PCI Token Ring Adapter Quick Configuration Guide

These instructions apply to PCI Token Ring Adapters on HP 9000 workstations and servers with a PCI bus on HP-UX 11.0 or later.

Product description

The PCI Token Ring Adapter is a 32-bit, bus master, token ring adapter that supports the IEEE 802.5 Token-Ring Standards definition. The adapter supports networking on all HP 9000 workstations and servers utilizing the PCI bus specifications on HP-UX 11.0 or later.

A4930A and A5783A run at 16 or 4 Mbps over STP cabling (via an RJ-45 or 9-pin D-shell connector) and UTP (via an RJ-45 connector) without the need for user selection. If connected to a 100 Mb/s switch port and autosense is enabled, A5783A will operate at 100 Mb/s.

No more than one data cable may be connected to the PCI Token Ring Adapter at a time. For STP cable media, properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. The adapter also operates in full-duplex mode when connected to a full-duplex capable switch (Dedicated Token Ring - DTR).

The PCI Token Ring Adapter operates at a bus speed of 33 MHz, is based on the 3X5 inch Form Factor, requires no switches to be set for installation, and is PCI 2.0 and 2.1 compliant.

Step 1: Attach the system to the network

❏ PCI Token Ring is customer-installable on all PCI systems except V-Class and Superdome. Refer to the hardware installation section in the *Installing and Administering Token Ring/9000* manual for installation instructions. If the software has **not** been loaded on your disk, complete the following step after installing all relevant patches, otherwise, skip to the next check box. Refer to the Release Notes for patch dependencies.

   • Install the appropriate PCI Token Ring software driver (product number A4930A or A5783A) using swinstall(1M).

   Note: For 11i, software bundle tags have changed to TokenRing-00.

❏ Attach the adapter to the Token Ring network using the correct cabling. The PCI Token Ring interface supports unshielded twisted-pair (UTP) and shielded twisted-pair (STP) cabling with an RJ-45 or 9-pin D-shell connector.

❏ Verify the Status LEDs for initialization using the "Status LEDs" table on page 4. Note that only those items with an "X" in the "*" column are possible prior to configuration.

Step 2: Verification and Software Configuration

❏ As the system starts, look for a message on the console (or use dmesg) similar to the following one:

   pcitr7: INITIALIZING HP PCI Token Ring adapter at 4/1/0

❏ Verify that the PCI Token Ring driver was loaded in the kernel by entering the following command at the HP-UX prompt:

   # what /stand/vmunix | grep Token

   ...then look for the following string:

   A5783A/A4930A/J1644AA HP PCI Token Ring <version> <(release)> <date>

   for example:

   A5783A/A4930A/J1644AA HP PCI Token Ring B.11.11.02 (DART 52) Dec 20 2000

❏ On V-Class systems, you can verify that the card has been recognized by the low-level system firmware by doing the following:

   • At the console Menu Mode "command" prompt, type "fm" (ForthMode) to switch to the Open Boot Interface.

   • At the Open Boot "ok" prompt, type "show-devs". Look for the device ID (pcitr) of the Token Ring card just installed.

❏ Verify that the system recognizes the Token Ring Adapter locally by doing the following:

   ❏ Run "ioscan" using the following command:

      # ioscan -k -f -C lan | grep pcitr

   • Look for a message similar to the following and verify that the device is claimed:

   lan 2 0/0/0 pcitr CLAIMED INTERFACE HP A4930A 4/16 PCI Token Ring Adapter or

   lan 2 0/0/0 pcitr CLAIMED INTERFACE HP A5783A 4/16/100 PCI Token Ring Adapter

❏ Run "lanscan" and look under the "MAC Type" column for entries of "802.5".

   • For each 802.5 entry, there will be an associated "lan*" entry (e.g., lan8) under the column titled "Net-Interface NamePPA". These are your Token Ring Adapter(s).

   • For each "lan*" entry, you can run "ls -l /dev/lan*" to verify that the device file was created (for example, /dev/lan8).

   • Run "dmesg" to verify that the adapter was found by the system. Look for a message similar to the following:

   pcitr7: INITIALIZING HP PCI Token Ring adapter at 4/1/0

❏ Do either of the following steps, *but not both*:

   • Configure the Token Ring Adapter with SAM. 100 Mb/s operation is enabled by selecting *autosense*.

   • Manually edit /etc/rc.config.d/pcitrconf to configure the startup parameters for the interfaces to be configured. After editing pcitrconf, edit netconf to configure IP over the link, then reboot. Note that 100 Mb/s operation is enabled using autosense as described in the comments in the config file.

   Refer to the *Installing and Administering Token Ring/9000* manual for instructions on configuration using either method.

