# Checking Items

The section lists the items which shall be included in the MS-6932 package. Check the items one by one. Contact your dealer if anything is missing or damaged.

✓ MS-6932 -- 1394 Adapter Card
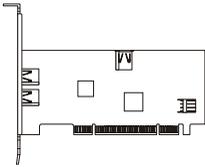
✓ User's Manual

✓ Extended Power Cable (floppy disk style)
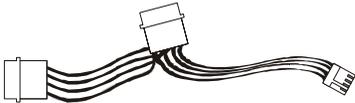
✓ 6-pin to 4-pin 1394 Cable (1.5M)

✓ Two Video Software and Data CDs
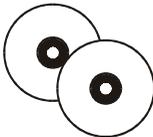
Introduction

The MS-6932 is an IEEE 1394 add-on card, which can connect 1394-interfaced products easily and expand the capabilities of a computer. The 1394 Adapter Card is compliant with the IEEE 1394-1995, IEEE 1394a and OHCI 1.1 standards. Besides, 1394 supports plug-and-play as well as hot plugging, which means connection and disconnection of the 1394 device will not need to interrup the system operation.

IEEE 1394 is a high-performance serial bus technology that links computers, peripherals and consumer electronics products. Specification of the technology is controlled by *Institute of Electrical and Electronics* (IEEE) standards body. With support for **data rates of up to 400 Mbps**, and **isochronous (real-time) data transfer**, the technology is expected to be used mostly for multimedia applications that need to transfer a lot of data in real-time. A variety of 1394-compatible products including audio/video (AV) and storage devices are available now, such as digital camcorders, digital-VHS VCRs, digital audio players, digital TVs, set-top boxes, scanners, hard disk drives, CD and DVD drives.

One 1394 port can be used to connect up to 63 external devices. With peer-to-peer capability of 1394 bus, data can be transmitted from one device to another device on the same 1394 network without using system memory or CPU. As shown below, still images or video can be transferred from a 1394-compatible camera/camcorder to a 1394-compatible printer, PC or TV.
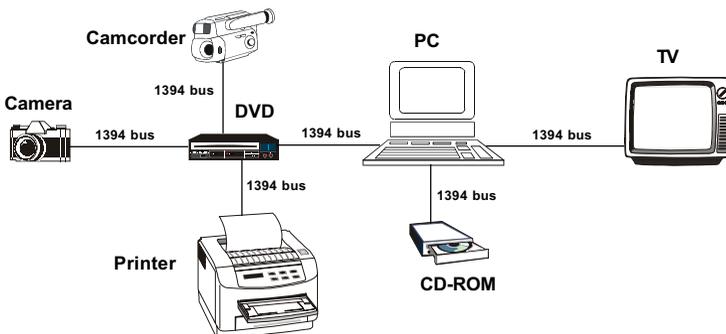
Features

The MS-6932 card is paired with Texas Instruments TSB12LV26 link-layer controller and TSB41AB3 physical-layer (PHY) controller. It can be installed on any available PCI slot and provides three IEEE 1394 ports for the system. The 1394 adapter card supports the following features:

Overall Requirements
- Fully supports provisions of IEEE 1394-1995 and IEEE 1394a-2000
- Fully interoperable with FireWire™ and i.LINK™ implementations of IEEE 1394
- Fully compliant with Open Host Communications Interface OHCI 1.1 Requirements
- Supports PCI Power Management Version 1.1

System Interface
- PCI system interface compliant with PCI version 2.2 or later
- Compatible with both 3.3V and 5V PCI signaling environments
- Supports Windows Plug and Play environment
- Compliant with the PCI Bus Power Management Interface Specification

Link Layer
- Supports Isochronous and Asynchronous data transfers
- Internal FIFOs to tolerate large PCI latency
- HW support for configuration ROM

Physical Layer
- IEEE 1394-1995 and IEEE 1394a version 3.0 compliant
- Supports 100, 200 and 400 Mbits/s data rates
- Separate Cable Bias (TPBIAS) for Each Port

I/O Ports
- 2 external 6-pin IEEE 1394 connectors
- 1 internal 6-pin IEEE 1394 connector

● Internal 12 volt power input connector (floppy disk style)

Power
● Supplies up to 18 watts to external devices

Maximum Cable Length
● Cable lengh is limited to 4.5 meters
● Up to 16 cables can be daisy-chained yielding a total length of 72 meters

