Adaptec 29320LPE SCSI Controller
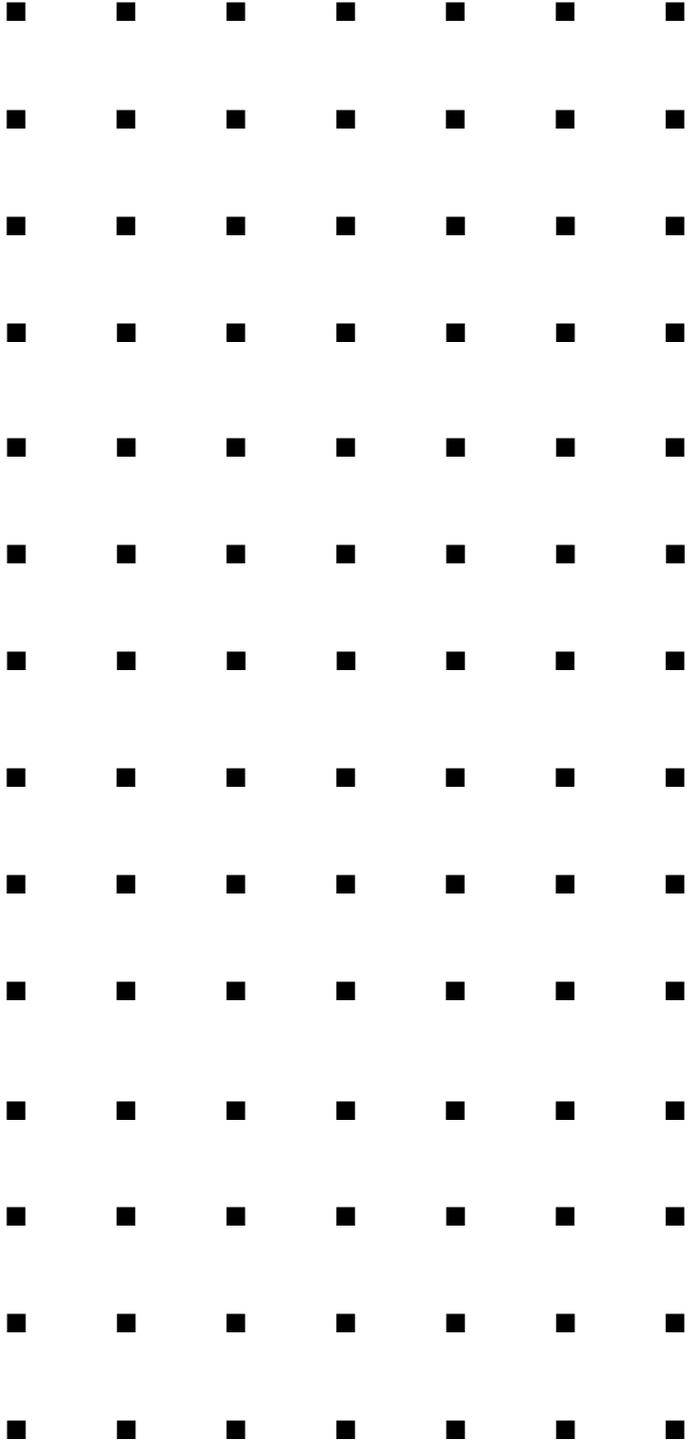
User Guide

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Preface

Congratulations for your purchase of the SCSI Controller.

The User's Guide describes how to install and use the SCSI Controller correctly and safely. Read the guide thoroughly before handling it. In addition, refer to this manual when you want to know how to use it or some malfunction occurs. Always keep the manual at hand so that you can see it as soon as possible if necessary.

For the server in which the disk array controller is installed, refer to the User's Guide of the server. Read the "Notes on Use" and the "Safety Precautions" carefully before handling the disk array controller.

> **Keep this operation manual on hand so that you can refer to it when necessary.
> Be sure to read the "Safety Precautions" and "Precautions on Use."**

⚠ Safety Precautions - Read carefully -

This section offers essential information for the safe and proper use of this controller.

Safety Symbols

Follow all the instructions in this User's Guide to ensure the safe operation of this controller This guide explains what areas pose a danger, what may result from not following safety instructions and how to avoid danger. "Warning" and "Caution" are the terms used to express the level of danger.   These terms mean the following.

⚠ WARNING	Indicates a hazard that may result in death or serious personal injury.
⚠ CAUTION	Indicates a hazard that may cause minor personal injury, including burns, or property damage.

Precautions and notices against hazards are presented with one of the following 3 symbols. The individual symbols are defined as follows.

△	**Attention**	This symbol indicates the presence of a hazard. An image in the symbol illustrates the hazard type.	(Example) ⚠ (Electric shock)
⊘	**Prohibited Action**	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action.	(Example) ⊘ (Do not disassemble)
●	**Mandatory Action**	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard.	(Example) 🔌 (Unplug)

Attention

⚠	Indicates general warnings and cautions.	⚠	Indicates a hazard that can lead to burns.
⚡	Indicates a hazard that can lead to electric shock.	🔥	Indicates a hazard that can lead to fire.

Prohibited Action

⊘	Indicates a general prohibition.	⊘	Indicates prohibition of disassembly or modification.

Mandatory Action

❗	Indicates general instruction for users.	🔌	Indicates that you must unplug from the electrical outlet.

Safety Precautions

Please read and make sure you understand the warnings and cautions described below to use the product safely. Please refer to "Safety Symbols" at the beginning for an explanation on the symbols.

⚠ WARNING

Do not use the product for services involving human lives or requiring high reliability.
The product is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability.   The manufacturer assumes no liability for any accident resulting in personal injury, death, or property damage if the Disk Expansion Unit has been used in the above conditions.

