

hp server
connectivity



Gigabit Ethernet
LAN



hp Gigabit Ethernet
LAN adapters—
gigabit performance
at affordable costs

comprehensive networking tools for the most demanding mission-critical and enterprise needs

The demand for higher-speed network connections is growing at a tremendous rate in order to keep pace with the speed requirements of applications such as SAP R/3, database backups, medical, CAD/CAM, 3D modeling, animation, video, and more.

Internet data centers process terabytes of data daily. Processing, sharing, and distributing this data requires faster and faster networks.

Intelligent adapters, which take on more of the network processing from the server, are becoming critically important in helping servers cope with the onslaught of traffic running at gigabit/second speeds. To maximize server CPU efficiency for an effective Gigabit Ethernet implementation, adapters should not only perform TCP/IP checksum, interrupt coalescing, and byte swapping, but also enable the reduction of host data copy operations.

The HP Gigabit Ethernet LAN solutions perform all of these functions and fully support the IEEE 802.3ab and 802.3z standards for Gigabit operations. These high-performance, standards-based, scalable network links allow customers to move large amounts of data quickly while leveraging their existing investments in Ethernet technology.

The HP Gigabit LAN adapters provide 1000 Mbps bandwidth over existing copper wire and fiber-optic cables, meeting the demands of e-commerce and data-intensive businesses that want to preserve their investment in existing Ethernet infrastructures. The 1000Base-T LAN adapter supports both the CAT5 and CAT5e (enhanced) cabling standards. This allows superior investment protection in existing cabling infrastructure.

The 1000Base-T adapter automatically detects the speed of the associated device as 10-, 100-, or 1000Base-T so that it may be deployed immediately in any Ethernet environment. All the Gigabit LAN adapters are based on the same Ethernet standards already widely deployed in the marketplace and allow migration from 10 Mbps to 100 Mbps to 1000 Mbps quickly and easily, with fast deployment and minimal training needed.

The Gigabit LAN adapters are also supported with HP's Auto Port Aggregation (APA) software. Up to 4 Gigabit Ethernet links can be logically aggregated together to form a single, extremely high-bandwidth channel with one IP address, automatic link failover, and load balancing.

In addition, HP Gigabit Ethernet adapters support HP-UX VLANs (Virtual LANs). This solution offers IT managers a powerful tool that simplifies the tasks of building, managing, and securing complex network infrastructures. Physical LANs can be segmented into smaller logical or "virtual" LANs, allowing broadcast traffic to be reduced, thereby improving overall network performance. Now a change to network topology no longer requires those dreaded trips to the wiring closet!

HP-UX VLAN is compliant with host-based IEEE 802.1Q VLAN tagging, IEEE 802.1p (later incorporated in IEEE 802.1D) priority encoding, and IP Type of Service (ToS) - 802.1p priority conversion.

Other key features of HP-UX VLAN include:

- IP subnet-based, protocol-based, and port-based VLAN support
- supported on HP-UX 11i
- configuration using well known HP-UX tools—*lanadmin* (CLI) and SAM (GUI)
- 1024 VLANs per NIC port
- designed to work seamlessly with HP's high availability products, such as MC/Serviceguard
- no changes to applications required
- preserve VLAN configuration across reboot

If you would like more information regarding HP-UX VLAN functionality, please refer to the "Planning and Implementing VLANs with HP-UX" white paper, located at: www.hp.com/go/vlan

customer benefits

- increase network performance—1000 Mbps
- lower networking management costs
- leverage existing Ethernet infrastructures—including widely deployed CAT5 cabling for 1000Base-T
- maximize CPU efficiency, thus lowering total cost of ownership
- minimize downtime with full high availability

application areas

- web-based Internet/intranet information distribution and transaction processing require both fast response times and high availability
- high productivity client/server systems require high-bandwidth, high-availability paths between the client, server, and data
- networking backbones. Gigabit aggregates 10/100Base-T traffic. The gigabit links can also be aggregated with Auto Port Aggregation to create multi-gigabit, high-bandwidth backbones
- database backup demands very high bandwidth and availability to ensure one-pass backup
- solutions requiring high-performance connections for voice, video, streaming, multimedia, and high-end applications
- network-attached storage