**PC Card Type**
● Low Profile PCI compliant

OS Support
● Compatible with Windows 98SE, Windows 2000 and Windows Millenium operating systems

Layout
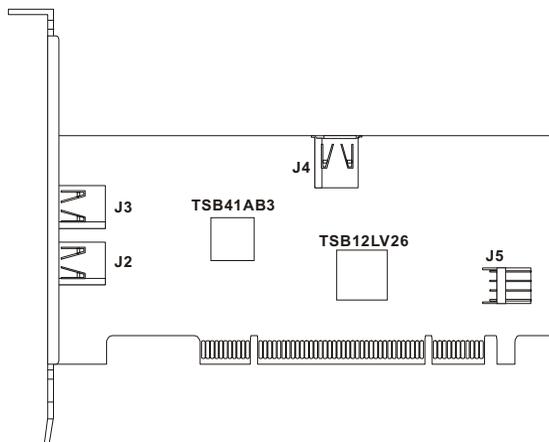
External IEEE 1394 Ports: J2 & J3

The two 6-pin connectors are used to connect to 1394-compatible external devices via 6-pin to 6-pin or 6-pin to 4-pin 1394 cables.
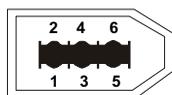
J2 & J3

Pin Definition			
Pin #	Signal	Pin #	Signal
1	VP	2	VP
3	TPB	4	TPB
5	TPA	6	TPA

Internal IEEE 1394 Port: J4

The 6-pin connector is used to connect an internal 1394-interfaced product such as an 1394/FireWire Mobile Rack CD-ROM.
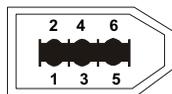

J4

Pin Definition			
Pin #	Signal	Pin #	Signal
1	VP	2	VP
3	TPB	4	TPB
5	TPA	6	TPA

5

12V Power Connector: J5

The connector is used to connect the ATX power supply for providing more stable bus power to external 1394 products attached to the card. The type of power cable used to connect the J5 connector is the same one connected to a floppy disk drive. If the power cable from the ATX power supply is too short to reach the 12V power connector of the card, connect one end of the supplied extended power cable to the power cable of ATX power supply and the other end to the card's J5 connector.
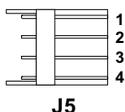
Pin Definition

Pin #	Signal
1	+5VDC
2	Ground
3	Ground
4	+12VDC

J5

Link-Layer Controller: TSB12LV26

TSB12LV26 is the TI (Texas Instruments) PCI-to-1394 host controller compatible with the latest *PCI Local Bus*, *PCI Bus Power Management Interface*, *IEEE 1394-1995*, and *1394 Open Host Controller Interface Specification*. The chip provides the IEEE 1394 link function, and is compatible with data speeds of 100 Mbps, 200 Mbps, and 400 Mbps.

Physical-Layer (PHY) Controller: TSB41AB3

TSB41AB3 is the TI (Texas Instruments) LLC-to-PHY Digital-to-Analog Transceiver/Arbiter. The chip provides the digital and analog transceiver functions required to implement a three-port node in a cable-based IEEE 1394 network.

Installing the 1394 Card

To install the MS-6932 1394 Adapter Card on the motherboard, see below for instructions:

1. Power off the computer and remove the case.
2. Install the MS-6932 on any available PCI slot on the motherboard. Make sure the card is inserted into the slot firmly.

PCI slot
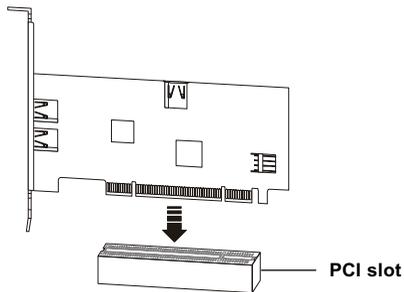
3. Connect the 1394 cable from an internal device, such as a 1394/FireWire Mobil Rack device, to **J4**, if any.

