

# **HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Installation Guide**

**HP-UX, Linux & Windows**



**Manufacturing Part Number : A7173-96003**

**E1204**

Printed in USA

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## Localized Documentation

This Installation Guide has been translated to:

日本語 <http://www.docs.hp.com/ja/index.html>

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# 1 HP A7173A Adapter Overview

This chapter contains the following information on the A7173A adapter:

- “About the A7173A Adapter” on page 6.
- Table 1-1, “A7173A Adapter Features and Specifications,” on page 7.

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## About the A7173A Adapter

The HP A7173A Dual Channel PCI-X Ultra320 SCSI **Host Bus Adapter** (A7173A adapter) provides two Ultra320 SCSI Parallel Interface Specification-4 (SPI-4) interfaces to PCI computer systems.

The A7173A adapter is a PCI-X adapter capable of up to 133 MHz, 64 bit data transfers.

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**NOTE** HP recommends installing the A7173A adapter in a PCI-X, 133 MHz, 64 bit, 4x (“Twin Turbo” or “Dual Rope”) slot. The A7173A adapter can be installed in any PCI or PCI-X slot, but performance will be maximized when it is installed in a 133 MHz, 64 bit, 4x (“Twin Turbo” or “Dual Rope”) PCI-X slot.

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The A7173A adapter allows connection of up to 15 SCSI devices per channel, or a total of 30 SCSI devices per A7173A adapter.

The A7173A adapter provides synchronous or asynchronous 16-bit (Wide) **Low Voltage Differential (LVD)** or 16-bit (Wide) **Single-Ended (SE)** SCSI solutions, using only one PCI slot.

The A7173A adapter is backward compatible, supporting Ultra160, Ultra2, Ultra, and Fast SCSI devices.

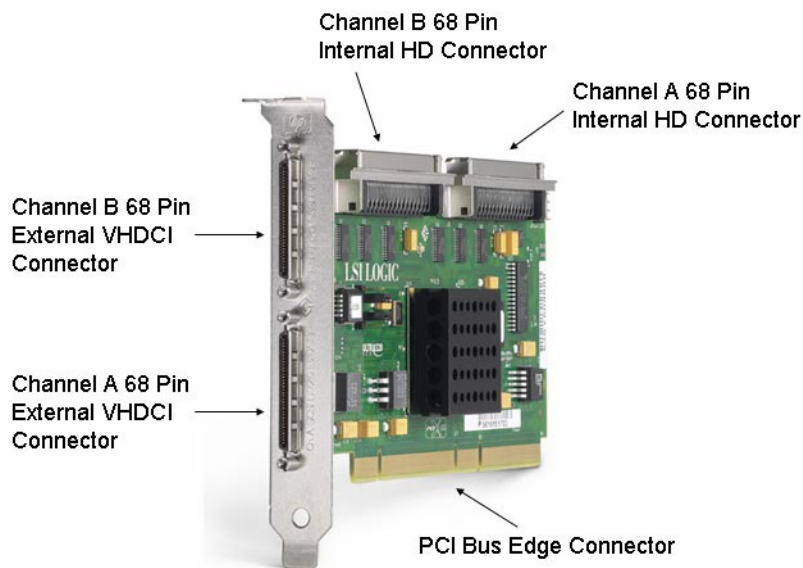
The A7173A adapter cannot be connected to FWD (HVD) devices. Consult with your Hewlett-Packard representative for information on specific system configurations.

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**NOTE** For a detailed summary of A7173A adapter features and specifications, see Table 1-1, “A7173A Adapter Features and Specifications,” on page 7.

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**Figure 1-1 The A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter**



**Table 1-1 A7173A Adapter Features and Specifications**

Dimensions (excluding bracket)	6.6 X 4.0 inches (standard bracket) (167.6 X 106.7 mm)
Bracket	ISA / EISA
Power Required	15 W
Operating Temperature Range	0 to 55 degrees C (dry bulb)
Storage and Shipping Temp. Range	-40 to 105 degrees C (dry bulb)
Operating, Storage, and Shipping Relative Humidity	5% to 90% non-condensing
Maximum Dew Point Temperature	32 degrees C
Processor Type	LSI53C1030
Data Transfer Rate	Maximum 320 Mbytes/s per channel (Ultra320), as well as Ultra160, Ultra2, Ultra, and Fast Synchronous offsets up to 62
PCI Interface	<ul style="list-style-type: none"> <li>— Full 64-bit Direct Memory Access (DMA) bus master</li> <li>— Zero wait-state bus master data bursts</li> <li>— PCI-X Universal 3.3 V / 5 V bus support (133 MHz, 64 bit edge connector adapter)</li> <li>— Compliance with <i>PCI Local Bus Specification, Revision 2.2 and PCI-X Addendum Revision 1.0a.</i></li> </ul>
PCI-X Bus Connector Type	133 MHz, 64 bit edge connector (universal 3.3 V / 5 V bus support)
SCSI Standard Compliance	The A7173A adapter and its driver conform to the ANSI T10 SCSI Parallel Interface-4 (SPI-4) standard
SCSI Connections	<ul style="list-style-type: none"> <li>— Two 68-pin Very High Density Cable Interconnects (VHDCI) for the two external channels</li> <li>— Two 68-pin High Density (HD) connectors for the two internal channels</li> </ul>
SCSI Channels	Two independent Ultra320 SCSI channels: synchronous or asynchronous, 16-bit (Wide) Single Ended (SE) or 16-bit (Wide) Low Voltage Differential (LVD)
Maximum SCSI Devices Connected	15 SCSI devices per channel, in addition to the A7173A adapter