Do not disassemble, repair, or alter the server.
When installing this product in the computer, please read the user's manual of the computer and unplug the power plug from the electrical outlet.
Do not insert or remove the power plug with wet hands. Doing so can lead to faults or electric shock.
Do not pull on the lead when unplugging the power plug from the electrical outlet. Doing so can damage the power cord and lead to shorting or electric shock.

Do not handle this product during an electrical storm.
When installing this product in the computer, please read the user's manual of the computer and unplug the power plug from the electrical outlet.
Do not insert or remove the power plug with wet hands. Doing so can lead to faults or electric shock.
Do not pull on the lead when unplugging the power plug from the electrical outlet. Doing so can damage the power cord and lead to shorting or electric shock.

Do not use the server if any smoke, odor, or noise is present.
If smoke, odor, or noise is present, immediately turn off the POWER/SLEEP switch and disconnect the power plug from the outlet, then contact your sales agent. Using the server in such conditions may cause a fire.

⚠ CAUTION

Do not pull the cable when disconnecting it.
When disconnecting the cable from the device, hold the cable connector/cable tag and pull it straight out. Pulling the cable out by the cable portion or giving mechanical stress to the connector could damage the cables and connectors, and result in an electrical shock hazard or a fire.

Avoid installation in extreme temperature conditions.
Immediately after the server is powered off, its internal components such as hard disks are very hot. Let the internal components fully cool down before installing/removing any component.

⚠ CAUTION

Connect firmly.
Please connect the product to the computer firmly. A loose connection can cause a contact failure and can lead to smoke or fire.

Insert the power plug into the outlet as far as it goes.
Heat generation resulting from a halfway inserted power plug/cable (imperfect contact) may cause a fire.
Heat will also be generated if condensation forms on the dusty blades of the halfway inserted plug, increasing the possibility of fire.

Do not use any unauthorized interface cable.
Use only the interface cable that comes with your server. Using an unauthorized interface cable may cause a fire when the electric current exceeds the rated flow.
Also, observe the following to prevent an electric shock or fire caused by a damaged cord.
- ➢ Do not use any damaged cable. (Replace a damaged cable with a new one of the same specifications. Ask your sales agent for replacement.)
- ➢ Do not step on the cable.
- ➢ Do not place any object on the cable.
- ➢ Do not alter, modify, or repair the cable.

When disconnecting a cable, hold the connector, and pull it out straight.
Confirm that the SCSI cable connector is not damaged and that the connector pins are not bent before connecting the cable.
Use only the SCSI cable authorized by the manufacturer, and connect it to the proper connector.
Ignoring these instructions may cause a short circuit, resulting in a fire, electric shock, or malfunction.

Do not use or store this product in a corrosive environment.
Avoid the usage or storage of this product in an environment which may be exposed to corrosive gases, such as those including but not limited to: sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia and/or ozone.
Avoid installing this product in a dusty environment or one that may be exposed to corrosive materials such as sodium chloride and/or sulfur.
Avoid installing this product in an environment which may have excessive metal flakes or conductive particles in the air.
Such environments may cause corrosion or short circuits within this product. This may result in damages to this product, and may lead to be a fire hazard.
If there are any concerns regarding the environment at the planned site of installation or storage, please contact your sales agent.

Precautions on Use   - Operating this product properly -

The following precautions must be observed when using this controller.   Ignoring these precautions while using this controller will result in the destruction of assets (data and other devices).
Please observe the following.

- This product is sensitive to static electricity. Please discharge any static electricity by touching a metal object, such as the metal frame of the computer before handling the product. Moreover, do not touch the contacts of the product, or place the product on a desk.

- Turn off cellular phones and pagers. Radio interference may cause malfunctions of this product.

- Do not drop or hit the product. Doing so can lead to malfunctions or failures.

- Please read this manual carefully in order to handle the product correctly.

- Please read the user's manual of the computer before connecting this product. When connecting the product, insert the product firmly into the PCI slot. If this product is not correctly connected to the PCI slot of computer, remove the product and connect it again. Using excessive force can lead to damage.

- The SCSI ID of this product is set to 7 by default. Usually, there is no need to change the setting.

- Set the unique IDs for other SCSI devices to a value between 0 and 15 other than 7. For information on how to set other SCSI devices, please refer to the user's manuals of the products.

About This Manual

This manual explains how to setup and use this product correctly. Be sure to read this manual before using the product, and keep the manual in a safe place after reading it. If the product is transferred to a third party, please transfer this manual along with it.

Symbols Used in This Manual

The following three symbols are used in this manual. The meanings of the symbols are described below. (For information on safety, please refer to section "Safety Symbols".)

Notice	Indicates important instructions and cautions on handling this product.	**Check**	Indicates information that needs to be confirmed before handling this product.
Tips	Indicates useful information on using this product.		

Packing Box Contents

There are various other accessories included in the packing box besides this controller. Contact your service representative if any parts are missing.

Transferring Ownership to a Third Party

When transferring ownership or selling this product to a third party, pass on this manual and the all accessories together with this product.
The party transferring or selling this controller must transfer all software and maintain no copies. As well, all the installed software must be deleted before this product is transferred or sold.

Transportation

Data may be lost through a device malfunction due to a human error, physical shock, temperature change or other means. To prevent this, be sure to regularly backup essential data saved on the hard disk.

Storing Data

Data may be lost through a device malfunction due to a human error, physical shock, temperature change or other means. To prevent this, be sure to regularly backup essential data saved on the hard disk.

Disposal

Dispose of the product according to all national laws and regulations.

Notice

■ It is the user's responsibility to completely erase or modify all the data stored in storage device such as hard disk, backup data cartridge, floppy disk, or any other media (CD-R/CD-RW) so that the data cannot be restored.