**1394 Cable of
Internal Device**
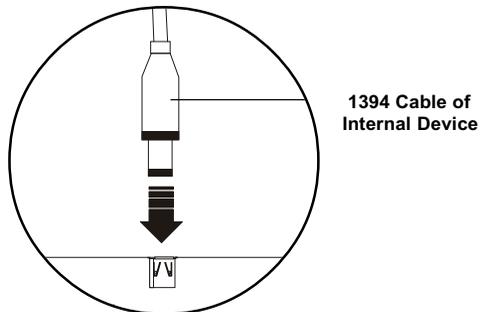
4. It is advisable to connect the power cable (floppy disk drive type) from ATX power supply to **J5** for better stability of power voltage unless you want to use the external power supply of the 1394 peripheral. If the power cable of ATX power supply cannot reach the J5 connector, use the extended power cable to connect between the power cable and the card.

**Power Cable
(floppy disk style)**
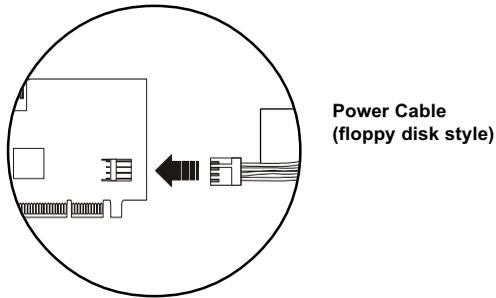
Note: The type of power cable used to connect the 1394 card is the same type used to connect a floppy disk drive.

5. Install back the case and power on the computer.
6. Windows will detect the card and prompt you with the driver installation message. Refer to *Installing the 1394 Driver* for driver installation instructions.
7. Connect desired peripheral devices compatible with IEEE 1394 standard to **J2** and/or **J3** connector via 6-pin to 4-pin or 6-pin to 6-pin 1394 cables.

1394 Cable

1394 Cable
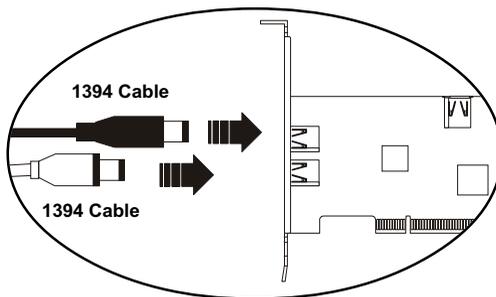
Installing the 1394 Driver

Windows operating systems, including Windows® 98SE, Windows® 2000 and Windows® ME, have been built in with support for IEEE 1394 interface. Therefore, there is no need to install additional driver for MS-6932. Windows will automatically detect the card and guide you through the process of driver installation.

1. Windows will detect the presence of the MS-6932 and show the **Add New Hardware Wizard** window on the screen. Click **Next**.
2. Choose "Search for the best driver for your device. (Recommended)" and click **Next**.
3. Insert the Windows CD disk.
4. Select "CD-ROM drive" and click **Next** for Windows to search for the driver.
5. Click **Next** to start the installation of IEEE 1394 driver.
6. Click **Finish** to complete the installation.
7. Restart the computer.
8. After restart, go to **Control Panel**, double click **System**, and click the **Device Manager**. Then you should be able to see "Texas Instruments OHCI Compliant IEEE 1394 Host Controller" under "1394 Bus Controller". If not, maybe you did not install the driver successfully, please reinstall the dirver.

Video-Editing Software -- Ulead VideoStudio

Ulead VideoStudio is a powerful tool for making movies on your computer. The easiest to use and most trouble free video editing software available on the market today, Ulead VideoStudio walks you through the process of editing with frame accuracy, adding transition effects, creating animated titles, and recording CD quality audio tracks. Just follow along the step by step path to video perfection.

Installation

Insert your Ulead VideoStudio CD into your CD-ROM drive. Windows may automatically run the setup utility or you can use Windows Explorer to browse for, and then manually run SETUP.EXE.

Note: Read the license agreement carefully before continuing with the installation process. When the installation is complete, please take a moment to go on-line and instantly register your new software.

Ulead VideoStudio is two programs in one: **Video Wizard** and **Ulead VideoStudio**. Both work together seamlessly and each is well suited to a particular task. Both can be run by clicking on the new icons on your desktop or by selecting the programs from the Windows Start menu.

This section covers all the basics you need to get up and running. The Ulead VideoStudio User Guide, VSTUDIO.PDF, is included on your CD. You need to install the Adobe Acrobat Reader to view and print it (also on your CD: **ar32e301.exe**).

Ulead VideoStudio also has a special Task Guide Help to lead you through each step and an extensive on-line help, which you can access by pressing **F1** on your keyboard while the program is running. You can also find specific information about an item by moving the cursor over an item in the program and pressing **F1**.