**Table 1-1 A7173A Adapter Features and Specifications (Continued)**

Maximum SCSI Cable Length	<ul style="list-style-type: none"> <li>— Maximum LVD cable length of 12 meters with multiple SCSI devices (25 meters point-to-point)</li> <li>— Maximum SE cable length of 6 meters with a maximum of 8 SCSI devices</li> </ul>
SCSI Bus Termination	<ul style="list-style-type: none"> <li>— LVD/SE: On-board termination, enabled or disabled with a hardware jumper.</li> <li>— SCSI termination power source with auto-resetting circuit breaker (TERMPWR)</li> </ul>
Signaling	16-bit SE or LVD interfaces
Flash ROM	Yes, for boot code and firmware
Serial EEPROM	Yes, it contains Vital Product Data (VPD), HP PCI IDs, SCSI Parameters, and Chip Configuration. It is also configured with the HP part number for easy identification when <code>ioscan</code> is used.
Safety Characteristics	The HP A7173A adapter board meets or exceeds the UL flammability rating 94 V0. Each bare board is also marked with the supplier's name or trademark, type, and UL flammability rating. Since these boards are installed in a PCI bus slot, all voltages are below the SELV 42.4 V limit.



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## **2 HP-UX Installation: HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter**

**Thank you for purchasing HP I/O Cards**

If you are installing an HP I/O card as an add-in device, please review this document before attempting installation.

If an HP I/O card was factory installed in your server, you can skip ahead to the Verifying the Installation section.

HP welcomes your input. Please email us at: [netinfo\\_feedback@cup.hp.com](mailto:netinfo_feedback@cup.hp.com) with comments or suggestions on HP I/O Cards or related documentation.

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**NOTE** This Installation Guide contains abbreviated installation instructions for the A7173A adapter. For comprehensive product information, see the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* available at <http://www.docs.hp.com>

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**IMPORTANT** All HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter product documentation, including a comprehensive Support Guide, Release Notes, and a Support Matrix, are available online. The *HP-UX A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Matrix* includes:

- Supported HP-UX versions
- Supported HP systems
- Supported system and adapter firmware
- Supported HP SCSI peripheral devices

**Go to:** <http://www.docs.hp.com>

1. Click on “**browse by topic**”
  2. Click on “**networking and communications**”
  3. Click on “**SCSI Host Bus Adapters**”
-

## Installation Prerequisites

- Step 1.** Review the *HP-UX Ultra320 SCSI mpt Driver Release Notes* located at docs.hp.com.
- Step 2.** Review the *HP-UX A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Matrix* located at docs.hp.com to confirm:
- The A7173A adapter is supported with the HP-UX version you will be running
  - The A7173A adapter is supported with the HP system you plan to install it in
  - The A7173A adapter is supported with the SCSI devices you plan to connect to it
- Step 3.** See the documentation for the system you plan to install the A7173A adapter in (<http://www.docs.hp.com>), for system specific instructions on installing host bus adapters (I/O cards) in the PCI slots. Make sure you have the necessary parts and tools.
- Step 4.** Make sure you have a grounding Electrostatic Discharge Kit (ESD), which is shipped with the A7173A adapter.
- Step 5.** Make sure you have the correct SCSI cables to connect the A7173A adapter to the SCSI devices you plan to use with it.
- 

## Locating the A7173A Adapter Software

The drivers, utilities and manpages for the A7173A adapter are on the HP-UX application release CD. They are also available at the HP Software Depot.

To locate the software at the HP Software Depot:

- Go to <http://www.software.hp.com>
- Search for “A7173A”
- Click on “receive for free”
- Fill out the free product registration form and click on “next”
- Look for “Download Software” and click on the depot that corresponds to your HP-UX operating system version to download the drivers, utilities, and manpages for the A7173A adapter.
- In the “Documents” column next to the “Download Software” column, click on “Installation Instructions” to download instructions for using the Software Distributor tool to install the drivers, utilities, and manpages for the A7173A adapter.

## Installing A7173A Adapter Software

The `mpt` driver is used by the A7173A adapter in *all* supported HP-UX systems. The `mpt` driver is available on the application release CD or at the HP Software Depot <http://www.software.hp.com>. The `scsiU320-00` bundle, which includes the `mpt` driver, also includes the `mptconfig` and `mptutil` utilities for on-line configuration and troubleshooting.