1.About This Product

1-1.Specifications

Item		Specification	Remarks
Number of SCSI channels		1 Channel	
Number of SCSI connectors		Internal 1 Connector (68-pin HD x 1) External 1 Connector (68-pin VHDCI x 1)	
SCSI Bus		Ultra320 SCSI	
PCI Express Connector		8 lane	
Dimensions		64.4mm(D) x 167.6mm(W)	
Weight		0.075Kg	
Voltage		PCI Express 3.3V/12V	
Power		6.5W	
Environments	Operating	Temperature 0 - 50 degree Humidity 20 - 80 %	No condensation
	Non Operating	Temperature 10 - 55 degree Humidity 20 - 95 %	

1-2.Features

This product is a SCSI host bus adapter card compatible with Ultra320 SCSI. The 68-pin LVD/SE connector and the VHDCI LVD/SE connector enable the connection of up to 15 SCSI devices.
This product is compatible with the x1 lane PCI Express.
This product can be implemented to a low profile PCI slot, by replacing the bracket.

> **Notice**
> - Do not connect this product to a computer or SCSI device that is not recommended by the manufacturer. If the product is connected to a computer or SCSI device that is not recommended by the manufacturer, the product may malfunction or fail.
> - Please contact your service representative for more information on recommended computers and or SCSI devices.

1-3.Overview of SCSI

SCSI is stands for Small Computer System Interface. SCSI is an industry standard interface that enables SCSI devices to be connected to a common SCSI bus.
The SCSI bus is an electronic circuit comprising a SCSI card attached to a computer and one or more SCSI devices. SCSI devices are connected to the SCSI card with SCSI cables.
To use the SCSI bus correctly, you must assign a unique SCSI ID to each SCSI device that is connected to the SCSI card, and terminate the SCSI bus correctly.

1-4.SCSI ID

A unique SCSI ID between 0 and 15 must be assigned to each SCSI device (including the SCSI Controller) that is connected to the SCSI Controller (the SCSI ID of this product is set to 7 by default.) Each SCSI device on the SCSI bus is uniquely identified with the SCSI ID, and the priority when using multiple devices at the same time is decided by the IDs.
For information on how to set the SCSI ID, please refer to the user's manual of the product.

1-5.Termination the SCSI Bus

For successful data transmission using the SCSI bus, the SCSI bus must be terminated correctly. To terminate the SCSI bus, you must attach a terminator to the furthest SCSI device or cable. The terminators of the other SCSI devices must be removed.

The method of terminating a SCSI device differs for each device. Therefore, please refer to the user's manual of the product for information on how to enable or disable termination for the device.

2.Components

Please confirm that the following components are included with the product.
If you find any of them are missing or damaged, please contact the retailer you bought the product from.
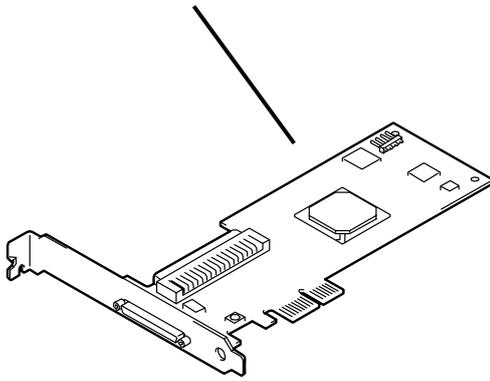
☐ SCSI Controller   ☐ Low-Profile Bracket
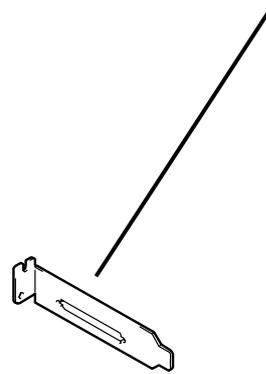
3.Names and Functions
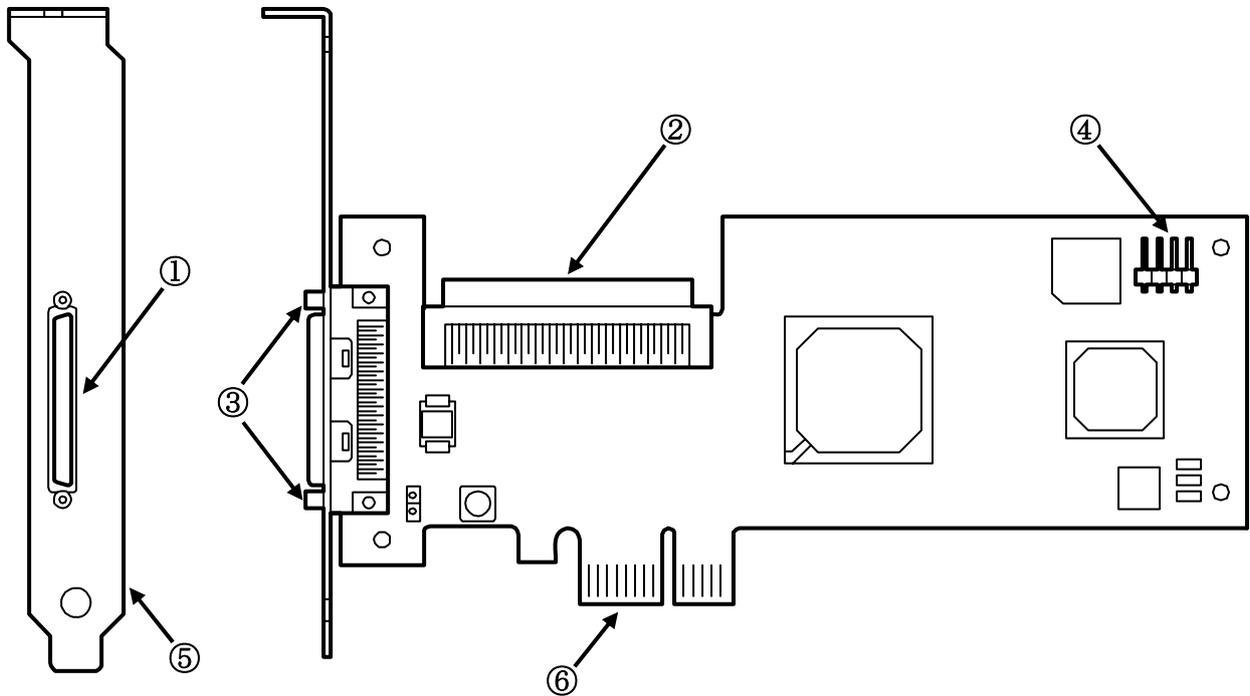
① External Connector (68-pin VHDCI)
   Connector used to connect this product to an External SCSI device.