Video Wizard

Video Wizard is a simplified video editor and is fully capable of creating completed movies. It is also an excellent tool for setting up more sophisticated projects that can be polished up in Ulead VideoStudio.

Preview window
Displays the output from your video source or a preview of the video files in your movie.

Step guide
Contains information, help, and advice to guide you through a particular step.

Step buttons
Click to move through the process of creating a movie.

Editing tools
Use these buttons, controls, and text boxes to creatively produce your movie.
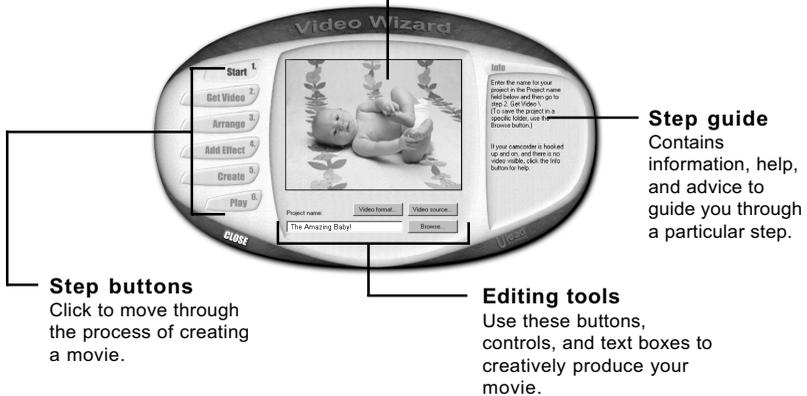
*Note: Once your video source is connected to your computer, its output should immediately be visible in the **Preview window**. If it is not, please refer to your capture card's documentation to make sure it is correctly installed and that your camcorder is properly connected.*

When you are ready to go, enter a name for a new project and then click the **Get Video** button to move on to the next step. As you complete a procedure, click the next **Step button** to move to the next section. Continue through all of the steps to create a finished movie, ready for viewing. In addition to the new movie, a special **Project file (*.VSP)** has also been created, ready to edit further in **Ulead VideoStudio**.

Ulead VideoStudio

Video Wizard and Ulead VideoStudio both follow a step by step organization. By working through the steps, listed from left to right across the Step menu at the top of the program, you can quickly create fantastic home videos.

Step menu
Click the name of a step to work on a specific aspect of your movie.

Preview window
Displays video files or your camcorder's output.

Options panel
Contains all of the editing tools. The controls change depending on the step you are working on.

Library
Contains all of your media files, transitions, and titles.

Trim bar
Use the two handles on either side of this tool to quickly edit your clips.

Movie tracks
Shows the four separate tracks of your movie: Video, Title, Voice, and Music.

Timeline/Storyboard
Gives you an overview of your story at a glance.

Like a professional production, your movie is composed of a number of different parts. These parts are organized into a project file that is put together visually on the Timeline at the bottom of the program. Using common Windows techniques, like drag-and-drop, you can creatively control your video with ease and precision. When you are finished editing, you can create, or render, a master copy of your new movie.

Step by Step

Here's a brief walkthrough of Ulead VideoStudio. Just click the Step menu at the top of the program interface to move to a particular section.

```
Start   Capture   Storyboard   Effects   Title   Voice   Music   Finish  ⊙ ⊗
```

1. Start

Create a new project or open an existing one with the controls in the Options panel.

2. Capture

Click the Capture button to begin. When your video source is hooked up correctly, the output should be visible in the preview window.

3. Storyboard

Drag and drop clips to the Timeline and use the Trim bar to make precise edits. Arrange the sequence of the scenes in your movie to create a coherent story.

4. Effects

Place cool transition effects between your clips to give your production a professional touch. Drag and drop operations mean that nothing could be easier or more fun.

5. Title

Type opening credits, closing credits, captions, and titles over your video. Any True Type font on your computer of any color style and size can be used. Animated, scrolling, and fading titles are a click away.

6. Voice

Give your movie additional clarity by recording a voiceover narration.

7. Music

Set the mood and add ambiance by using background music from your favortie CDs.

8. Finish

Create a new movie from your project with one click. There are a number of exciting things you can do with the finished product:

* Watch it on your computer.
* Post it to your Web site.
* Put the movie on a CD-ROM.
* Record it back to video tape.