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**NOTE** You *must* install *all* of the patches listed in the *HP-UX Ultra320 SCSI mpt Driver Release Notes*, before installing the `scsiU320-00` bundle containing the `mpt` driver.

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- Step 1.** Read the *HP-UX Ultra320 SCSI mpt Driver Release Notes*, to confirm which patches, if any, are required. Patches can be downloaded from the HP IT Resource Center (ITRC) at <http://itrc.hp.com>.
- Step 2.** Issue the `swlist` command to see which patches are already installed on the system. If no patches are required, go to step 4.
- Step 3.** Install any necessary patches.
- Step 4.** Install the `scsiU320-00` software bundle for the HP-UX operating system version you are running:

To install the software from the HP-UX application CD, insert the CD into the appropriate drive and enter the `swinstall` command. Next, follow the on-screen menu to complete the installation.

If you download the `scsiU320-00` bundle from the HP Software Depot, it can be installed using the Software Distributor (SD) tool. The SD is used to install software on HP-UX host systems. The SD can also be used to remove software from HP-UX host systems.

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## Files Contained in the `scsiU320-00` Bundle

The `scsiU320-00` bundle is composed of several files that the Software Distributor (SD) will copy to the appropriate directories on the host system. A release specific list of the files contained in the `scsiU320-00` bundle is contained in the *HP-UX Ultra320 SCSI mpt Driver Release Notes*.

If you are concerned that the installation is not complete, the `swverify` command can be used to confirm the software has been properly installed. The `swlist` command can be used to display the files that have been installed. It is not necessary to run these commands, unless it becomes necessary to troubleshoot the A7173A adapter installation.

## Installing A7173A Adapter Hardware

Before installation, and without removing the adapter from its antistatic bag, inspect the adapter for any signs of obvious damage, such as chipped or loose components. Contact HP if the adapter is damaged.

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**WARNING**    **The installation procedures in this section require opening the computer cabinet, which might expose you to high-energy (high-amperage) circuits and sharp edges on the equipment chassis. Be sure to remove all rings, watches, and other jewelry before opening the cabinet.**

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**CAUTION**    The A7173A adapter contains electronic components that can easily be damaged by small amounts of static electricity. To avoid damage, follow these guidelines:

- Store the adapter in its antistatic plastic bag until you are ready to install it.
- Work in a static-free area, if possible.
- Handle the adapter by the edges only. Do not touch electronic components or electrical traces.
- If you must lay the adapter down, place it on a non-conductive mat or surface.
- Use the Electrostatic Discharge (ESD) kit that is provided with the adapter. Follow the instructions included with the kit.
- Use a suitable ground.....exposed metal surface on the system chassis can serve as a ground.

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## Offline Installation

Install the A7173A adapter in any supported HP-UX system according to the offline host bus adapter installation procedure for that system. HP system documentation can be accessed at: <http://www.docs.hp.com>

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**NOTE**    HP recommends installing the A7173A adapter in a PCI-X, 133 MHz, 64 bit, 4x (“Twin Turbo” or “Dual Rope”) slot. The A7173A adapter can be installed in any PCI or PCI-X slot, but performance will be maximized when it is installed in a 133 MHz, 64 bit, 4x (“Twin Turbo” or “Dual Rope”) PCI-X slot.

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## Online Installation

The Online Addition and Replacement feature (OLAR for HP-UX 11i v1, or OL\* for HP-UX 11i v2 and later HP-UX releases) allows PCI host bus adapters to be added, or replaced, without shutting down and rebooting the system, and without adversely affecting other system components. The system hardware uses slot-specific power control, combined with HP-UX operating system support, to enable these features.

OLAR or OL\* may not be supported on the system you plan to install an A7173A adapter in. See the *HP-UX A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Matrix* located at <http://www.docs.hp.com>, to confirm if the OLAR or OL\* feature is supported.

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**NOTE** For detailed instructions on using OLAR on HP-UX 11i v1, see Chapter 2 of *Configuring HP-UX for Peripherals*, which can be accessed at <http://www.docs.hp.com>

For detailed instructions on using OL\* on HP-UX 11i v2 and later HP-UX releases, see the *Interface Card OL\* Support Guide*, and the *Interface Card OL\* Support Matrix*, which can be accessed at <http://www.docs.hp.com>

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**IMPORTANT** Superdome systems are not intended for access by users. HP recommends that Superdome systems only be opened by a qualified HP engineer. Failure to observe this requirement can invalidate any support agreement or warranty to which the system owner might otherwise be entitled.

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**WARNING** If you use OLAR or OL\* to add or replace an A7173A adapter, the SCSI ID will be set at 7 by default. If the SCSI ID for an add-in or replacement adapter needs to be set at some value other than 7, the `mptconfig` command can be used to set the SCSI ID after the A7173A adapter is inserted into the slot and powered on, but before the SCSI cable(s) are connected. See the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* for more information

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## Connecting SCSI Peripheral Devices

Make all SCSI bus connections to the A7173A adapter with shielded, 68-pin cables (multimode, LVD or SE). The connectors on the cables are always keyed for proper mating.