② Internal Connector (68-pin HD)
   Connector used to connect this product to an Internal SCSI device.

③ Screw Hole
   Screw hole used to fix the connector of the SCSI cable.

④ LED Connector
   Connector used to connect this product to a LED Cable.

⑤ PCI Bracket
   Bracket used to fix the card in the computer.

⑥ PCI Card Edge
   Connector to be inserted into the PCI slot of the computer.

4.Setup

Please follow the steps described below to set up this product.

<div style="text-align:center">⚠ WARNING</div>

Do not handle this product during an electrical storm.
When installing this product in the computer, please read the user's manual of the computer and unplug the power plug from the electrical outlet.
Do not insert or remove the power plug with wet hands. Doing so can lead to faults or electric shock.
Do not pull on the lead when unplugging the power plug from the electrical outlet. Doing so can damage the power cord and lead to shorts or electric shock.

<div style="text-align:center">⚠ CAUTION</div>

Avoid installation in extreme temperature conditions.
Immediately after the server is powered off, its internal components such as the hard disks are very hot. Let the internal components fully cool down before installing/removing any component.

Connect firmly.
Please connect the product to the computer firmly. A loose connection can cause a contact failure and can lead to smoke or fire.

Explained in
User's Guide

Installation of a PCI bracket
Selection of a PCI bracket to use for this product.

⇩

Installation to the computer
Install this product to the computer.

⇩

Connecting a SCSI Cable
Connect a SCSI cable to this product.

⇩

SCSI Controller Configurations
Change SCSI controller settings as necessary.

⇩

Explained in
Software User's Guide

Installation of a SCSI driver   -> SCSI Controller Software User's Guide
Install an appropriate SCSI driver for your operating system.

4-1.Installation of a PCI bracket

A full height PCI bracket is attached to this product at factory shipment.   If you insert this product in a low profile PCI slot, you have to replace the bracket with the low profile one.

1.   Remove the two screws of the external VHDCI connector.

■   Exchange the bracket using a screwdriver suitable for the size of the screws.

Tips

2.   Remove the full height PCI bracket from this product.

3.   Install the low profile PCI bracket to this product.

4.   Tighten the two screws for the external SCSI connector.

■   Follow the same procedure to replace the low profile PCI bracket with a full height PCI bracket.

Tips
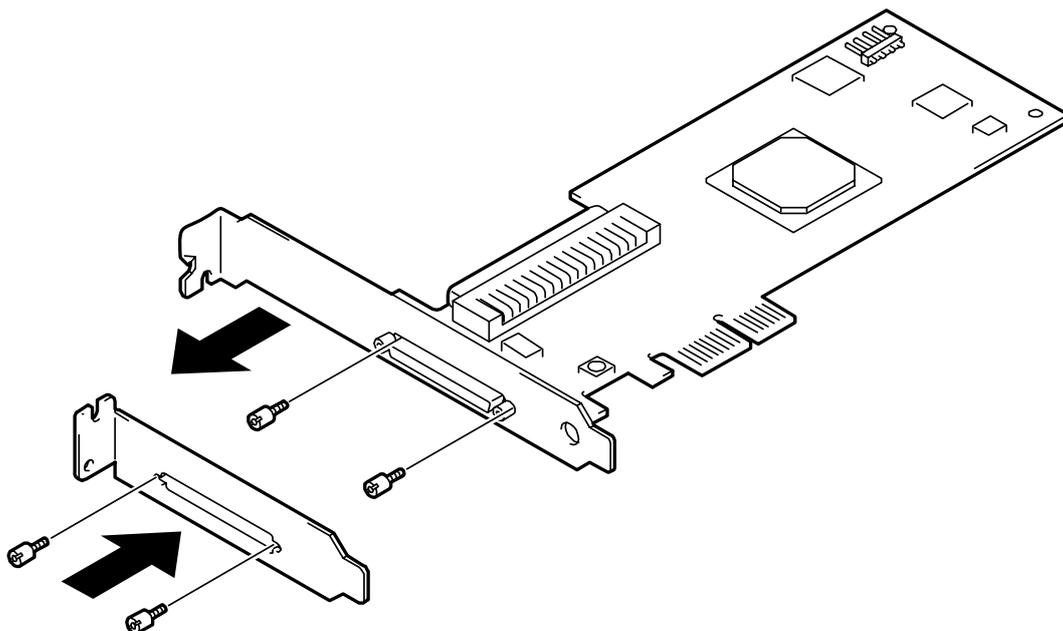
■   Keep the removed bracket in a safe place.

Check

4-2.Installation to the computer

To install this product to the computer:

1. Confirm that the computer is powered off (the power lamp is off), then unplug the power cord from the electrical outlet.

    ■ If the computer is powered on, shut down the operating system and then turn off the computer.

    Notice

2. Remove the cover and other components of the computer if necessary. Follow the instructions in the user's manual of the computer.

