

A7011A/A7012A PCI-X 2 Port Gigabit Ethernet / Card Overview

HP-UX Networking

HP 9000 and HP Integrity Systems



E0307

U.S.A.

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Features

The A7011A/A7012A PCI-X Combination cards have the following features:

- **PCI-X 133 MHz** capable card. It can operate at 32-bit or 64-bit compatible modes and is supported in the following frequencies: PCI 33/66, PCI-X 66/100/133.
- Supports HP-UX 11i v3 (64 bit), v2 (64 bit) or 11i v1 on HP 9000 (PA-RISC-based) and HP-UX 11i v3 (64 bit) or v2 (64 bit) only on HP Integrity (Itanium® or Itanium®2-based) platforms.
- Supported speeds:
 - 1000Base-T: 10/100 Mbit/s either in full- or half-duplex modes and 1000 Mbit/s in full-duplex mode
 - 1000Base-SX: 1000 Mbit/s in full-duplex mode;
- Supports autonegotiation.
- Supports use of **Jumbo Frames** at 1000 Mbit/s only.
- Supports HP **Serviceguard** and Auto-Port Aggregation (**APA**) for high availability.
- Supports virtual LANs (**VLANs**). This feature is described in *Using HP-UX VLANs* on <http://docs.hp.com>.
- Supports PCI-X online addition/replacement (**OLA/R**) on specified systems. For instructions on how to perform online addition and replacement (OLAR) for PA-RISC-based systems running HP-UX 11i v1, see *Configuring HP-UX For Peripherals*. For instructions on performing OL* for Itanium-based systems and PA-RISC systems running HP-UX 11i v2 of September 2004 or later, refer to the *Interface Card OL* Support Guide*.
- Supports configuration through **SAM** or command line on HP-UX 11i v1, v2, and SMH or command line on HP-UX 11i v3.
- Card resident EFI driver.
- vPars support on HP Integrity and HP 9000 (PA-RISC-based) systems. Enables creation of additional partitions per server.
- Supports LAN Boot on HP Integrity systems running HP-UX 11i v2 and on select HP 9000 systems running HP-UX 11i v1 or 11i v2.
- Supports Online/Offline Diagnostics.
- Supports Ignite-UX.
- Supports readout of Vital Product Data (VPD). To read the VPD, use: `fcmsutil devicefilename vpd`.
- Supports PCI-X error handling on HP-UX 11i v1 and 11i v2. This feature provides a system with improved fault-tolerance. PCI-X Error Handling allows an HP-UX system to avoid a Machine Check Abort (MCA) or a High Priority Machine Check (HPMC), if a PCI-X error occurs (for example, a parity error). On HP-UX 11i v3, supports error recovery.

Driver Availability

The Dual Port Gigabit Ethernet cards use the **iether** driver. The bundle name for this driver is **IEther-00**.

- * for HP-UX 11i v1 (11.11): December 2003 media
- * for HP-UX 11i v2 (11.23): March 2004 media or <http://www.hp.com/>

To locate the iether driver on the web, go to <http://www.hp.com/> and enter A7011A or A7012A in the 'Search' field. On the search results page, scroll down to find the HP-UX 11.23 Dual Port Gigabit Ethernet Driver (iether).

Verifying the LAN installation

- Verify that the LAN connector's Link LED is steadily on (this means the card and driver are installed successfully).
- Obtain the PPA number and the station address of each card by using the `lanscan` command. The MAC address labelled on each card refers to LAN port A. Add 0x1(Hex) to obtain the MAC address for LAN port B.
- To verify link-level connectivity with a remote system, enter:

```
$ linkloop -i PPA_number remote_station_address
```

Note: when you use `linkloop`, ensure that the remote system is on the same subnet and is an HP-UX-based system.

- To verify IP-level connectivity with a remote system, enter:

```
$ping Remote_IP_Address  
and  
netstat -in
```

When you use `netstat -in`, the output values `Ipkts` and `Opkts` should be incrementing.

