETZWERKSYSTEMDATEN
SYSTEME DE STOCKAGE ET DE TRANSMISSION DE DONNEES DE RESEAU FAMILIAL

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Description

[0001] The invention relates to a system having a plurality of devices connected to one another via digital interfaces. Furthermore, the invention relates to a device for writing to a mobile data medium for use in the system and to a mobile data medium for use in the system.

Prior art

[0002] The invention is based on a system having a plurality of devices connected to one another via an IEEE 1394 interface. Devices of this type are known for home applications, for example, and it is expected that these devices will become established on the market as mass-produced products in connection with digital television and digital recording methods.

[0003] Entertainment electronics devices are produced by many manufacturers in a great variety of design forms widely ranging in quality and price. Hence, users frequently combine devices from different manufacturers for a music and/or video system. What they often do not know, however, is which devices go together best or whether the devices are completely compatible with one another.

[0004] The digital interface IEEE 1394, also called "Firewire", connects the devices to form a system via which, for example, video data, audio data or system data is transmitted. This system is able, amongst other things, to configure itself when additional devices are connected, even during continuous operation (hot plugging). When a new device is connected to the IEEE 1394 interface, a reset is triggered, irrespective of the particular state of the interface. After the reset, the structure of the interface is determined again and physical addresses are allocated for the purpose of self-identification.

[0005] As a result, however, a user no longer has direct access to the configuration data, as this is generated internally. It is, of course, possible to show or print this configuration data, for example using a PC, but a user will frequently not know the configuration of his system precisely. Hence, he will not know what device supplements his system best if he wishes to add a further device.

[0006] Digital video devices having an IEEE 1394 interface are already known. Minicomputers (PC or laptop) can also have this interface fitted. An insight into the way in which the IEEE 1394 interface works and possibilities for its use is given in the brochure SPECSinternational, Vol. 10, No 4, July/August 1998 from Cable Television Laboratories, Inc., Louisville, USA. For the interface itself, the standard IEEE Std 1394-1995 was created, entitled "IEEE Standard for a High Performance Serial Bus", IEEE 1996.


[0008] DE-A-195 30 596 discloses a chip card control unit for use in a facility control system. A chip card control unit is capable of receiving and storing data from a network, compare it to prerecorded data and issuing control commands in case of a data match.

Invention

[0009] The object of the present invention, therefore, is to specify a system of the type mentioned above which gives a user the option of adding further devices to the system without difficulty.

[0010] This object is achieved by the features of the invention which are specified in Claim 1. Advantageous developments of the system and devices in the system are specified in the further claims.

[0011] With the system according to the invention, a user can poll the system data for devices in this system via the IEEE 1394 interface using a control unit arranged in one of the devices, and can pass this system data to an output unit of this device. The output unit is, by way of example, a device for writing to a mobile, digital data medium which stores the system data. The system data for a device contains, in particular, the input and output characteristics of the latter. As a result, the user can take the data medium with its system values to a specialist dealer or technical customer service point and hence receive very specific advice about his home system.

[0012] A further advantage is that this system data can locate or at least isolate a point of failure or malfunction, so that these faults can be eliminated more quickly. In complex digital systems having a plurality of devices, it is frequently difficult to locate malfunctions or associate them with a particular device.

[0013] The device contains, in particular, a control unit which, when operated appropriately by a user, polls relevant system data for connected devices via the interface and uses a device to store this system data on the data medium. Data media is a smart card or a chip card having a semiconductor memory. A suitable central device which can be used to retrieve and store the system data is, in particular, a set-top box or a digital satellite receiver, some of which are already equipped with write/read devices for a smart card.

[0014] Relevant system data and characteristic data for a device used in the system are, in particular, serial number, manufacturer’s mark, input and output characteristics, device class, software version and/or any error data.

Drawings

[0015] The invention is explained in more detail below
by way of example and with the aid of a schematic drawing, in which:

Figure 1 shows a system having entertainment electronics devices connected to one another via an IEEE 1394 interface.

Detailed description of the invention

[0016] The system shown in the figure contains audio and video devices from the field of consumer electronics, which are connected to one another via an IEEE 1394 interface 1. In this case, a television set 2 is connected to a set-top box 3 by means of this interface 1 and to a digital camcorder 5 via an A/V amplifier 4. Other devices in this system are a CD player 6 and a tuner 7. The loudspeakers 8 are connected to the A/V amplifier 4.

[0017] The set-top box 3 contains a device 9 for reading and writing to a mobile digital data medium 10; in this illustrative example, the device 9 is a smart-card reader for a corresponding smart card having a non-volatile memory. The set-top box 3 also contains a control unit 11, for example a microprocessor, which can be used by a user of the set-top box to retrieve system data from all devices or from individual devices in this system via the interface 1. A set-top box is suitable for this since it already has a device 9 for writing to a smart card 10 anyway. The control unit 11 can be instructed [lacuna] keystop arranged above another set-top box 3, for example.

[0018] Alternatively, other devices in the system can also be used for storing the system data, for example the A/V amplifier 4 if it has a write/read device for a suitable chip card, or a digital satellite receiver if it is used instead of the set-top box 3.

[0019] If a user has stored his system data on the data medium 10, he can take this system data to a specialist dealer or to a customer service point, where it is read and the user can then be advised. If the user also wishes to buy a digital video recorder 12, for example, in order to transfer video recordings from the digital video camcorder 5, the specialist dealer can read out the system data on the data medium 10 and recommend to the customer a device matching the performance of the digital camcorder 5. Similarly, the user can be advised by a specialist dealer in the event of system faults, provided that system data can still be retrieved and stored on the data medium 10 via the interface 1.

