

**GigEther-01 (igelan)
Gigabit Ethernet Driver
for HP-UX 11i v 1.0
Release Notes**

Software Version B.11.11

HP-UX PA-RISC-Based Systems



i n v e n t

Manufacturing Part Number : J5683-90012

E0604

U.S.A.

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GigEther-01 (igelan) Gigabit Ethernet Driver for HP-UX 11i v 1.0 Release Notes

What's in this Version

The following information is for the June 2004 update release of HP's GigEther-01 (igelan) Gigabit Ethernet Driver for HP-UX 11i v 1.0. The igelan driver supports Gigabit Ethernet cards such as:

- A6825A PCI GigE Base-T,
- A6847A PCI GigE Base-SX,
- A6794A core PCI GigE BaseT/SCSI,
- A7109A core PCI GigE,
- A9782A PCI-X combination GigE Base-SX/Fibre Channel,
- A9784A PCI-X combination GigE Base-T/Fibre Channel.

You can check to see if this driver is present on your system by running the commands described in “How to Verify that the Correct Driver is in the Kernel” in this document.

These June 2004 release notes include details on:

- Support for a new feature: **TCP Segmentation Offload (TSO)**. See details in the following section of this document.
- Defect fixes.
- **The firmware level required for the rx8620/rx7620 servers when using PCI-X cards.** The rx8620/rx7620 servers need system firmware version 1.009 or higher in order to use PCI-X based cards such as the A9782A and A9784A.

For the most up-to-date list of network cards and the systems that they work on, check the Card, Driver, Version matrix on <http://docs.hp.com> under “Networking and Communications,” or ask your sales representative.

Support for New Feature: TCP Segmentation Offload (TSO)

TCP Segmentation Offload (TSO) is a mechanism by which the host stack offloads certain portions of outbound TCP packet processing to the Network Interface Card (NIC) thereby reducing host CPU utilization. This functionality can significantly reduce the load on the server for certain applications which primarily transmit large amounts of data from the system. Examples include web servicing, NFS, and file transfer applications.

Transport software support for TCP Segmentation Offload (TSO) enhancements is included in the TOUR 2.0 release, which became available for download on software.hp.com in May, 2004. Note that TOUR 2.0 only provides the mechanisms in the transport software needed to support the TSO-enhanced cards and drivers. Additional software is required to implement TCP Segmentation Offload. For further details and to download the feature, please go to <http://software.hp.com>, and look under “enhancement releases and patch bundles” for the enhancement to the igelan driver to support TSO. At the time of this writing, the TSO enhancement for the igelan driver can be found at this link:

<http://software.hp.com/portal/swdepot/displayProductInfo.do?productNumber=GigEtherEnh-01>

How It Works

The reduction in CPU utilization is achieved primarily by allowing the host to transmit large frames (frames larger than the links Maximum Transmission Unit or MTU) to the NIC which are subsequently carved up into smaller, MTU-sized frames by the NIC, before transmission on the wire. Thus instead of processing many small MTU-sized frames during transmit, the host sends fewer larger VMTU (Virtual MTU) sized frames thereby increasing the efficiency of the data transfer in the host. The VMTU is typically much larger than the links MTU; for example, on a typical Ethernet card, the link MTU is 1500 bytes while a VMTU could be as large as 64Kbytes. Greater than 50% reduction in CPU utilization has been observed on some FTP workloads.

NOTE Not all applications benefit from the TSO mechanism. Only data intensive applications which transmit large data buffers using TCP over IPv4 are improved. Other types of applications will not significantly benefit from the TSO mechanism. Performance improvements vary depending upon the platform used. Systems which support hardware partitioning will notice a decrease in per-card throughput in addition to the significant reduction in CPU utilization.

Fixes in this Version

The following defect fixes were made to the HP-UX 11i version 1.0 of the igelan (GigEther-01) driver in the June 2004 release:

- JAGaf22081: Autonegotiation fix for A9782A PCI-X combination GigE Base SX and Fibre Channel card.
- JAGaf08559: Internal MAC receive error counter fixed.
- JAGaf08915: A race condition was fixed that occurred when resets were done under heavy traffic.

To view the entire details of each defect fix, refer to the HP IT Resource Center at <http://forums1.itrc.hp.com/service/forums/home.do>.