- Installation is complete when you have successfully run `linkloop`, `ping` and `netstat`. To configure remote systems, see the *Ethernet Support Guide* available on the web at <http://docs.hp.com>. Do this step only if remote systems have not been previously configured.
- Optionally, if you want to verify that the iether driver appears for each installed card, enter: `ioscan -fknc1an`

The `ioscan` output for each port would look something like the following:

```
Class I H/W Path Driver S/W      State   H/W Type  Description  
lan    3 1/0/2/1/0/6/0 iether  CLAIMED INTERFACE HP A7012-60001 PCI/PCI-X 2-port  
1000B-T Adapter
```

The last two digits of the hardware path (third column) reflect the path of each port -- in the sample output shown, the "0" indicates LAN A (as shown in Figure 1). Both ports need to show as `CLAIMED` here.

Interoperability

The A7012A card does not interoperate with older switches containing a BCM 5400 PHY with a version earlier than C-5. The problem occurs when interfacing with switches such as the HP Procurve Module J4115A; version J4115B fixes the Procurve problem.

Recording Card Information

Record the serial number and MAC address located on the card for future reference. The MAC address labelled on the card refers to LAN port A. Add 0x1(Hex) to obtain the MAC address for LAN port B.

Figure 1 A7011A PCI-X Fiber-based 2-Port Gigabit Ethernet Card

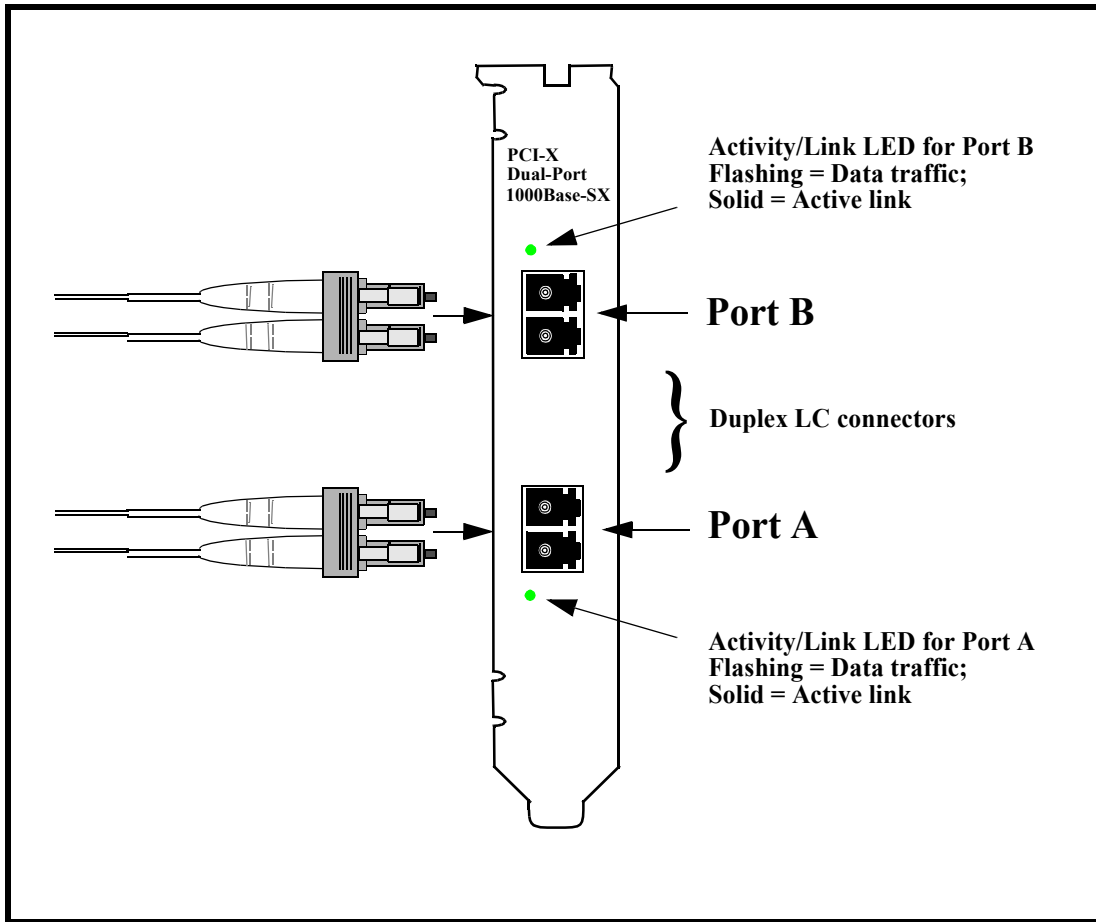
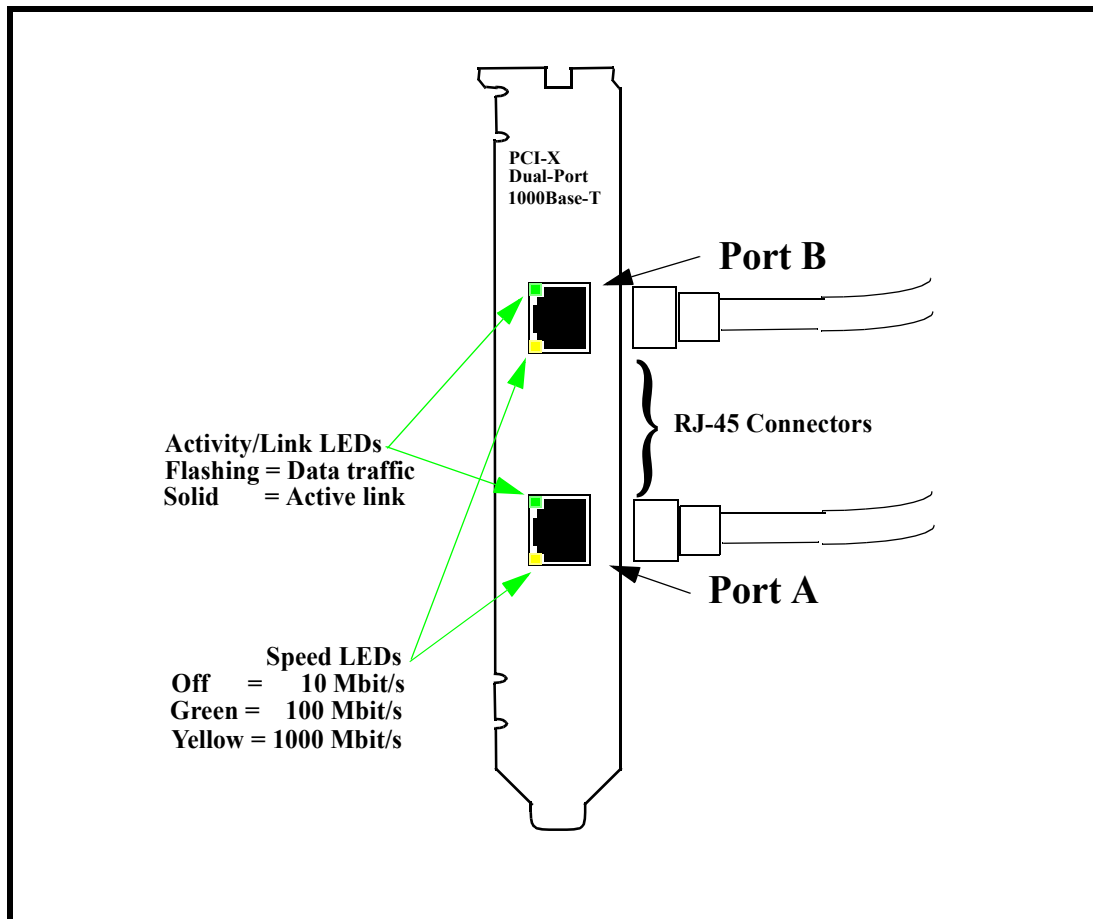


Figure 2 A7012A PCI-X Copper-based 2-Port Gigabit Ethernet Card



Cable Specifications

Operating Distance for 1000Base-T (Copper UTP): Up to 100 meters — Cat 5 and Cat 5E

Operating distances for 1000Base-SX using multi-mode fiber optic cable are as follows:

Description (850nm short wavelength laser)	Modal Bandwidth	Operating Distance
62.5 micron MMF	160 (MHz * km)	2 to 220 meters (6.6 to 722 ft)
	200 (MHz * km)	2 to 275 meters (6.6 to 902 ft)
50 micron MMF	400 (MHz * km)	2 to 500 meters (6.6 to 1640 ft)
	500 (MHz * km)	2 to 550 meters (6.6 to 1804 ft)

Supporting Systems

For the list of systems that support this card, refer to the *Ethernet Support Matrix* on <http://docs.hp.com> under I/O Cards and Networking. The matrix tells which OEs support each card and the driver associated with each technology.