3. Install this product to a PCI slot. Follow the instructions described in the user's manual of the computer.

    Check
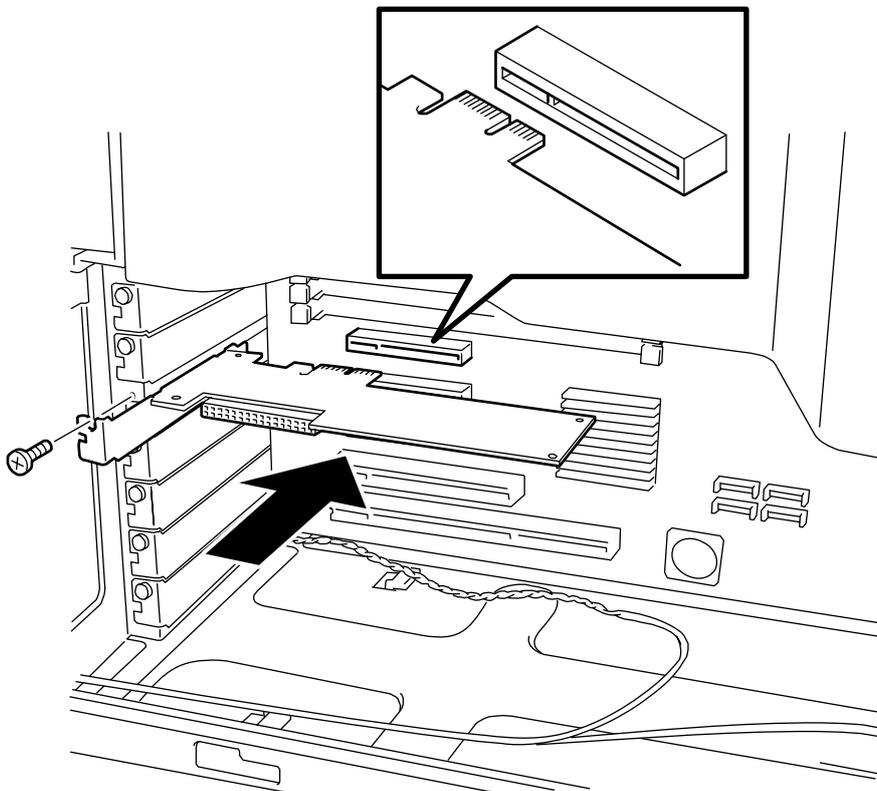
    ■ The method used to install and remove a PCI card and the location of the PCI slot differs in different computers. Please read the user's manual of the computer for confirmation.
    ■ If this product is not correctly connected to the PCI slot of the computer, remove the product and connect it again. Using excessive force can lead to damages.

4. Connect the LED cable (provided with the computer) to the LED connector on this product.

Check
■   The LED connector of this product is 4-pins

[Connect 2-pins LED Cable (Case 1)]

Cable (Red)

1
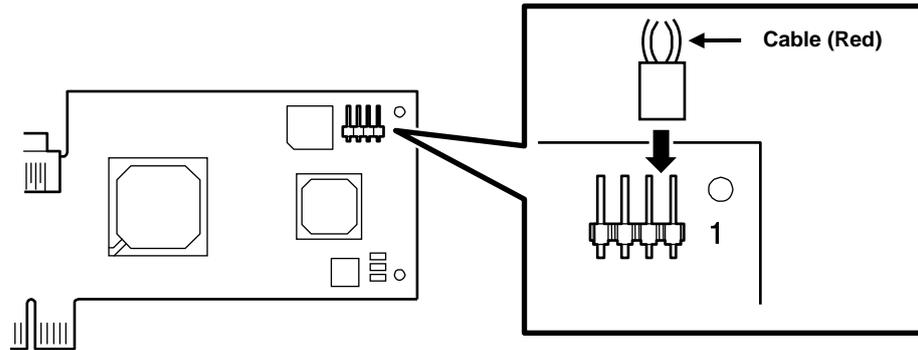
[Connect 2-pins LED Cable (Case 2)]

Cable (Red)

1
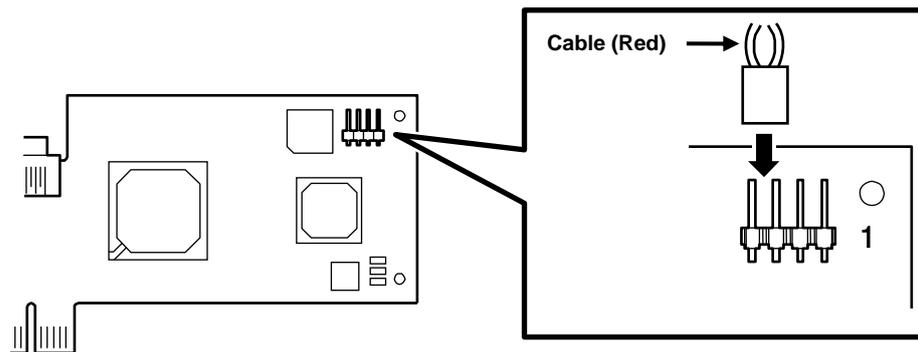
5. Replace the cover and the components removed in item 2.

6. Plug the power cord of the computer into the electrical outlet.

4-3.Connecting a SCSI Cable

To connect a SCSI Cable:

Notice	■ Do not connect this product to a computer or SCSI device that is not recommended by the manufacturer. If the product is connected to a computer or SCSI device that is not recommended by the manufacturer, the product may malfunction or fail. ■ Please contact your service representative for more information on recommended computers, SCSI devices, or SCSI cables.

1. Confirm that the computer is powered off (the power lamp is off), then unplug the power cord from the electrical outlet.

Notice	■ If the computer is powered on, shut down the operating system and then turn off the computer.

