

HP PCI Mux Release Note

For HP-UX 11i, 11.0x, and 10.2x

HP-UX Networking



Manufacturing Part Number: J3596-90012

E0602

U.S.A.

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1 Release Note for HP-UX 11i

Announcement

The information in this chapter is for HP-UX systems running HP-UX version 11i (B.11.11.07) software. For information about version B.10.20.09, please see Chapter 3. For information about version B.11.00.15, please see Chapter 2.

The following is a list of the cards, the number of ports supported by each, and their appropriate operating voltages.

Table 1-1 Mux board versions

PART NUMBER	NUMBER OF PORTS	BUS VOLTAGE
A6748A	8	3.3 & 5.0 V
A6749A	64	3.3 & 5.0 V
J3592A	8	5.0 Volt Only
J3593A	64	5.0 Volt Only

The following is a list of the systems that are supported by these products.

- Workstations:
 - B1000, B2000 and B4000 (3.3 volt versions only)
 - C3000 and C3600
 - J5000, J5600, J6000 and J7000
- Servers:
 - A400 and A500
 - L1000, L2000, L3000 and L4000
 - V2200, V2250, V2500 and V2600
 - Superdome and rp8400

What's in This Version

The information in this section is for version B.11.11.07 of the PCI RS-232 Mux products.

Features and Benefits

This version of the PCI Mux software offers the following new features and benefits:

- Software for all PCI Mux cards is bundled under the name **TermIO-00**.
- There is no charge for the software (for all board versions). The software is bundled with the hardware and requires no software license or codeword. Software support, manuals, and release notes are also part of the hardware product structure. Below is the new product structure for all PCI Mux products:

TermIO-00	PCI Mux card and driver
#0B1	Add manual set (<i>HP EISA/PCI Multiplexer Family Cabling, Diagnostics and Troubleshooting Manual</i>)
#0D1	Factory integration and software ignition
#AVN	Release notes
#Support	Hardware and software support

- The problem with earlier versions of the J3592A's connector not fitting well with the Mux cable has been fixed.
- The tool *emux_diag* displays the board revision number to determine whether a card is a 3.3 volt version or a 5.0 volt version without having to open the system cabinet. The board version number may be found under the drop-down menu titled **Driver Status**, selection **Board Status**, field **Rev_ID**. The meaning of each code is as follows:
 - Revision number **5** means a 3.3 volt, 8-port PCI mux card
 - Revision number **4 or 6** means a 3.3 volt, 64-port PCI mux card
 - Any other number means a 5 volt card
- q4 debugging functionality has been added. PCI-MUX code symbols and data structures from can be displayed using q4. This helps faster analysis of crash dumps in new library file `libpci_muxdbg.o`.

Known Problems and Workarounds

There are no known problems for HP 11i Mux products.

Compatibility Information and Installation Requirements

This section describes the requirements for installing version B.11.11.07 of the PCI Mux products on HP-UX 11.i.

Software Requirements

You must have installed the HP-UX 11i Operating System before installing this product. To install this product, use the `swinstall` program.

Hardware Requirements

The B.11.11.07 version of the PCI Mux products run on the following HP-UX systems equipped with the PCI bus:

- V-Class, N-Class, and L-Class servers (64-bit OS).
- A-Class servers (32-bit OS).
- B-Class, C-Class, and J-Class workstations (32-bit OS).
- N-Class and L-Class servers and C-Class and J-Class workstations (64-bit OS).
- Superdome and rp8400

Disk Space

The disk space required is 500 KBs.

Installation Information

Listed below are some things to keep in mind when installing the PCI Mux product:

- You must install the PCI Mux hardware when the system is down.
- You must install the PCI Mux driver software before installing the Mux cards, to avoid a second reboot.
- The kernel dynamically assigns the major number for the PCI mux when you install the PCI Mux driver.

This major number can differ from system to system. However, once a major number is assigned, it remains unchanged across reboots until the driver is removed. You can find out the major number by entering the following command:


```
lsdev -d pci_mux0
```

(pci_mux0 is the driver name of the PCI Mux.)

Naming Scheme for emux_diag and emux_stty

Because there are as many as eight PCI buses (Module ID), emux_diag and emux_stty use a combination of PCI bus and slot number as the naming scheme for “Slot” to uniquely identify a card for V-Class servers.

