AB545A PCI-X
4 Port Gigabit Ethernet Card
Overview

HP-UX Networking

HP 9000 and HP Integrity Systems

E0307

U.S.A.

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Product Overview

The AB545A PCI-X LAN cards have the following features and requirements:

*   **PCI-X 133 MHz** capable card and is keyed so it only fits in 3.3V slots. It can operate at 32-bit or 64-bit modes and is supported in the following frequencies:

    —   PCI-X 133. Best performance is achieved by putting the card into one of the highest-performing (or "**dual-rope**") PCI-X 133 slot. To identify which slots are the highest performing slots in a particular system, please refer to the hardware users' guide for each system.

    —   PCI-X 66

    —   PCI 66

    The AB545A card is *not* supported in PCI 33 bus mode. See the CAUTION that follows:

    CAUTION   The AB545A card DOES NOT SUPPORT PCI 33 MHz operation. Therefore, do not place this card in the shared slot of a system where the card in the neighboring shared slot is a 33 MHz only card!!! Please see Table 1 on page 7 for the list of 33 MHz only cards.

*   Requires either HP-UX 11i v 2.0 (64 bit) operating environment (OE) of **September 2004 (or later)** or the software bundle, **IEther-00** , from the 11i v 1.0 of **December 2004 (or later)** OE or application software media.

    —   For 11i v 2.0, your system needs to be on the September 2004 operating environment or later, so you need to load the entire OE.

    —   For systems that are already running 11i v 1.0, you can either just load the required software driver bundle, or you can load the entire December 2004 11i v 1.0 OE and /or application software and you will automatically get the driver you need for this card.

*   Supported speeds: 10/100 Mbit/s either in full- or half-duplex modes and 1000 Mbit/s in full-duplex mode

*   Supports autonegotiation.

*   Supports **Jumbo Frames**.

*   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. A patch is required. If your system is running HP-UX 11i v 1.0, use PHKL_31227 (or later). If your system is running HP-UX 11i v 2.0, use PHKL_31226 (or later). If the patch is not installed, the OLA operation will not succeed and the card will not be usable until the system is rebooted.

    For instructions on how to perform online addition and replacement (OLAR) for PA-RISC-based systems running HP-UX 11i v 1.0, see *Configuring HP-UX For Peripherals*. For instructions on performing OL* for Itanium-based systems and PA-RISC systems running HP-UX 11i v 2.0 of September 2004 or later, refer to the *Interface Card OL* Support Guide* .

*   Supports configuration through **SAM** or command line on HP-UX 11i v2 and SMH or command line on HP-UX 11i v3.

- Supports vPars on HP Integrity and HP 9000 (PA-RISC-based) systems. Enables creation of additional partitions per server.

- Card resident EFI driver V 3.0.03.

- 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.

- IPv4 Checksum Offload for TCP (CKO).

- IPv4 TCP Segmentation Offload (TSO).

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

Driver Availability

 The 4-Port Gigabit Ethernet cards use the **iether** driver. The bundle name for this driver is **IEther-00**. The first supported release of the HP-UX **iether** driver is as follows:

   * for HP-UX 11i v1 (11.11): December 2004 media

   * for HP-UX 11i v2 (11.23): September 2004 media or http://www.hp.com/

To locate the iether driver on the web, go to http://www.hp.com/ and enter AB545A in the 'Search' field. On the search results page, scroll down to find the HP-UX 11.23 4-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 the next LAN port.