The A7173A adapter is capable of communicating with Low Voltage Differential (LVD) or Single Ended (SE) SCSI devices. LVD allows up to 12m cable lengths with multiple SCSI devices, or 25m point-to-point connections.

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**NOTE** Each SCSI channel on the A7173A adapter has an internal HD (high density) SCSI connector for connecting internal SCSI devices and an external VHDCI (very high density cable interconnect) SCSI connector for connecting external SCSI devices. HP does not support connecting SCSI devices to both the internal and external SCSI connectors on the same SCSI channel.

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**IMPORTANT** If you connect LVD SCSI devices and SE SCSI devices to the same SCSI bus, the data transfer rate will be limited to a maximum of 40 MB/s (Ultra SCSI), which is the maximum for SE SCSI.

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To view a list of supported peripheral devices see the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Matrix* located at <http://www.docs.hp.com>.

## Connecting Internal Devices

The A7173A adapter has two internal 68 pin HD connectors, one for each SCSI channel. Connection of internal SCSI devices will be performed at the factory for HP systems that support internal SCSI devices. If an internal SCSI device has been installed on one of the A7173A adapter's SCSI channels, HP does not support connection of an external SCSI device to that same SCSI channel.

## Connecting External Devices

The A7173A adapter has two external 68 pin VHDCI connectors, one for each SCSI channel. External SCSI devices, may have 68 pin HD or VHDCI connectors. *No SCSI cables are shipped with the A7173A adapter.*

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**NOTE** Auto termination is factory enabled on the A7173A adapter. External terminators can be ordered from HP, if necessary (order SCSI LVD/SE terminator: HP product number C2370A).

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To connect external SCSI devices to the A7173A adapter:

- Step 1.** Plug the 68-pin VHDCI connector on one end of a SCSI cable into an external connector on the A7173A adapter. Make sure the external connector you attach the SCSI cable to corresponds to the channel you want to connect the external device to.
- Step 2.** Plug the 68-pin HD or VHDCI connector on the other end of the cable into the SCSI connector on the external SCSI device.
- Step 3.** If you need to connect more than one external SCSI device to the adapter, "daisy chain" them together with shielded external SCSI cables.

## SCSI Parameter Settings

If the A7173A adapter is new and it is installed in a slot that has never been configured for a SCSI adapter, the adapter will be set to the following default settings:

- SCSI ID = 7
- Maximum Data Transfer Rate = MAX (320 MB/s)
- Bus Width = 16 bits (Wide)

---

**IMPORTANT** If the A7173A adapter is new, but it is being installed to replace another SCSI adapter, the mpt driver will continue to use the SCSI parameter settings that are already configured on the slot.

If the A7173A adapter has been previously installed in a different slot or system, the SCSI parameter settings will not migrate to the new slot or system.

It is strongly recommended that the SCSI parameter settings be confirmed, and changed if necessary.

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**WARNING** **HP DS2100, DS2110, and DS2300 storage devices are only supported at a maximum SCSI data transfer rate of U160. The SCSI data transfer rate must be limited to U160 (or slower) to avoid potential data integrity issues. The SCSI bus will not automatically adjust to accommodate the DS2100 or the DS2110. The SCSI data transfer rate must be deliberately set to a maximum of U160; offline via the Boot Console Handler (on PA RISC systems) or EFI (on Itanium™ systems), or online via the mptconfig command. With the DS2300 the SCSI data transfer rate will automatically be negotiated to U160 (or slower), but the negotiation could cause a few SCSI bus resets, which can be avoided by deliberately setting the maximum SCSI data transfer rate to U160.**

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The SCSI parameters for an A7173A adapter installed in *any* supported HP-UX system can be confirmed or changed **online** using the `mptconfig` command, see Step 2 in the “Verifying the Installation” section of this Installation Guide for details.

The SCSI parameters for A7173A adapters installed in PA-RISC based systems can be confirmed or changed **offline** using the “SCSI” command, which can be accessed from the Boot Console Handler (BCH) menus, see the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* for details.

The SCSI parameters for A7173A adapters installed in Itanium™ based systems can be confirmed or changed **offline** using the Extended Firmware Interface (EFI), see the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* for details.