A Physical, Environmental and Regulatory Information

This appendix contains regulatory statements for the United States, Canada, Australia/New Zealand, Japan, and the European community.

Card Physical and Environmental Specifications

Following are the product physical and environmental specifications of the A7011A/A7012A PCI-X 2-Port Gigabit Ethernet Card.

Physical Specifications

Form Factor	PCI half-card form-factor PCI-X (rev 2.3)
PCI support	64-bit 3.3V only 133Mhz
Width	10.8 cm (4.75 in)
Length	16.9 cm (6.6 in)
Thickness	2.0 cm (0.7 in)
Weight	0.105 kg (0.2 lb) kg

Environmental

Temperature

Degrees F = (1.8 x Degrees C) + 32

Operating Temperature Range (Degrees Celsius)	+5° C to 40° C
Recommended Operating Temperature Range (Degrees Celsius)	+10° C to 30° C
Non-operating/ storage Temperature Range (Degrees Celsius)	-40° C to 70° C
Temperature Shock Immunity - Max Rate of Change	20 C/hr
Non-operating/storage Humidity Range in %RH	90
Recommended Operating Humidity Range @ 22 Degrees Celsius in %RH	40 to 60
Heat Dissipation (in Watts)	17

Maximum kV (if less than 15 kV) with no loss of function	8
Maximum kV (if less than 25 kV) with no component damage	25
Operating Altitude	3,000 meters (9900) ft
Non-operating Altitude	4,500 meters (14850) ft

Electromagnetic Compatibility

This document contains regulatory statements for the United States and the European community.

FCC Statement (For U.S.A.)

Federal Communications Commission Radio Frequency Interference Statement

WARNING 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 might cause undesired operation.

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 interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Hewlett-Packard's system certification tests were conducted with HP-supported peripheral devices and cables, such as those received with your system. Changes or modifications to this equipment not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

Canada

Warning: 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.

EMI Statement (European Community)

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

EMI (Australia and New Zealand)

This product meets the applicable requirements of the Australia and New Zealand EMC Framework.



VCCI (Japan) (PCI Card Only)

This equipment complies with the Class A category for information technology equipment based on the rules of Voluntary Control Council for Interference by Information Technology Equipment. When used in a residential area, radio interference may be caused. In this case, the user may be required to take appropriate corrective actions.

Figure 3 VCCI Regulatory Statement

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。

Laser Safety Statements

Laser Safety Statements - U.S. FDA/CDRH - Optical (laser) Transceiver

CAUTION The optical transceiver provided on the network interface card contains a laser system and is classified as a “Class-I Laser Product” under a U.S. Department of Health and Human Services (DHHS) Radiation Performance standard according to the Radiation Control for Health and Safety Act of 1968. The Class I label and compliance statement are located on the optical transceiver.

To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

CAUTION Use of controls, adjustments or the performance procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure.

Laser Safety - European Union - Optical Transceiver Only

CAUTION The optical transceiver provided on the network interface card contains a laser system and is classified as a “Class 1 Laser Product” per EN 60825-1, Safety of Laser products. Class 1 laser products are considered safe and do not pose a biological hazard if used within the data sheet limits and instructions.

To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

CAUTION Use of controls, adjustments or the performance procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure.

There are no user serviceable parts nor any maintenance required for the optical transceiver. All adjustments are made at the factory before shipment to customers. Tampering with or any attempt to modify the optical transceiver will result in voided product warranty. It may also result in improper operation of the network card circuitry and possible overstress of the laser source. Device degradation or product failure may result.

A7011A & A7012A Declaration of Conformance

DECLARATION OF CONFORMITY
According to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company
Systems Interconnect Solutions Lab

Manufacturer's Address: 8000 Foothills Blvd.
Roseville, CA 95747
USA

declares, that the product

Product Name: Dual Port PCI-X 1000SX Gigabit Adapter
Dual Port PCI-X 1000Base-T Gigabit Adapter

Model Number(s): A7011A, A7012A

Product Options: All

conforms to the following **Product Specifications:**

Safety: 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

EMC: 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

Supplementary Information:

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.



Tom Le, Hardware Engineer

Cupertino, CA, Feb, 2004

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