- 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`

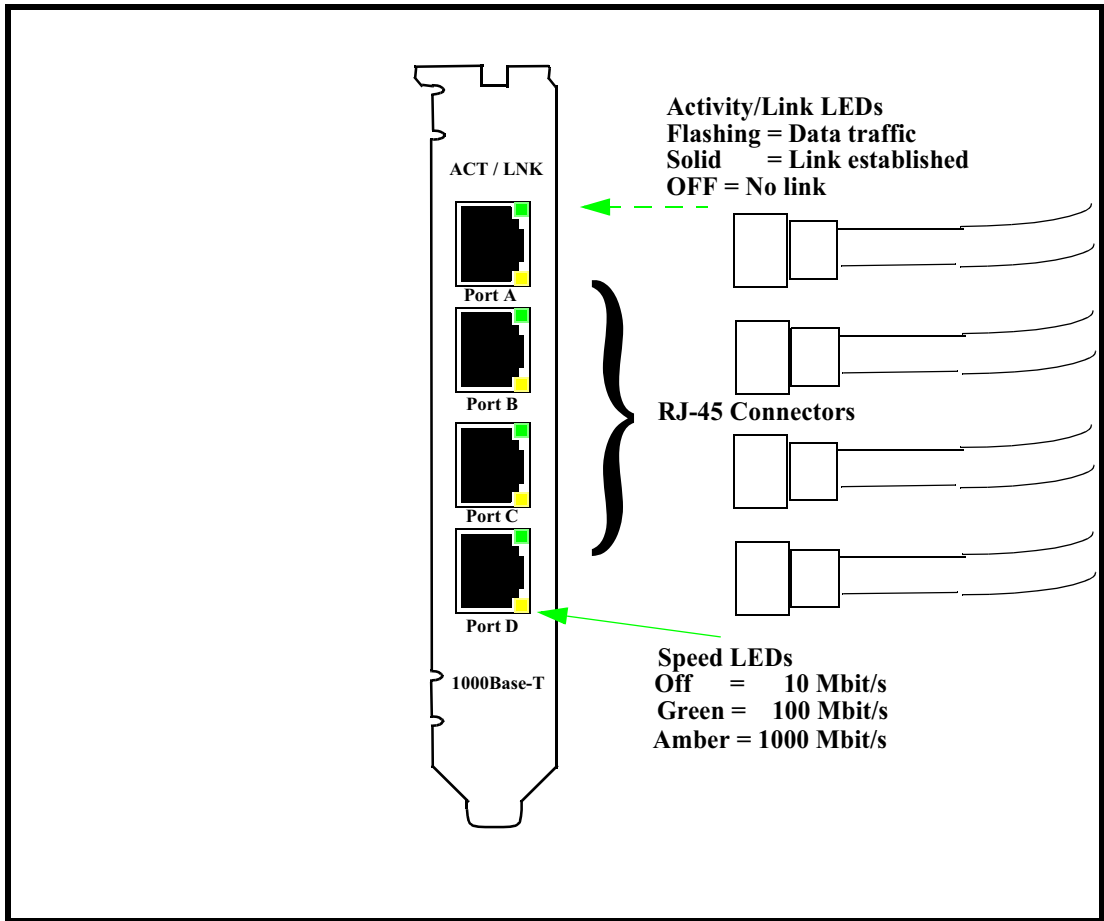When you use netstat -in, the output values Ipkts and Opkts should be incrementing.

- 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 -fknClan**

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 AB545-60001 PCI/PCI-X 4-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.

Figure 1   **AB545A PCI‑X 4‑Port Gigabit Ethernet Card**

Supporting Systems

For the list of systems that support this card and the ones that don't, refer to the *Ethernet Support Matrix* on http://docs.hp.com. That matrix also tells which OEs support each card and the driver associated with each product.

Unsupported Shared Slot Usage with 33 MHz Cards

The AB545A 4-Port Gigabit Ethernet card is not supported in the shared slots of systems where the card in the neighboring shared slot is a 33 MHz only card. The 33 MHz only cards are specified in Table 1.

As of the date of publication of this document, the 3 systems listed in Table 1 are the main ones where the AB545A card should not be placed in the neighboring shared slot with the cards listed. The restriction applies to all systems with shared slots even if the system isn't shown in Table 1.

Table 1   **AB545A Cannot be in Neighboring Shared Slots with These 33 MHz Cards**

		Systems that Have Shared Slots		
HP 33 MHz Only Cards	**Card Description**	**rx4640**	**rp4440**	**rx4640-8**
A3739B	FDDI Dual Attach	✔	✔	✔
A5230A	10/100B-TX (RJ45)	✔	✔	✔
A5506B	4-port 10/100B-TX	✔	✔	✔
A5513A	ATM 155 (MMF connector)	✔	✔	✔
A5783A	Token Ring (4/16/100 Mb/s)	✔	✔	✔
A5838A	2port Ultra2-SCSI + 2port 100T	✔	✔	✔
A6748A	8-port Terminal MUX	✔	✔	✔
A6749A	64-port Terminal MUX	✔	✔	✔
J3525A	2-port serial (X25/FR/SDLC)	✔	✔	✔
J3526A	4-port serial (X25/FR)	*not applicable*	✔	*not applicable*
Z7340A	8 port ACC	✔	✔	✔

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, and the European community.

Card Physical and Environmental Specifications

Following are the product physical and environmental specifications of the AB545A PCI-X 4-Port Gigabit Ethernet LAN card.

Physical Specifications

Form Factor	PCI full length card PCI-X (rev 2.3)
PCI support	64-bit 3.3V only 133Mhz
Height	10.668 cm (4.2 in)
Depth	16.9 cm (6.6 in)
Width	1.295 cm (0.51 in)
Weight	0.18 kg (0.4 lb) kg

Electrical

Power consumption:	25 Watts

Environmental

Temperature
Degrees F = (1.8 x Degrees C) + 32

Operating Temperature Range (Degrees Celsius)	+5º C to 40º C
Recommended Operating Temperature Range (Degrees Celsius)	+10º C to 40º C
Non-operating/ storage Temperature Range (Degrees Celsius)	-40º C to 70º 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

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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.
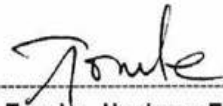

Canada

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.

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: PCI-X 4-Port 1000Base-T Ethernet Adpt

Model Number(s): AB545A

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.

Cupertino, CA, Feb, 2005

Tom Le, Hardware Engineer

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