❏ Verify remote connectivity.

   • Run "linkloop" on your system to check for link level loopback connectivity. Example:

      linkloop -v -i <PPA> <station address>

   NOTE: The station address must be another HP node. Linkloop to a switch's MAC address will not work.

   Verify IP connectivity to a remote system using the following command:

   ping <remote_hostname>

   or

   ping <remote_IP_address>

These instructions apply to PCI Token Ring Adapters on HP9000 workstations with a PCI bus on HP-UX 10.20.

Product description

The PCI Token Ring Adapter is a 32-bit, bus master, token ring adapter that supports the IEEE 802.5 Token-Ring Standards definition. The adapter supports networking on all HP 9000 workstations utilizing the PCI bus specifications on HP-UX 10.20.

The adapter runs at 16 or 4 Mbps over STP cabling (via an RJ-45 or 9-pin D-shell connector) and UTP (via an RJ-45 connector) without the need for user selection. If connected to a 100 Mb/s switch port, and autosense is enabled, the adapter will operate at 100 Mb/s.

No more than one data cable may be connected to the PCI Token Ring Adapter at a time. For STP cable media, properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. The adapter also operates in full-duplex mode when connected to a full-duplex capable switch (Dedicated Token Ring - DTR).

The PCI Token Ring Adapter operates at a bus speed of 33 MHz, is based on the 3X5 inch Form Factor, requires no switches to be set for installation, and is PCI 2.0 and 2.1 compliant.

Step 1: Attach the system to the network

❏ PCI Token Ring is customer-installable on all PCI workstations. Refer to the hardware installation section in the *Installing and Administering Token Ring/9000* manual for installation instructions. If the software has **not** been loaded on your disk, complete the following step after installing all relevant patches, otherwise, skip to the next check box. Refer to the Release Notes for patch dependencies.

   • Install the PCI Token Ring software driver (product number A5783A) using `swinstall(1M)`.

❏ Attach the adapter to the Token Ring network using the correct cabling. The PCI Token Ring interface supports unshielded twisted-pair (UTP) and shielded twisted-pair (STP) cabling with an RJ-45 or 9-pin D-shell connector.

❏ Verify the Status LEDs for initialization using the "Status LEDs" table on page 4. Note that only those items with an "X" in the "*" column are possible prior to configuration.

Step 2: Verification and Software Configuration

❏ As the system starts, look for a message on the console (or use dmesg) similar to the following one:

   pcitr7: INITIALIZING HP PCI Token Ring adapter at 4/1/0

❏ Verify that the PCI Token Ring driver was loaded in the kernel by entering the following command at the HP-UX prompt:

   `# what /stand/vmunix | grep Token`

   ...then look for the following string:

   A5783A/J1644AA HP PCI Token Ring <version> <(release)> <date>

   for example:

   A5783A/J1644AA HP PCI Token Ring B.10.20.01 (DART 52) Dec 20 2000

❏ Verify that the system recognizes the Token Ring adapter locally by doing the following:

   ❏ Run "ioscan" using the following command:

      `# ioscan -k -f -C lan | grep pcitr`

   • Look for a message similar to the following and verify that the device is claimed:

   lan 2 0/0/0 pcitr CLAIMED INTERFACE HP PCI Token Ring

❏ Run "lanscan" and look under the "MAC Type" column for entries of "802.5".

   • For each 802.5 entry, there will be an associated "lan*" entry (e.g., lan8) under the column titled "Net-Interface NameUnit". These are your Token Ring Adapter(s)

   • Run "ls -l /dev/lan*" to verify that the device file wasfor exam,322-

                  • Run "dmcan

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PCI Token Ring Adapter Quick Troubleshooting Guide

Follow the steps below in sequence to quickly isolate PCI Token Ring problems on your HP-UX 10.20 or HP-UX 11.0 or later system. If the display output indicates a problem, refer to the Release Notes.

Check the HP-UX 10.20 or 11.0 or later Directory Path

Prior to completing the steps below, check that the **/usr/bin**, **/usr/sbin**, and **sbin** directories are in your PATH using the `echo $PATH` command.

Step 1: Network Level Loopback Test

❑ Check the IP network level connection with the remote host using the `ping(1M)` command. Example: `ping 192.6.20.2`

Successful? If packets are being returned, your system has network level connectivity to the remote host. Press Ctrl C to stop the ping output.

Step 2: Connections/LED Test

❑ Check that the LAN cable is connected to the appropriate LAN connector on the PCI card and to a Token Ring MAU or switch. The LAN cable connects to either an RJ-45 or a 9-pin D shell connector on the PCI card.