## Verifying the Installation

After installing the scsiU320-00 software bundle containing the mpt driver, installing the A7173A adapter, and attaching the peripheral devices, verify that all of the components are working by following these steps:

**Step 1.** To verify that the adapter is correctly installed, issue this command:

```
ioscan -fnkd mpt
```

The `ioscan` output will be similar to the following example:

```
# ioscan -fnkd mpt
Class      I  H/W Path  Driver S/W State  H/W Type  Description
=====
ext_bus    6  1/0/2/0/0 mpt CLAIMED  INTERFACE  SCSI Ultra320 A7173-60011
           /dev/mpt6
ext_bus    7  1/0/2/0/1 mpt CLAIMED  INTERFACE  SCSI Ultra320 A7173-60011
           /dev/mpt7
ext_bus    8  1/0/4/0/0 mpt CLAIMED  INTERFACE  SCSI Ultra320 A7173-60011
           /dev/mpt8
ext_bus    9  1/0/4/0/1 mpt CLAIMED  INTERFACE  SCSI Ultra320 A7173-60011
           /dev/mpt9
#
```

In this example, two A7173A adapters are installed on the system. The fourth and fifth columns in the `ioscan` output indicate that the adapters have been claimed by the `mpt` driver. Notice the hardware path shown in the second column. The A7173A adapter supports two PCI devices or functions (one per channel). Two lines are listed for each A7173A adapter, —one for channel A (denoted by a 0 as the last digit in the hardware path), and one for channel B (denoted by a 1 as the last digit in the hardware path). The device file for each channel of each installed adapter is in the second line of the `ioscan` output, for example: `/dev/mpt6` or `/dev/mpt7`.

**Step 2.** For more detailed information on installed A7173A adapter(s), including the SCSI parameter settings as well as verification of devices that have been connected to the A7173A adapter(s), issue the `mptconfig <dev file>` command for each channel of each A7173A adapter. Use the device files displayed in the `ioscan -fnkd mpt` output.

For example:

**Verifying the Installation**

```

# mptconfig /dev/mpt8
Scan For Devices ...
---- ADAPTER INFORMATION -----
Device File           : /dev/mpt8
Hardware Path        : 1/0/4/0/0
---- BUS PARAMETERS -----
Initiator SCSI ID    : 5
SCSI Bus Rate        : Ultra320
SCSI Bus Width       : Wide
---- CHANNEL CAPABILITIES -----
Req/Ack Offset       : 127
Bus Mode              : LVD
Quick Arbitration Selection : Enabled
DT Clocking           : Enabled
Packetized            : Enabled
---- TARGET PARAMETERS -----
Target Description    Firmware  In Use   In Use
Id                   Version   Rate     Width
-----
0      ST318453LC      HPC3     Ultra320  Wide
2      ST373453LC      HPC3     Ultra320  Wide
4      ST373453LC      HPC4     Ultra320  Wide
-----
#

```

**NOTE**

When the system boots after installation, the **insf** command creates the proper device files for the “ctl” interfaces (which would include the A7173A adapter) as well as the SCSI devices attached to the A7173A adapter. Sometimes, however, the **insf** command does not create all of the device files that are needed. For example, this happens when you attach SCSI disks to the adapter after the system boots, but the adapter is already installed in the system.

If you see a SCSI device listed in the **ioscan** output, but there is no device file in the second line of the **ioscsan** output for that device, the device file is missing. To solve this problem, issue the **insf -e** command, which will create *all* of the device files.

For more information about the **ioscan** command, see the **ioscan(1M)** man page.

For more information about the **insf** command, see the **insf (1M)** man page.

Refer to your system documentation for information about verifying system operation.

## Using the A7173A Adapter as a Boot Device

See the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* for details on configuring the A7173A adapter as a boot device.

---

## Adding Multi-Initiator Support

The A7173A adapter supports multi-initiator configurations. In a multi-initiator configuration, multiple SCSI host bus adapters are connected to the same SCSI bus. See the *HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter Support Guide* for details on setting SCSI IDs in a multi-initiator configuration.



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## **3 Linux Installation: HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter**

## A7173A Adapter Linux Installation Prerequisites

Before installing the HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter (A7173A adapter), ensure that the following hardware and software prerequisites are met:

- Check the Linux Support Notes for known problems or issues having to do with this card. These documents are available at: [www.docs.hp.com/linux](http://www.docs.hp.com/linux)
- Confirm that the A7173A adapter is supported in your specific Linux-Integrity configuration. The following configurations are currently supported:
  - rx1620 servers running RHEL 3 Update 3 or Novell/SUSE SLES 9
  - rx2620 servers running RHEL 3 Update 3 or Novell/SUSE SLES 9
  - rx4640-8 servers running RHEL 3 Update 3 or Novell/SUSE SLES 9
- Check the HP Integrity server's documentation at <http://www.docs.hp.com> to determine if additional tools may be required for component installation.
- For specific instructions on adapter installation, see system-specific documentation on “installing mass storage IO cards” for the HP Integrity server that the A7173A adapter will be installed in.

---

## A7173A Adapter Linux Quick Installation

**CAUTION** The A7173A adapter contains electronic components that can easily be damaged by small amounts of electricity. To avoid damage, follow these guidelines:

- Store adapter in its anti-static plastic bag until installation.
- Work in a static-free area, if possible.
- Handle adapter by the edges only. Do not touch electronic components or electrical traces.
- Use a grounding wrist strap.
- Use a suitable ground—any exposed metal surface on the computer chassis.

---

## Installing the A7173A Adapter for use with External Storage

The A7173A adapter comes pre-configured. You do not have to set any jumpers or connectors.