In the example below, for board 4, Slot 40, the first digit (4 of 40) is the PCI bus number (or Module ID) and the second digit (0 of 40) is the slot number in that bus (the value is shown in **bold** in the example).

```
# emux_stty -c
Board 1 id 0x8 PMUX-64P Slot 01
Board 2 id 0x8 PMUX-64P Slot 11
Board 3 id 0x8 PMUX-64P Slot 12
Board 4 id 0x8 PMUX-64P Slot 40
```

```
# emux_diag
+-----Board Status -----+
| Board Type  Address      Size           Slot |
| PMUX-64P   0xFC200000    0x200000      01  |
| PMUX-64P   0xFC200000    0x200000      11  |
| PMUX-64P   0xFC400000    0x200000      12  |
| PMUX-64P   0xFC000000    0x200000      40 |
+-----+-----+-----+-----+
```

Patches and Fixes in This Version

This section lists the fixes and patches that have been applied in version B.11.11.07 of the PCI Mux products.

Patches

PHNE_24182

PHNE_25491

Fixes

Table 1-2 **Fixes Included in This Release**

SR/CR Number	Problem
SR: 8606222097 CR: JAGad91212	OLAR functionality is now included in the 11.11.07 Mux driver.
SR: 8606227010 CR: JAGad96072	The initialization process has been modified to pre-set all necessary registers with appropriate values.
SR: 8606215957 CR: JAGad85129	Terminal cross talk when using A6749A PCI-MUX 64 port with 25 ft cable A6749A has been corrected.
SR: 8606220546 CR: JAGad89684	The Data Page Fault panic has been corrected to pass appropriate arguments.
SR: 8606205847 CR: JAGad75022	Changes have been made to ignore the obsolete function call fru_info_isc() on N/L/Superdome machines when the PCI Mux product is intalled.
SR: 8606232918 CR: JAGae02143	Permission bits for the directory /usr/conf/olrad.d/ have been corrected for SD.

Software Availability in Native Languages

This version (B.11.11.07) of the PCI Mux software is in English.

Available Documentation

The PCI Mux-related documentation is as follows:

- *HP EISA/PCI Multiplexer Family Cabling Diagnostics and Troubleshooting Manual*, Customer Order Number J3592-90001 (English)

Note that this manual is also available on the HP WWW site <http://www.docs.hp.com>.

- *HP EISA/PCI Mux Quick Installation Card*, Customer Order Number 5966-8645, is localized in French, German, Italian, Japanese and Spanish.

2 Release Note for HP-UX 11.0x

Announcement

The information in this chapter is for the following HP PCI RS-232 Mux products:

- The J3592A PCI Mux 8-port card and version B.11.00.15 software, for the following HP-UX systems:
 - A-Class Enterprise Servers: A180, A180C, A400 and A500
 - L-Class Enterprise Servers: L1000, L2000, L3000 and L4000
 - N-Class Enterprise Servers.
 - HP VISUALIZE UNIX B-Class, C-Class, and J-Class Workstations equipped with the PCI bus.
- The J3593A PCI Mux 64-port card and version B.11.00.15 software for the following HP-UX systems:
 - L-Class Enterprise Servers: L1000, L2000, L3000 and L4000
 - N-Class Enterprise Servers.
 - V-Class Enterprise Servers: V2200, V2250, V2500 and V2600
- The A6748A PCI Mux 8-port card and version B.11.00.15 software for the following HP-UX systems:
 - B-Class, N-Class and L-Class with 3.3 volt PCI slots
- The A6749A PCI Mux 64-port card and version B.11.00.15 software for the following HP-UX systems:
 - B-Class, N-Class and L-Class with 3.3 volt PCI slots

What's in This Version

The information in this section is for version B.11.00.15 of the PCI RS-232 Mux products.

Features and Benefits

This version of the PCI Mux software offers the following new features and benefits:

- When you order any of the PCI cards, the software ships free. The software is bundled with the hardware and requires no software license or codeword. Software support, manuals, and release notes are also part of the hardware product structure.