❑ If the PCI card is connected to the LAN by the RJ-45 connector, check that the LEDs show normal operation (Amber=off, Green=on). If not, use the table on page 4 to identify the cause of the difficulty.

NOTE: The NetTL message logged for cable disconnect is different for 16/4 Mb/s and 100 Mb/s operation:

In 4/16 Mb/s, the message logged is:
"Cable disconnected/faulty"
class ERROR #2009

In 100 Mb/s, the message logged is:
"Internal error after beacon auto removal process"
class ERROR #2010

In either case, when the cable is re-connected, the following message will be seen:
"Link back online"
class INFO #4001

Starting with B.11.00.06, the above messages have changed. The cable disconnect message will be logged as an ERROR message to the nettl subsystem, as follows:

The PCI Token Ring adapter driver detected a faulty/disconnected cable at <hardware path>.

On a cable reconnect, an INFORMATIVE message will be logged to the nettl subsystem, as follows:

The PCI Token Ring adapter driver detected that the link has been established at <hardware path>.

Step 3: Configuration Test

❑ Check that the Token Ring interface is configured by displaying information about all cards that are successfully bound to the system using the `lanscan(1M)` command:

Successful? Yes, if `lanscan(1M)` indicates the hardware is "up."

❑ Check the log data (error and disaster messages) for Token Ring using the `netfmt` command. Example:

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netfmt -v -f /var/adm/nettl.LOG00 | more

NOTE: Substitute the desired LOG number for "LOG00".

Successful? Yes, if the problem stated in the log file is fixed.

❑ Display IP information about the interface you want to test using the `ifconfig(1M)` command. Example: `ifconfig lan1`

Successful? Yes, if the output shows the correct Internet address and the flag: UP.

Step 4: Network Level Loopback Test

❑ Check that a correct entry exists for the remote system in your system's ARP cache using the `arp(1M)` command. Example:

arp 192.6.20.2

Successful? Yes, if there is an ARP cache entry for the remote host.

Step 5: Link Level Loopback Test

❑ Check the link layer connectivity using the `linkloop(1M)` command with the PPA or NMID Number of your Token Ring card and the station address of the remote host.

HP-UX 11.0 or later command syntax:
linkloop -i <PPA Number> <Station Address>

HP-UX 10.20 command syntax:
linkloop -i <NMID Number> <Station Address>

Note: <Station Address> is that of another card on the same subnet.

Use lanscan on the local system to obtain the PPA or NMID Number.

Successful? Yes, if an OK status is returned.

Step 6: Subnet Test

❑ Check the host name, subnet number, and subnet mask of the interface using the `ifconfig(1M)` command. Example:

ifconfig lan1

Successful? Yes, if the host portion of the IP address and subnet number part of the IP address are not all 0s or all 1s and the subnet mask is what you expect. If not, use SAM to enter the mask or IP address.

❑ Check that all the hosts on the network are using the same subnet mask and that the mask has been set on all interfaces by executing the `ifconfig(1M)` command on each node in the network. Example:

ifconfig lan1

Successful? Yes, if the subnet masks are all the same. If not, use SAM to enter the mask or IP address. Refer to the *Installing and Administering LAN/9000 Software* manual for additional information about subnet masks.

Step 7: Transport Level Loopback Test (Using ARPA)

❑ Check the transport level connection with the remote host using the `telnet(1)` command. Example: telnet *abcde*

Successful? Yes, if you have transport level connectivity to the remote host.

❑ Check the route tables on the source and destination nodes using the

```
netstat -r command.
```

Successful? If the routing tables are not correct, refer to the *route* man page.

Refer to the on-line manual pages for more detailed information about the commands listed in the above steps.

If you are still having problems connecting your system to the network, contact your HP support representative.

Reference Information

Status LEDs

*	Amber - Error	Green - Link	Explanation
X	Blinking	Blinking	The adapter is waiting for initialization.
	Off	Off	The adapter initialization is in progress or the system is not powered on.
	Off	Blinking	The adapter did not detect any problems during self-diagnostic tests and is waiting to open. NOTE: If this state occurs after the adapter has been opened, this indicates that the adapter has been closed via software control / cable disconnect.
	Off	On	The adapter is open/operating correctly.
X	On	Off	The adapter self-diagnostic tests failed or there is a problem with the adapter.
	Blinking	Off	The adapter is closed due to an undetected error. One of the following is possible: . The adapter open failed. . The adapter detected a wire fault. . The adapter failed auto-removal test.
	Blinking	On	The adapter has detected beaconing or a hard error.
X	On	On	The adapter has failed before running its self-diagnostics.

NOTE: Only those items with an "X" in the "*" column are possible prior to configuration.

Bulkhead Detail

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