**NOTE** Do not connect a SCSI cable to an external SCSI port without powering down the system. Adding a SCSI cable by hot-plugging it can cause bus errors, or possibly adapter lock up, and in rare cases, electrical damage.

---

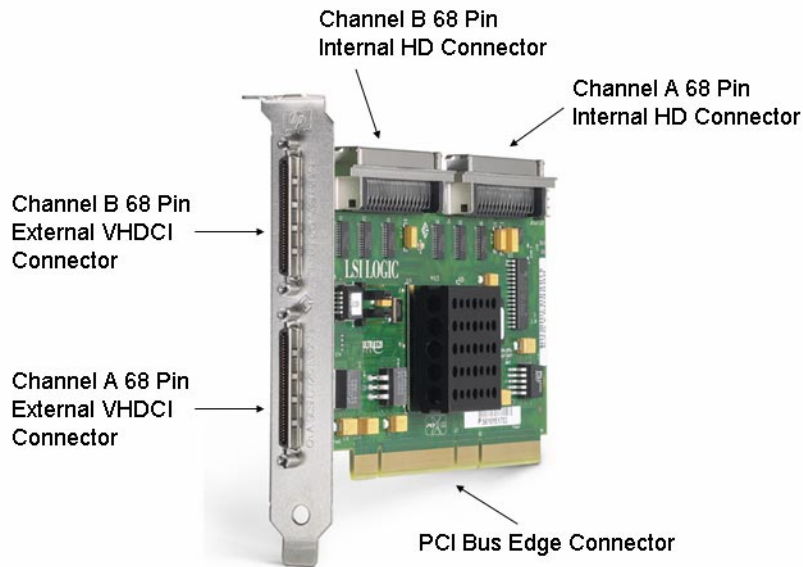
**Step 1.** Access the system adapter bay

- If the system is running, shut it down.
- Wait for the system to shut down completely, and then power off the system.
- Open the system to gain access to the PCI backplane.
- For better performance, insert the adapter into the highest performance PCI slot available.

**Step 2.** Install the adapter

- Slide the adapter edge-connector into the PCI slot until it is fully seated.
- Secure the adapter and reassemble the system.

**Figure 3-1**The HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter



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**NOTE** Do not use the internal connector and the external connector on the same channel simultaneously.

---

## Connecting the A7173A Adapter to Internal Storage

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**CAUTION** Do not use hot-pluggable drives and non-hot-pluggable drives on the same SCSI bus.

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**NOTE** Drives that are going to be grouped in the same array should all have the same storage capacity to avoid wasted disk space.

---

- Step 1.** Power down the system and open any access panels or covers that provide access to the internal SCSI cabling and the PCI slots.
- Step 2.** Install the A7173A adapter in a full-length PCI slot. A specific slot may have to be used on your server, please see your server documentation for details.
- Step 3.** Remove the SCSI cable(s) connecting the internal disks to the built-in SCSI adapter.
- Step 4.** Route the new SCSI cables(s) from the internal disks to the A7173A adapter.
- Step 5.** Replace the access panels and covers.

---

**CAUTION** Do not operate the server for long periods without the access panel installed. Operating the server without the access panel results in improper airflow and improper cooling that can lead to thermal damage.

---

**Table 3-1** Supported Internal SCSI Cables

Server	Length	Option Kit Number	Cable Assembly Number
rx2600 Single Port	49 cm / 19 in.	A9827A	A7231-63024
rx2600 Dual Port	58 cm / 23 in.	A9827A	A7231-63025

---

**NOTE** If additional cables are required, order by the option kit number.

---

---

## A7173A Adapter Software for Linux

No special software is necessary to use the A7173A adapter in a Linux system. The Linux drivers for the A7173A adapter are included in all supported commercial Linux distributions that come from Redhat and Novell/Suse. Linux will recognize that the adapter is present in the system and will load the correct driver automatically.

You can run the following command to validate that the correct driver has been loaded and is active:

```
# lsmod | grep mptscsih
```



---

## **4 WINDOWS Installation: HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter**

---

## Introduction

This document describes how to configure the HP A7173A PCI-X Dual Channel Ultra320 SCSI Host Bus Adapter (A7173A adapter) on HP Integrity systems running Windows Server 2003.

---

**NOTE** The Smart Components file and the driver file described in this chapter are available on the Smart Setup DVD and at: <http://www.hp.com/support/itaniumservers>.

---

When the A7173A adapter is factory installed in an HP system, the latest firmware and drivers should already be installed.

If you are installing an A7173A adapter as an “add-in” device, or if you want to update the firmware and/or drivers at a later date, you must do the following:

1. Update the firmware using the EFI Based Setup Utility (EBSU).
2. Configure the A7173A adapter using EBSU.
3. Update your drivers, either globally (using the Support Pack or Smart Component method) or individually (using the Windows Device Manager).

Each of these tasks is described in detail below.