2. Fully insert a SCSI cable connector in this product's connector for firm connection.   Secure the connector on both sides with screws.
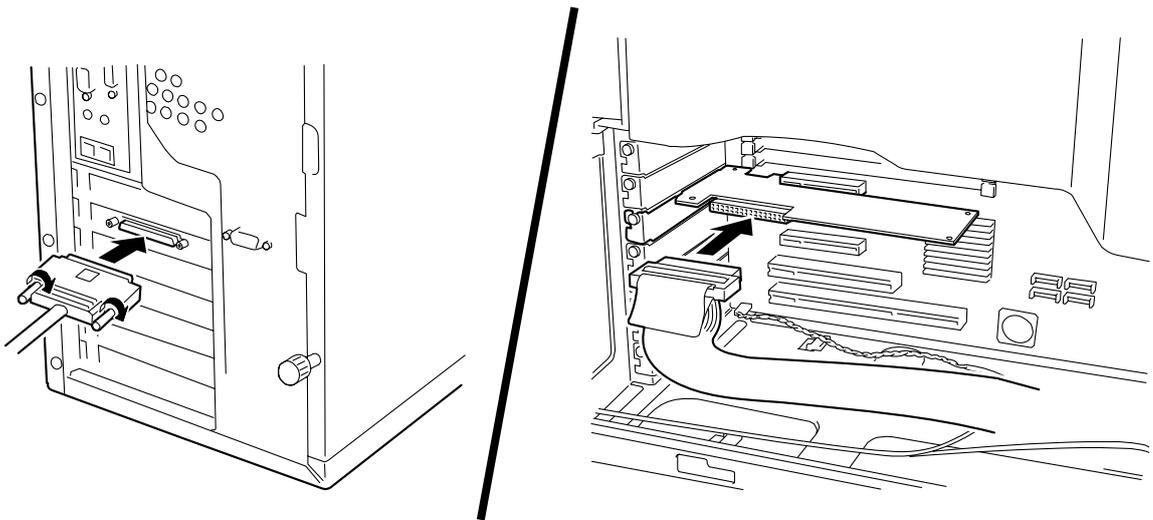
3. Fully insert a cable connector (the other side) in the SCSI device's connector for firm connection.   Secure the connector on both sides with screws.

4. Plug the power cord of the computer into the electrical outlet.

4-4.SCSI Controller Configuration

This product's configuration is optimized at factory shipment. Normally, reconfiguration is not necessary, however, if necessary, you can reconfigure this product by using its utility.
Refer to "5.SCSI BIOS   - SCSI*Select* - " for more information on the SCSI utilities.

■ It is necessary to change the setting of the transfer rate by using SCSISelect according to the SCSI device. Please refer to the manual of the SCSI Device.

Tips

4-5.Installation of a SCSI driver

To use this product, the appropriate SCSI driver for your operating system must be installed. This operation is supported by the ExpressBuilder CD.

5.SCSI BIOS - SCSI*Select* -

The SCSI*Select* utility software is used to setup this product. To start the utility, no special startup disk is required. It can be started by a simple keyboard operation while the self-diagnosis program POST is running.

Notice

■ **This product is delivered with the latest version of the SCSI*Select* utility. Therefore, the settings windows may be different from those in this document.   In such a case, contact your service representative for details.**

5-1.About SCSI*Select*

SCSI*Select* is used in the following cases.

■ When you set the transfer rate to the value that the SCSI device requires.

Check
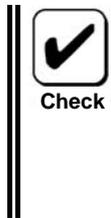
■ Steps
1.   Start SCSI*Select*.
2.   Select Configure/View Host Adapter Setting.
3.   Select SCSI Device Configuration.
4.   Change the Sync Transfer Rate (MB/Sec) from "160" to the value that the SCSI device requires.
5.   Save the changes and exit SCSI*Select*.

■ When the SCSI device is not used to boot up the system.

Check

■ Steps
1.   Start SCSI*Select*.
2.   Select Configure/View Host Adapter Setting.
3.   Select Advanced Configuration Options.
4.   Change SCSI Controller Int 13 Support from "Enabled" to "Disabled:scan".
5.   Save the changes and exit SCSI*Select*.

5-2.Starting SCSI*Select*

Follow these steps to start SCSI*Select*.

1.   Power on the computer.

The following message is displayed.

```
Adaptec SCSI BIOS v4.31.4
Copyright 2007 Adaptec, Inc. All Rights Reserved.


◀◀◀  Press <Ctrl><A> for SCSISelect(TM) Utility! ▶▶▶
```

2. Hold the <Ctrl> key and press the <A> key.

The SCSI*Select* utility starts and the "Main" menu is displayed.

```
┌────────────────────────────────────────────────────┐
│                                                    │
│        29320LPE                    xx:xx:xx         │
│                                                    │
│                                                    │
└────────────────────────────────────────────────────┘
```

3. Select "29320LPE" and press <Enter> key.

The "Options" menu is displayed.

```
┌──────────────────── Options ────────────────────┐
│                                                │
│      Configure/View SCSI Controller Settings    │
│               SCSI Disk Utilities               │
│                                                │
└──────────────────────────────────────────────────┘
```

5-3.Exiting SCSI*Select*

Follow these steps to exit SCSI*Select*.

1. If you changed any settings, you are prompted to save the changes before you exit.

At the prompt, select Yes to save the changes.

```
┌── Save Changes Mode? ──┐
│                        │
│         Yes            │
│         No             │
│                        │
└────────────────────────┘
```

2. Press the <ESC> key until a message prompts you to exit.

At the prompt, select Yes to exit.

```
┌── Exit Utility? ──┐
│                   │
│       Yes         │
│       No          │
│                   │
└───────────────────┘
```

3. Press any key to reboot the computer.

Any changes made in SCSI*Select* will take effect at the next boot.