features and benefits

features	benefits
1000 Mbps (Gigabit speed!)	<ul style="list-style-type: none">• high-performance, high-bandwidth gigabit networking—1000 Mbps• ideal for media-rich data, Internet applications, and high-speed data centers• faster network backups and data access
1000Base-T and 1000Base-SX Ethernet standards (IEEE 802.3ab and IEEE 802.3z)	<ul style="list-style-type: none">• seamlessly integrates into existing Ethernet infrastructures• lower cost to implement and manage• leverage current investments in Ethernet and cable infrastructure
auto-negotiation: Tri-Speed—10, 100, or 1000 Mbps for the 1000Base-T adapter	<ul style="list-style-type: none">• flexible, easy to deploy• adapts for growing network bandwidth requirements
CPU offload (Internet checksum offload, byte swapping, interrupt coalescence and avoidance)	<ul style="list-style-type: none">• increases performance• maximizes server CPU efficiency
HP-UX VLAN (virtual LAN)	<ul style="list-style-type: none">• enables logical connectivity separation of a network from physical connectivity• isolates traffic and preserves bandwidth• improves network manageability and performance
MC/Serviceguard and Auto Port Aggregation support	<ul style="list-style-type: none">• highest levels of high availability• aggregate up to 4 gigabit links to create a “super” bandwidth connection
up to 550-meter cabling lengths (dependent on cable) for the 1000Base-SX adapter	<ul style="list-style-type: none">• ultimate flexibility in data center layouts, backbone implementations, or high-performance client networks
dual DMA channels for simultaneous read and write; embedded RISC processor	<ul style="list-style-type: none">• enhanced performance for every type of networking task—downloading, uploading, file transfers, and intense bi-directional traffic

**Next Generation
Gigabit Ethernet
specifications**

product number	A6825A	A6847A
description	PCI HP-UX 1000Base-T Gigabit Ethernet Adapter	PCI HP-UX 1000Base-SX Gigabit Ethernet Adapter
systems supported	rp2400 series rx2600 series rp5400 series rx5600 series rp7400 series rp8400 superdome	rp2400 series rx2600 series rp5400 series rx5600 series rp7400 series rp8400 superdome
maximum number of active cards	rp2400 series: 4 rx2600 series: 4 rp5400 series: 10 rx5600 series: 9 rp7400: 12 rp7410: 15 rp8400: 16 superdome: 16, 32, or 64 (depends on configuration)	rp2400 series: 4 rx2600 series: 4 rp5400 series: 10 rx5600 series: 9 rp7400: 12 rp7410: 15 rp8400: 16 superdome: 16, 32, or 64 (depends on configuration)
release(s) supported	hp-ux 11.0 and 11i	hp-ux 11.0 and 11i
VLAN supported	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)
OLAR support	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)
connector type	RJ-45	duplex SC
cabling	CAT5 or CAT5e unshielded twisted pair (UTP) copper cabling	multi-mode fiber (62.5 or 50 micron)
wavelength	NA	850 nm
CPU offload features	yes	yes
auto-sensing speed	10, 100, 1000 Mbps	1000 Mbps only
auto-negotiation	yes	yes
duplex support	full duplex for 10/100/1000 Mbps half duplex for 10/100 Mbps	full duplex for 1000 Mbps half duplex not supported for fiber
jumbo frame support	yes (at 1000 Mbps only)	yes
MC/Serviceguard support	yes	yes
Auto Port Aggregation support	yes	yes
operating distance	up to 100 meters	up to 550 meters (dependent on cable)
Ethernet standard	IEEE 802.3ab	IEEE 802.3z
form factor/host bus	64-bit/66 MHz PCI	64-bit/66 MHz PCI
card size	2.536 x 6.6 in (64.4 x 167.6 mm)	2.536 x 6.6 in (64.4 x 167.6 mm)

**Legacy
Gigabit Ethernet
specifications**

product number	A4929A	A4926A	A4924A	A4925A
description	PCI 1000Base-T Gigabit LAN Adapter	PCI 1000Base-SX Gigabit LAN Adapter	HSC 1000Base-SX Gigabit LAN Adapter	HSC-EISA FF 1000Base-SX Gigabit LAN Adapter
systems supported	rp2400 series rp5400 series rp7400 series rx4610 rp8400 rx9610 v2500/2600 superdome	rp2400 series rp5400 series rp7400 series rx4610 rp8400 rx9610 v2500/2600 superdome	K-class	D-, R-class
maximum number of active cards	rp2400 series: 4 rp5400 series: 10 rx4610: 10 rp7400: 12 rp7410: 15 rp8400: 16 rx9610: 10 v2500/2600: 16 superdome: 16, 32, or 64 (depends on configuration)	rp2400 series: 4 rp5400 series: 10 rx4610: 10 rp7400: 12 rp7410: 15 rp8400: 16 rx9610: 10 v2500/2600: 16 superdome: 16, 32, or 64 (depends on configuration)	2	1
hp-ux release supported	11.0 and 11i	11.0 and 11i	10.20, 11.0, 11i	10.20, 11.0, 11i
hp-ux VLAN supported	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)
OLAR support	yes (for 11i version 11.11 only)	yes (for 11i version 11.11 only)	no	no
connector type	RJ-45	duplex SC	duplex SC	duplex SC
cabling	CAT5 or CAT5e unshielded twisted pair (UTP) copper cabling	multi-mode fiber (62.5 or 50 micron)	multi-mode fiber (62.5 or 50 micron)	multi-mode fiber (62.5 or 50 micron)
wavelength	NA	850 nm	850 nm	850 nm
CPU offload features	yes	yes	yes	yes
auto-sensing speed	10, 100, 1000 Mbps	1000 Mbps only	1000 Mbps only	1000 Mbps only
auto-negotiation	yes	no	no	no
duplex	half and full	full	full	full
jumbo frame support	yes	yes	yes	yes
mc/serviceguard support	yes	yes	yes	yes
auto port aggregation support	yes	yes	yes	yes
operating distance	100 meters	up to 550 meters (dependent on cable)	up to 550 meters (dependent on cable)	up to 550 meters (dependent on cable)
Ethernet standard	IEEE 802.3ab	IEEE 802.3z	IEEE 802.3z	IEEE 802.3z
form factor/host bus	64-bit/ 66 MHz PCI	64-bit/ 66 MHz PCI	HP HSC	HP HSC-EISA
card size	4.25 × 6.9 in (109 × 176 mm)	4.25 × 6.9 in (109 × 176 mm)	3.25 × 5.63 in (83 × 144 mm)	4.88 × 13.38 in (125 × 343 mm)