---

## Updating the firmware using EBSU

To start the EFI Based Setup Utility (EBSU) and use it to update the adapter firmware and EFI driver:

**Step 1.** Insert the HP Smart Setup DVD in the DVD-ROM drive.

**Step 2.** Boot to EBSU.

**Step 3.** Select **Maintain Firmware**.

**Step 4.** Select the **LSI Ultra 320 SCSI** device.

**Step 5.** Select **Begin Flash**.

---

**NOTE** If you do not have an A7173A adapter installed in your system, this option will not be available to you.

---

**Step 6.** Click **OK** in the message box to see a list of all currently installed A7173A adapters (with their existing firmware and EFI driver versions), along with a list of all the firmware and EFI driver versions that are available on the DVD.

**Step 7.** Click the **Select All** option to flash all of the A7173A adapters at once, or select individual adapters and flash each of them separately.

**Step 8.** Click **OK** to begin the firmware download.

## Configuring the A7173A adapter using EBSU

HP Integrity servers automatically detect PCI-compliant adapters when restarting. The adapter IRQ level and I/O address are automatically set by the Extensible Firmware Interface (EFI) each time the server restarts.

The configuration tools you must use are invoked from EFI Based Setup Utility (EBSU). To start the EBSU and run these tools:

- Step 1.** Insert the HP Smart Setup DVD in the DVD-ROM drive.
- Step 2.** Boot to EBSU.
- Step 3.** Select **Configuring IO Cards**.
- Step 4.** Select the **U320 SCSI [A7173A]** adapter.
- Step 5.** Select the appropriate channel to launch the configuration tool.
- Step 6.** Select an adapter to display the Adapter Properties screen. For example, if the adapter “<53C1030 xx xx xx>” is selected (where “xx xx xx” is the value for the PCI bus, the PCI dev and the PCI function of the 53C1030 controller), the Adapter Properties screen is displayed. Next, use the Arrow keys to highlight one of the following four selections:
  - Device Properties
  - Boot Support
  - Host SCSI ID
  - Secondary Cluster Server

Then, depending on the selection, press the Enter key, or the +/- keys, for further options.

If “Device Properties” is selected and the Enter key is pressed, you will have the option to:

- change the SCSI data transfer rate for the entire SCSI bus
- change the SCSI data transfer rate for an individual device
- change the data bus width
- scan IDs
- scan LUNs
- turn disconnect on or off
- set SCSI timeout duration
- turn Que Tags on or off

If “Boot Support” is selected and the +/- keys are pressed, you will have the option to change the boot support status (the default boot status is “Enabled BIOS & OS”).

## Updating all of your SCSI adapters with the latest driver

If “Host SCSI ID” is selected and the +/- keys are pressed, you will have the option to change the SCSI ID of the SCSI controller (the default value of 7 should be used, unless the SCSI adapter is in a multi-initiator configuration).

If “Secondary Cluster Server” is selected and the +/- keys are pressed, you will have the option to change the secondary cluster server setting to Yes or No (the default setting “No” should be used unless an attached device is shared with other SCSI adapters).

If configuration problems are encountered, refer to the HP Support site at <http://www.hp.com/support/itaniumservers> by searching or selecting a product.

---

## Updating all of your SCSI adapters with the latest driver

There are two methods for updating all of your SCSI adapters with the latest driver:

- install the Integrity Support Pack  
(this runs multiple Smart Components, updating the drivers for multiple devices)
- install the individual Smart Component  
(updating the drivers for your SCSI adapters only)

With either method you can find the necessary files and drivers on the Smart Setup DVD that shipped with your server, or on the web at: <http://www.hp.com/support/itaniumservers/>.

### Method 1: Installing the Integrity Support Pack

- Step 1.** Insert the HP Smart Setup DVD in the DVD-ROM drive.
- Step 2.** Click **Agree** at the End User License Agreement screen.
- Step 3.** Click the **Install Support Pack** tab in the Smart Setup screen.
- Step 4.** Click the **Install ISP** link to continue.
- Step 5.** Click **Open** in the File Download screen to launch the HP Remote Deployment Utility and begin the installation process.

### Method 2: Installing the Smart Component only

- Step 1.** Insert the HP Smart Setup DVD in the DVD-ROM drive.
- Step 2.** Click **Agree** at the End User License Agreement screen.
- Step 3.** Click the **Access Software** tab in the Smart Setup screen, and then the **Access Software** button to continue.
- Step 4.** In the Software and Drivers screen, click on your Integrity server model number.
- Step 5.** In the Drivers section of the next screen, click **Driver for U320 SCSI Controller (Windows Server 2003 64-Bit)**.
- Step 6.** In the Driver for U320 SCSI Controller screen, click **Download**.
- Step 7.** In the File Download screen, click **Open**.

**Step 8.** In the HP Package Setup screen, click **Install** to begin the installation.

**Step 9.** Reboot if requested.

---

## Updating individual SCSI adapters with the latest driver

Use this method to update the drivers for individual adapters only:

**Step 1.** Insert the HP Smart Setup DVD in the DVD-ROM drive.

**Step 2.** Click **Agree** at the End User License Agreement screen.

**Step 3.** Click the **Access Software** tab in the Smart Setup screen, and then the **Access Software** button to continue.