[0020] The interface 1 also allows the devices in the system to be installed in different rooms, for example the digital camcorder 5 and the digital video recorder 12 can be installed in a work room and the other devices in the audio and video system 2, 6, 7 can be installed in a living room. Using the set-top box 3 and the control unit 11, the user can, in this case, too, ascertain the status of all connected devices at any time, or can monitor which devices are connected. In addition, a minicomputer in the work room can also be connected to the system via an IEEE 1394 interface, so that this computer can also retrieve the system data for the devices 2 - 7 and store it on a floppy disk, for example.

[0021] The invention has been explained using the example of a system of a plurality of devices connected to one another via the IEEE 1394 bus. Hence, it is expressly pointed out that the invention can also be used when a plurality of devices are connected using other communication bus systems. Examples are the USB, CAN, Interbus, Ethernet, IBM Token Ring etc. bus systems.

[0022] Alternatively or in addition, the device having the control unit 11, the set-top box 3 in this illustrative example, can have a display 13 which can show the polled system data when an appropriate command is given. A further refinement of the invention is for the polled system data to be transmitted to a desired address, for example to a specialist dealer or a customer service point, via an available modem connection 14 when an appropriate user command is given.

Claims

1. System having a plurality of audio and video consumer electronics devices (2-7) connected to one another via a digital bus interface, in particular an IEEE 1394 bus interface, characterized in that a first one of the devices (3) contains a control unit (11) which, upon a user request, polls system data for other devices (2, 4-7) in this system via the interface (1), wherein said system data characterises the compatibility of said devices (2-7) with further devices (12) connectable to said digital bus interface and comprises the following characteristic data of all of the devices (2-7):

   • a serial number,
   • the manufacturer’s mark,
   • the device class,
   • input and/or output characteristics, and
   • the software version

and passes this system data to an output unit (9) of this first device (3), the output unit (9) being a writing device (9) for writing to a mobile, digital smart card or mobile, memory chip card (10), wherein when operated upon a user request, the control unit (11) in this first device (3) stores said system data for all devices (2-7) on the smart card or the memory chip card (10) using the writing device (9).

2. System according to Claim 1, characterized in that the first device (3) having the writing device (9) is a set-top box or a digital satellite receiver.

Patentansprüche

1. System mit einer Mehrzahl von Audio- und Video-
Konsum-Elektronikgeräten (2-7), die miteinander über eine digitale Bus-Schnittstelle, insbesondere eine IEEE 1394 Bus-Schnittstelle, verbunden sind, dadurch gekennzeichnet, dass ein erstes der Geräte (3) eine Steuereinheit (11) enthält, die auf eine Benutzeranforderung Systemdaten für andere Geräte (2, 4-7) in diesem System über die Schnittstelle (1) abruft, wobei die Systemdaten die Kompatibilität der Geräte (2-7) mit weiteren, mit der digitalen Bus-Schnittstelle verbindbaren Geräten (12) charakterisieren und die folgenden charakteristischen Daten aller Geräte (2-7) umfassen:

- eine Seriennummer,
- die Marke des Herstellers,
- die Geräteklasse,
- Eingangs- und/oder Ausgangs-Eigenschaften, und
- die Software-Version und diese Systemdaten zu einer Ausgangseinheit (9) dieses ersten Gerätes (3) leiten, wobei die Ausgangseinheit (9) eine Schreibvorrichtung (9) zum Schreiben zu einer mobilen digitalen Smart-Card oder einer mobilen Speicher-Chipkarte (10) ist, wobei die Steuereinheit (11) in diesem ersten Gerät (3), wenn sie durch eine Benutzeranforderung in Betrieb gesetzt wird, die Systemdaten für alle Geräte (2-7) auf der Smart-Card oder der Speicher-Chipkarte (10) unter Verwendung der Schreibvorrichtung (9) speichert.

2. System nach Anspruch 1, dadurch gekennzeichnet, dass das erste Gerät (3), das die Schreibvorrichtung (9) aufweist, eine Set-Top-Box oder ein digitaler Satellitenempfänger ist.

Revendications

1. Système possédant une pluralité de dispositifs électroniques grand public audio et vidéo (2-7) connectés les uns aux autres via une interface de bus, en particulier une interface de bus IEEE 1394, caractérisé en ce qu’un premier des dispositifs (3) contient une unité de commande (11) qui, après une demande utilisateur, interroge des données système d’autres dispositifs (2,4-7) dans ce système via l’interface (1), où lesdites données système comprennent les données caractéristiques suivantes de l’ensemble des dispositifs (2-7) :

- un numéro de série,
- la marque du fabricant,
- la classe du dispositif,
- des caractéristiques d’entrée et/ou de sortie, et
- la version du logiciel
et transmet ces données système à une unité de sortie (9) de ce premier dispositif (3), l’unité de sortie (9) étant un dispositif d’écriture (9) permettant d’écrire sur une carte à puce numérique intelligente mobile ou une carte mémoire à puce mobile (10), où, lorsqu’elle fonctionne après une demande utilisateur, l’unité de commande (11) de ce premier dispositif (3) stocke lesdites données système de l’ensemble des dispositifs (2-7) sur la carte à puce intelligente ou la carte mémoire à puce (10) à l’aide du dispositif d’écriture (9).

2. Système selon la revendication 1, caractérisé en ce que le premier dispositif (3) possédant le dispositif d’écriture (9) est un boîtier décodeur ou un récepteur satellite numérique.
Fig. 1
REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- DE 19530596 A [0008]

Non-patent literature cited in the description