Firmware Requirements

The rx8620 and rx7620 servers require system firmware version 1.009 or higher in order to use PCI-X cards. The PCI-X cards that work in those systems and that use the igelan driver are the A9782A and A9784A PCI-X 2Gb Fibre Channel and Gigabit Ethernet combination cards

Table 1 **rx8620/rx7620 Systems Require a Specific Firmware Level in order to Support PCI-X Cards**

PCI-X Cards Supported by igelan Driver that Are Used in the rx8620/rx7620	Max Cards per System	Card Description	Minimum Firmware Version Required
A9782A/A9784A	16	PCI-X 2Gb Fibre Channel/Gigabit Ethernet combination	PDC 1.009

Any rx8620 and rx7620 systems shipped from the factory *before May 2004* need to have system firmware version 1.009 or greater in order to support the above I/O cards on HP-UX. Beginning in May 2004, all rx7620 and rx8620 platforms shipped will have the latest system firmware (v1.014 or later).

Overview of Software Installation Process

The required operating environment is HP-UX 11i v 1.0. To install the Operating Environment, use the Ignite-UX-11-11 Installation Utilities available on the HP-UX 11i v 1.0 OE or AR media. The operating environment version should show as B.11.11 when you type: **uname -a** at the system prompt.

For instructions on how to install and configure your link card's hardware and software, refer to the *A6825/A6847A PCI Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide* or the *A9782A/A9784A Fibre Channel and Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide* available on the web at <http://docs.hp.com> under "Networking and Communications." If the network card was factory installed (ordered on product option 0D1) or is the "built-in" or "core" LAN, the LAN driver for this card will already be on your system disk.

If Installing from the June 2004 OE or AR Media

The June 2004 HP-UX 11i Operating Environment disk, or Application Software and Support Plus disks contain everything you need.

1. Using the June HP-UX 11i Operating Environment disk or Support Plus disk, load the HWEnable11i bundle. Load the HWEnable11i bundle before or with the driver bundles mentioned in the next step.
2. Using the June HP-UX 11i Operating Environment disk or Application Software disk, load the latest required driver(s):
 - Gigabit Ethernet driver (GigEther-01 bundle version B.11.11.12). If you are installing a Gigabit Ethernet card, you are done at this point.

If you are installing the A9782A or A9784A multi-function card proceed with the steps to load the driver for your Fibre Channel port (driver FibrChan1-01). Using the June HP-UX 11i Operating Environment disk or Support Plus disk, load the Online Diagnostics from the HP-UX Support Tools Bundle. They are necessary for Fiber Channel operation.

How to Verify that the Correct Driver is in the Kernel

For instructions on how to install and configure the hardware and software, refer to the installation guide for your LAN card such as the *A6825A/A6847A PCI Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide* or the *A9782A/A9784A PCI-X Fibre Channel and Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide* available on the web at <http://docs.hp.com> under “Networking and Communications.” The required operating environment is HP-UX 11i v 1.0. The operating environment version should show as B.11.11 when you type: `uname -a` at the system prompt. For the June 2004 release of HP-UX 11i v 1.0, Gigabit Ethernet cards such as the A6825A and A6847A cards require the **igelan** B.11.11.10 driver from the GigEther-01 bundle. To verify that the driver was loaded in the kernel, execute the following command:

```
what /stand/vmunix |grep drivervname  
where drivervname is igelan (for Gigabit Ethernet)
```

You should see a response like:

```
igelan_ilan Version: 1 May 18 2004  
igelan Revision: B.11.11.10 May 18 2004
```

List of Related Documentation

Following is a list of documents related to this product. They are available on the web at <http://docs.hp.com> under “Networking and Communications.” Scroll down to 1000Base-T and 1000Base-SX (Gigabit Ethernet). The Support Guide is also available on the Instant Information CD if you have an HP support contract.

- *A6825/A6847A PCI Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide* or the *A9782A/A9784A PCI-X Fibre Channel and Gigabit Ethernet Card for HP-UX 11i v 1.0 Installation Guide*

Provides step-by-step instructions on how to install and configure the hardware and software.

- *Ethernet Support Guide* or the *PCI-X 2 Gigabit Fibre Channel and 1000Base-SX Combination Card Support Guide (HP-UX 11i v1)*

Provides information on advanced features and detailed information on troubleshooting the Gigabit Ethernet cards or the combination Fibre Channel/Gigabit Ethernet cards.