Digital Video Data CD -- Idea Box

Idea Box, a moving images archive, stores tens of movie files, including explosion pictures, smoke screens, fires, universe, planets, earth and the like. These video clips, with resolution at 720x480, are all created by qualified multimedia producers. With diverse combinations of light, shadow and colors, these pictures are not only able to stimulate your imagination but capable of providing your movies with mysterious fascination.

The need to download video files from internet is greatly eliminated as long as the Idea Box CD is at hand. You can take advantage of the CD's DV video data for editing and authoring. The CD itself provides a video player "**5in1.exe**" for playing video files or you can choose other video players you prefer.

Display window
Displays the digital
video being played.

Library
Contains all of the
digital video files.

Control Panel
Controls the playback
of the video files or
quits the application.

Q & A

Q: How long can my IEEE 1394 cable be?
A: 4.5 meters (15 feet) between devices without any IEEE 1394 Hub/ Repeater. But up to 16 cables can be daisy-chained yielding a total length of 72 meters.

Q: Is a 1394 device hot swappable?
A: Yes, you can plug or unplug the 1394 device without turning off the system, but do not unplug a 1394 device which is being accessed by the system to avoid any data loss or system error.

Q: Does 1394 card supply power to the attached 1394 devices?
A: Yes, But the card's bus power is limited and unable to satisfy those devices which require more than 18 watts power; therefore, you need to attach a 1394 Hub/Repeater which has a power cord to provide enough power to these high power-consumption devices except for those which already have external power supplies.

Q: Can I daisy chain with 1394 devices and how many 1394 devices can be connected to a computer?
A: Yes, IEEE 1394 is a chainable system. It can daisy-chain up to 63 peripherals in a tree like structure per computer. There should be no more than 16 cables between the computer's 1394 port and the last 1394 device.

Daisy Chain

1394 Device	......	1394 Device	1394 Device	PC	1394 Device	1394 Device	......	1394 Device
16th		**2nd**	**1st**		**1st**	**2nd**		**16th**
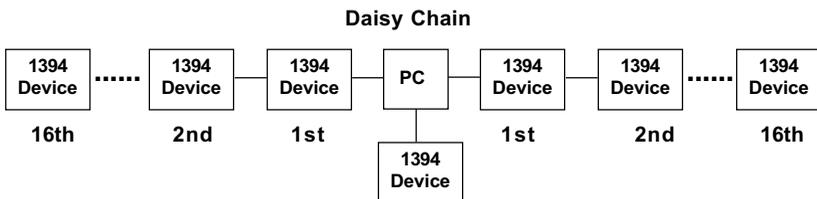
1394 Device

Note: *The daisy chain has an disadvantage, that is, if you disconnect any 1394 device, those devices attached after the disconnected one will also become offline until you re-connect those off-line devices to the computer.*

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Q: When do I need to use 1394 Hubs/Repeaters ?

A: Hubs/Repeaters are a perfect method to connect a number of 1394 devices and enable you to disconnect any 1394 device without interrupting other attached 1394 devices.   You probably will need to use the 1394 Hubs/ Repeaters in the following situations:

- To network or extend the chain throughout the office or your location
- To connect more 1394 devices over a long distance
- To attach large numbers of 1394 devices simultaneously
- To connect two devices which require a cable length longer than 4.5 meters
- To attach a number of 1394 devices which only have one 1394 port
- To provide power to those 1394 devices which require more power consumption than the 1394 card can provide
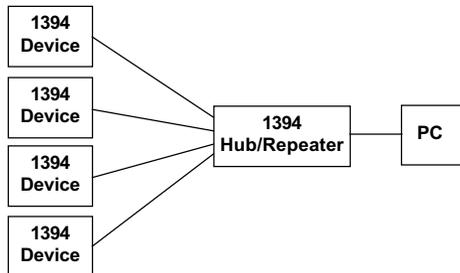
Q: How many types of 1394 cables are there and what's the difference?

A: There are two types of 1394 cables: **6-pin to 6-pin** and **6-pin to 4-pin** (miniport) cable. 6-pin to 6-pin cable is able to supply bus power to the attached device, but 6-pin to 4-pin cable is not. Therefore, if you daisy chain with 1394 devices and each device is supplied with bus power, you have to use 6-pin to 6-pin cable in the chain. However, if you use 1394 Hubs/ Repeaters which have power cords, you can use either type of 1394 cable in the network.