5-4.Using SCSI*Select* Settings

To select an option, use the arrow keys to move the cursor to the option, then press <Enter> key.
In some cases, selecting an option displays another menu. You can return to the previous menu at any time by pressing the <Esc> key.

Tips

- ■ To restore the original SCSI*Select* default values, press <F6> form the "Configure/View SCSI Controller Settings" menu.

Configure/View SCSI Controller Settings

Various settings for this product can be changed using "Configure/View Host Adapter Settings".

Option	Available Settings	Default Value
SCSI Bus Interface Definitions:		
SCSI Controller ID	0 - 15	7
SCSI Controller Parity	Enabled, Disabled	Enabled
SCSI Controller Termination	Automatic, Disabled	Automatic
Additional Options:		
Boot Device Configuration:		
Select Master SCSI Controller	29320LPE	29320LPE
SCSI Device Configuration:		
Sync Transfer Rate (MB/sec)	320, 160, 80.0, 66.6, 40.0, 33.3, 20.0, 10.0, ASYN	320
Paketized	Yes, No	Yes
QAS	Yes, No	Yes
Initiate Wide Negotiation	Yes, No	Yes
Enable Disconnection	Yes, No	Yes
Send Start Unit Command	Yes, No	Yes
BIOS Multiple LUN Support	Yes, No	No
Include in BIOS Scan	Yes, No	Yes
Advanced Configuration:		
Reset SCSI Bus at IC Initialization	Enabled, Disabled	Enabled
Display <Ctrl><A> Message During BIOS Initialization	Enabled, Disabled	Enabled
Extended INT 13 Translation for DOS Drivers > 1 Gbyte	Enabled, Disabled	Enabled
POST Display Mode	Verbose, Silent, Diagnostic	Verbose
SCSI Controller Int 13 Support	Enabled, Disabled:NOT scan, Disabled:scan bus	Enabled
Domain Validation	Enabled, Disabled	Enabled
Support Removable Disks Under Int 13 as Fixed Disks	Boot Only, All Disks, Disabled	Disalbed
BIOS Support for Bootable CD-ROM	Enabled, Disabled	Enabled

SCSI Bus Interface Definitions

- **SCSI Controller ID** - (Default: 7) Sets the SCSI ID for the SCSI card, This product is set at 7, which gives it the highest priority on the SCSI bus. We recommend you do not to change this setting.

- **SCSI Controller Parity** - (Default: Enabled) SCSI cards perform a parity check to verify the accuracy of the data transfer on the SCSI bus. Most currently available SCSI devices support parity checking. However, if a device on the SCSI bus does not support parity checking, disable this option. You cannot mix devices that do and do not support parity checking on the same SCSI bus.

- **SCSI Controller Termination** - (Default: Automatic) Determines the termination setting for the SCSI card. The default setting is Automatic, which allows the SCSI card to adjust the termination as needed. We recommend you do not change this setting.

Additional Options
Boot Device Configuration

- **Select Master SCSI Controller** – (Default: 29320LPE)

SCSI Device Configuration

SCSI Device Configuration options can be set for each connected SCSI device.

- **Sync Transfer Rate** - (Default: 160) Determines the maximum synchronous data transfer rate that the SCSI card supports. We recommend that you leave the maximum (default) value of 320MB/sec.

- **Packetized** - (Default: Yes) Packetized protocol is required to operate 320MB/sed. When enabled, this option is available if it is implemented in the device drivers. However, this option is not supported by the BIOS.

- **QAS** - (Default: Yes) Quick Arbitration and Selection reduces the overhead of control release on the SCSI bus from one device to another. This improvement reduces the command overhead and maximizes the bus usage. When enabled, this option is available if it is implemented in the device drivers. However, this option is not supported by the BIOS.

- **Initiate Wide Negotiation** - (Default: Yes) Enables the SCSI card to initiate a Wide Negotiation with the SCSI target. When set to Yes, the SCSI card attempts 16-bit data transfers (wide negotiation). When set to No, the SCSI card uses 8-bit data transfers unless the SCSI device requests a wide negotiation.

- **Enabled Disconnection** - (Default: Yes) When set to Yes, Enable Disconnection allows the SCSI device to disconnect from the SCSI bus. When set to No, the SCSI device cannot disconnect from the SCSI bus, packetized transfers cannot occur, and transfer rates are set at Ultra 160 levels.

- **Send Start Unit Command** – (Default: Yes) When set to Yes, it sends the Start Unit Command to the SCSI device at boot up. This reduces the load on a system's power supply by allowing the SCSI card to turn on the SCSI devices one-by-one when the system boots: otherwise, all the SCSI devices are turned on at the same time.

The following options have no effect if the SCSI card BIOS is disabled. (The SCSI card BIOS is normally enabled by default.)

- **BIOS Multiple LUN Support** - (Default: No) Leave this setting to No if the device does not have multiple LUNs. When set to Yes, the SCSI card BIOS provides boot support for a SCSI device with multiple LUNs.
- **Include in BIOS Scan** - (Default: Yes) When set to Yes, the SCSI card BIOS controls the SCSI device if it is an INT 13 device (such as a SCSI disk drive) without device driver. When set to No, the SCSI card BIOS does not control the SCSI device and device driver is required. The BIOS can support up to eight INT 13 devices without an additional device driver.

Advanced Configuration

- **Reset SCSI Bus at IC Initialization** - (Default: Enabled) When set to Enabled, the BIOS resets the SCSI bus at POST time and then waits two seconds before scanning the bus for SCSI devices. If this option is disabled, the SCSI card BIOS does not issue a SCSI reset and there is no two-seconds delay.

- **Display <Ctrl><A> Message During BIOS Initialization**- (Default: Enabled) When set to Enabled, the SCSI card BIOS displays the Press <Ctrl> <A> for SCSI*Select* (TM) Utility! message on your screen during system bootup. If this setting is disabled, you can still invoke the SCSI*Select* Utility by

pressing <Ctrl> <A> after the SCSI card BIOS banner appears.