**additional hp-ux
Gigabit Ethernet
features and
specifications**

feature	all hp-ux Gigabit Ethernet LAN adapters
NIC to NIC connection	yes
link level and IP multi-cast support	yes
promiscuous mode (link and SAP)	yes
SNMP (MIB-II) support	yes
activity and status LED indicators	yes
universal keyed, 3.3 and 5v tolerant	yes (for PCI cards only)
SAM configurable	yes
protocols	TCP/IP, UDP/IP, NFS
customer installable	yes (except on V, Superdome)
hp MAC address	yes

**operating distance for
1000Base-SX**

1000Base-SX (850nm SWL)	modal bandwidth (classification of fiber-optic cable)	operating distance
62.5-micron MMF cable	160 (MHz x km)	up to 220 meters
	200 (MHz x km)	up to 275 meters
50-micron MMF cable	400 (MHz x km)	up to 500 meters
	500 (MHz x km)	up to 550 meters

**environmental
specifications
for A6825A and
A6847A**

temperature	non-operating: operating:	-40° to 60°C (-40° to 140°F) 0° to 50°C (32° to 122°F)
humidity	non-operating: operating:	5 to 95% RH non-condensing (20%/hour) 5 to 95% RH non-condensing at 40°C (104°F) (16-hour dwells at extremes)
altitude	non-operating: operating:	10.6 km (35,000 ft) 3.1 km (10,000 ft)
electromagnetic compatibility	USA:	FCC, Class B
	Europe:	CISPR-22/EN55022, Class B
	Australia:	AS/NZS 3548 Class B
	Japan:	VCCI, Class B
	harmonic:	EN61000-3-2
flicker/fluctuation:	EN61000-3-3	

**environmental
specifications
for A4929A, A4926A,
A4924A, and A4925A**

temperature	non-operating: operating:	-40° to 70°C (-40° to 158°F) -5° to 40°C (23° to 104°F)
humidity		15% to 80% RH at 22°C (70°F)
altitude		3.1 km (10,000 ft)
electromagnetic compatibility	USA:	FCC, Part 15, Class A
	Europe:	CISPR-22, Class A
	Germany:	FTZ-1046 (VDE Level B)
	Japan:	VCCI, Class I

Next Generation Gigabit Ethernet ordering information

A6825A—1000Base-T PCI Gigabit Ethernet LAN Adapter

Option #0D1—Factory Integration

Option #AVN—Release Notes

A6847A—1000Base-SX PCI LAN Adapter

Option #0D1—Factory Integration

Option #AVN—Release Notes

Legacy Gigabit Ethernet ordering information

A4929A—1000Base-T PCI
Gigabit Ethernet LAN Adapter

Option #0D1—Factory
Integration

Option #AVN—Release Notes

A4926A—1000Base-SX PCI
LAN Adapter

Option #0D1—Factory
Integration (not workstations)

Option #AVN—Release Notes

Option #AHN—For workstation
customers

A4925A—1000Base-SX
HSC-EISA FF Gigabit Adapter

Option #0D1—Factory
Integration

Option #AVN—Release Notes

A4924A—1000Base-SX HSC
Gigabit Ethernet LAN Adapter

Option #0D1—Factory
Integration

Option #AVN—Release Notes

hp-ux VLAN ordering information

HP-UX VLAN functionality is available today, at no additional cost to currently supported HP-UX 11i customers! A simple software upgrade to legacy Ethernet products allows you to take advantage of these key features immediately.

Next Generation Gigabit Ethernet users (i.e., A6825A and A6847A) should download and install PHNE_25388 (CoreLAN). Legacy Gigabit Ethernet users (i.e., A4929A, A4926A, A4925A, and A4924A) should download and install PHNE_24491 (Gigabit Ethernet) and PHNE_25388 (CoreLAN). The software can be obtained from the following Web site: <http://us-support.external.hp.com/>, under the category titled "individual patches."

Note: after July 2002, HP-UX VLAN will also be available via the HP-UX Quality Pack releases.

for more information

For additional information on this or other HP enterprise networking solutions, please visit us on the Web at www.hp.com/go/hp9000io, visit our technical documentation site at <http://docs.hp.com/hpux/netcom/index.html>, or contact any of our worldwide sales offices or HP Channel Partners. (In the U.S., call 1 800 637 7740.)

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