**Step 4.** In the Software and Drivers screen, click on your Integrity server model number.

**Step 5.** In the Drivers section of the next screen, click **Driver for U320 SCSI Controller (Windows Server 2003 64-Bit)**.

**Step 6.** In the Driver for U320 SCSI Controller screen, click **Download**.

**Step 7.** In the File Download screen, click **Open**.

**Step 8.** In the HP Package Setup screen, click **Extract**.

**Step 9.** Select the folder where you want the driver installation files copied to, and click **OK**.

**Step 10.** Next, run the Windows Device Manager (**Start > Settings > Control Panel**, double-click **System** icon, select **Hardware** tab, and click **Device Manager**).

**Step 11.** Navigate to the desired device in the Device Manager list and update the driver manually (“install from list”) by pointing it to the folder where the files were copied to in Step 9. Select the file named **symmpi.inf** to begin the installation.

**Step 12.** When the installation finishes, reboot the system.

**Step 13.** You can verify successful installation by re-opening the Device Manager and checking the MiniPort driver version number.

This procedure updates one channel on one adapter only. If you want to update more channels or more devices you must repeat these steps for each one.



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# **A Regulatory Information**

This appendix contains all of the regulatory-related information for the A7173A adapter.

## Regulatory Statements

This section contains all of the regulatory statements for the A7173A adapter.

### FCC Statement (For U.S.A. Only)

The Federal Communications Commission (in 47 CFR 15.105) has specified that the following notice be brought to the attention of the users of this product.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. The end user of this product should be aware that any changes or modifications made to this equipment without the approval of Hewlett-Packard could result in the product not meeting the Class A limits, in which case the FCC could void the user's authority to operate the equipment.

### IEC Statement (Worldwide)

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### DOC Statement (Canada)

This Class A digital apparatus meets all requirements of the Canadian interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.



## Spécification ATI Classe A (France)

DECLARATION D'INSTALLATION ET DE MISE EN EXPLOITATION d'un matériel de traitement de l'information (ATI), classé A en fonction des niveaux de perturbations radioélectriques émis, définis dans la norme européenne EN 55022 concernant la Compatibilité Electromagnétique.

Cher Client,

Conformément à la Réglementation Française en vigueur l'installation ou le transfert d'installation, et l'exploitation de cet appareil de classe A, doivent faire l'objet d'une déclaration (en deux exemplaires) simultanément auprès des services suivants:

- Comité de Coordination des Télécommunications 20, avenue de Ségur - 75700 PARIS
- Préfecture du département du lieu d'exploitation

Le formulaire à utiliser est disponible auprès des préfetures.

La déclaration doit être faite dans les 30 jours suivant la mise en exploitation.

Le non respect de cette obligation peut être sanctionné par les peines prévues au code des Postes et Télécommunications et celles indiquées dans la loi du 31 mai 1993 susvisée.

Arrêté du 27 Mars 1993, publié au J.O. du 28 Mars - ATI

## VCCI Statement (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## Declaration of Conformity

Figure A-1 A7173A Adapter Declaration of Conformity

<b>DECLARATION OF CONFORMITY</b> According to ISO/IEC Guide 22 and EN 45014	
<b>Manufacturer's Name:</b>	Hewlett-Packard Company Systems Interconnect Solutions Lab
<b>Manufacturer's Address:</b>	8000 Foothills Blvd. Roseville, CA 95747 USA
<b>declares, that the product</b>	
<b>Product Name:</b>	Dual Port Ultra 320 SCSI PCI-X HBA
<b>Model Number(s):</b>	A7173A/A6961A
<b>Product Options:</b>	All
<b>conforms to the following Product Specifications:</b>	
<b>Safety:</b>	IEC 950:1991 + A1, A2, A3, A4 / EN 60950:1992 + A1, A2, A3, A4, A11 GB 4943-1995. IEC 825-1:1993/ EN60825-1:1994+A1, Class 1 Laser
<b>EMC:</b>	CISPR 22:1997 / EN 55022:1998 - Class A CNS 13438, GB 9254-1988, CFR47, Part 15 Class A CISPR 24:1997 / EN 55024:1998 IEC 61000-4-2 IEC 61000-4-3 / ENV 50204 IEC 61000-4-4 IEC 61000-4-6 IEC 61000-4-8
<b>Supplementary Information:</b>	
The product herewith complies with the requirements of the EMC Directive 89/336/EEC and carries the CE marking accordingly.	
1) The Product was tested in a typical configuration with Hewlett-Packard information technology equipment.	
	 ----- <b>Tom Le, Hardware Engineer</b>
Cupertino, CA, Oct, 2003	
European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE, Herrenberger Straße 130, D-71034 Böblingen (FAX: + 49-7031-14-3143)	

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