■ **Extended INT 13 Translation for DOS Drivers > 1 GByte** - (Default: Enabled) When set to Enabled, provides an extended translation scheme for SCSI hard disks with capacities greater than 1 GB. This setting is necessary only for current versions of MS-DOS; it is not required for other operating systems, such as UNIX.

■ **Post Display Mode** - (Default: Verbose) During POST, the amount of information displayed depends on the mode. The following modes are available:
  - ■ Verbose – The results of the SCSI bus scan are displayed, but the results of the PCI bus scan are not displayed.
  - ■ Silent – Nothing is displayed during POST. However, error messages are displayed if there is a problem on the SCSI bus or SCSI devices.
  - ■ Diagnostic – The PCI and SCSI bus scan results are displayed separately. There is a pause between PCI and SCSI scans.

■ **SCSI Controller INT 13 Support** - (Default: Enabled) This option controls the state of the BIOS at POST time. The following settings are available..
  - ■ Enabled – Supports INT 13 for booting from a SCSI disk drive connected to the SCSI card. If you use this option, the following options are available.
    - ■ Extended INT 13 Translation for DOS Drives > 1 GB
    - ■ Support Removable Disks Under INT 13 as Fixed Disks
  - ■ Disabled:NOT Scan – Set to this option if all the devices on the SCSI bus are controlled by device drivers and do not need the BIOS, and if you do not want the BIOS to scan the SCSI bus. SCSI*Select* remains available if needed.
  - ■ Disabled:scan Bus – Set to this option if all the devices on the SCSI bus are controlled by device drivers and you need the BIOS to scan the SCSI bus. Allows devices to spin up according to the settings of the Send Start Unit Command. SCSI*Select* remains available if needed.

The following options have no effect if the SCSI card BIOS is disabled. (The SCSI card BIOS is normally enabled by default.)

■ **Domain Validation** - (Default: Enabled) Determines the optimal transfer rate for each device on the SCSI bus and sets transfer rates accordingly. When enabled, this option is available if it is implemented in the device drivers. However, this option is not supported by the BIOS.

■ **Support Removable Disks Under BIOS as Fixed Disks** - (Default: Disabled) Determines which removable-media drives are supported by the SCSI card BIOS. The options are as follows..
  - ■ **Disabled** - No removable-media drives running under DOS are treated as disk drives. Software drivers are required because the drives are not controlled by the BIOS.
  - ■ **Boot Only** - Only the removable-media drive designated as the boot device is treated as a disk drive.
  - ■ **All Disks** - All removable-media drives supported by the BIOS are treated as disk drives.

■ **BIOS Support for Bootable CD-ROM** - (Default: Enabled) When set to Enabled, the SCSI card BIOS allows the system to boot from the CD-ROM drive.

SCSI Disk Utilities

SCSI Disk Utilities scan the SCSI bus to recognize the installed SCSI devices, and display all the SCSI IDs and thedevices allocated to the IDs. In addition, the utilities can perform a low-level format on the hard disk drives, and check the drives.

■ **Format Disk** - Performs a low-level format on a hard disk drive. Most SCSI disk drives are preformatted at the factory and do not need to be low-level formatted again.

■ **Verify Disk Media** - Scans and checks the media of a hard disk drive for defects. If the utility finds bad blocks on the media, it prompts you to reassign them; if you select yes, those blocks are no longer used. You can press Esc at any time to abort the utility.

6.Notice / Troubleshooting

6-1.Notice

Do not use Standby and Hibernation.

■ Please reboot a system when the SCSI device is inaccessible or when an error is registered in the system log when returning from Standby and Hibernation.

Notice

6-2.Troubleshooting

If your operating system or applications do not operate correctly after installing this product, please check the following items.

- ☐ Is the product installed in the computer correctly?
- ☐ Are all the SCSI devices turned on?
- ☐ Are all the SCSI cables and power cords connected correctly?
- ☐ Is a unique SCSI ID assigned to each SCSI device connected to the SCSI bus?
- ☐ Is the SCSI bus terminated correctly?
- ☐ Is the SCSI driver for this product installed?

■ If the computer does not work correctly even when all the above items are confirmed, shut down the computer, disconnect the product, reboot the computer, and perform the self-diagnostic program POST. If the POST ends normally, this product may be defective. Please contact your service representative for more information.

Notice

FCC Compliance Information Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

European Union Compliance Statement

This Information Technology Equipment has been tested and found to comply with EMC Directive 89/336/EEC,as amended by 92/31/EEC and 93/68/EEC,inaccordance with:
- EN55022 (1998+A1:2000+A2:2003) Emissions
- EN55024 (1998+A1:2001+A2:2003) Immunity:
  - EN61000-4-2 (1995) Electrostatic discharge:±4kV contact,±8kV air
  - EN61000-4-3 (1996) Radiated immunity
  - EN61000-4-4 (1995) Electrical fast transients/burst:±1kV AC,±0.5kV I/O
  - EN61000-4-5 (1995) Surges±1kV differential mode,±2k common mode
  - EN61000-4-6 (1996) Conducted immunity:3V
  - EN61000-4-11 (1994) Supply dips and variation:30% and 100%

In addition, all equipment requiring U.L. listing has been found to comply EMC Directive 73/23/EEC as amended by 93/68/EEC in accordance with EN60950 with amendments A1, A2, A3, A4, A11.

Australian/New Zealand Compliance Statement

This device has been tested and found to comply with the limit for a Class B digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Spectrum Management Agency.

Canadian Compliance Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Taiwan Compliance Statement

This device has been tested and found to comply with CNS13438, C6357 Class B digital device.

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