All Versions PCI Mux card and driver

#0B1 Add manual set (*HP EISA/PCI Multiplexer Family Cabling, Diagnostics and Troubleshooting Manual*)

#0D1 Factory integration and software ignition

#AVN Release notes

#Support Hardware and software support

- The tool *emux_diag* displays the board revision number to determine whether a card is a 3.3 volt version or a 5.0 volt version without having to open the system cabinet. The board version number may be found under the drop-down menu titled **Driver Status**, selection **Board Status**, field **Rev_ID**. The meaning of each code is as follows:
 - Revision number **5** means a 3.3 volt, 8-port PCI mux card
 - Revision number **4 or 6** means a 3.3 volt, 64-port PCI mux card
 - Any other number means a 5 volt card
- q4 debugging functionality has been added. PCI-MUX code symbols and data structures from can be formatted using q4. This helps faster analysis of crash dumps in new library file `libpci_muxdbg.o`.

Known Problems and Workarounds

The known problems and corresponding workarounds for version B.11.00.15 of the PCI Mux products are as follows:

- Disconnecting or connecting port modules while the system is active might generate a break character on the serial ports of any port module still connected. The `gettys` active on those ports might treat the break as an auto-speed detection loop and change the baud rate, causing the ports to appear “hung”.

Workaround: Pressing the **Break** key a few times will bring the `getty` back to the original baud rate.

- The `emux_diag` program relies on HP terminal function keys. If you change the terminal function key definitions from the default values, `emux_diag` will not work.

Workaround: If you have changed the HP terminal function key definitions from their default values (press `ctrl-menu` to see the menu on HP terminals), you need to change them back to the default values (that is, `f1=<ESC>p`, `f2=<ESC>q`,... `f8=<ESC>v`) before running the `emux_diag` program.

- When adding a new port module to an already configured system, `insf` does not automatically create device files for new ports at boot time.

Workaround: Each time you add a new port module to an installed PCI Mux card, you must enter the command below to create device files for each newly added port:

```
insf -e -d pci_mux0
```

- `Xterm` does not support HP function keys. Because `emux_diag` relies on HP terminal function keys, `emux_diag` will not work with `Xterm`.

Workaround: Configure your console to use `dtterm` or `hpterm`.

- When you run `swverify` after installing the Mux driver on a C-class or J-class workstation running HP-UX 11.0/ 64-bit, `swverify` logs the following error in `swverify.log`:

```
ERROR: "<system_name>:/": This task is operating on an existing multiple version of 2 products or filesets.
```

This problem happens because the `PCI-MUX.PCI-MUX-RUN` fileset is installed twice. You should ignore the error message.

Compatibility Information and Installation Requirements

This section describes the requirements for installing version B.11.00.15 of the PCI Mux products on HP-UX 11.0.

Software Requirements

You must have installed the HP-UX 11.0 (32-bit or 64-bit) Operating System before installing this product. To install this product, use the `swinstall` program.

Hardware Requirements

The B.11.00.15 version of the PCI Mux products run on the following HP-UX systems equipped with the PCI bus:

- V-Class, N-Class, and L-Class servers for 64-port Mux (64-bit OS).
- A-Class servers for 8-port and 64-port Muxes (32-bit OS).
- B-Class, C-Class, and J-Class workstations for the 8-port and 64-port Muxes (32-bit OS).
- N-Class and L-Class servers and C-Class and J-Class workstations for the 8-port and 64-port Muxes (64-bit OS).

Disk Space

The disk space required is 500 KBs.

Installation Information

Listed below are some things to keep in mind when installing the PCI Mux product:

- You must install the PCI Mux hardware when the system is down.
- You must install the PCI Mux driver software before installing the Mux cards, to avoid a second reboot.
- The kernel dynamically assigns the major number for the PCI mux when you install the PCI Mux driver.

This major number can differ from system to system. However, once a major number is assigned, it remains unchanged across reboots until the driver is removed. You can find out the major number by entering the following command:


```
lsdev -d pci_mux0
```

(pci_mux0 is the driver name of the PCI Mux.)

Naming Scheme for emux_diag and emux_stty

Because there are as many as eight PCI buses (Module ID), emux_diag and emux_stty use a combination of PCI bus and slot number as the naming scheme for “Slot” to uniquely identify a card for V-Class servers.

In the example below, for board 4, Slot 40, the first digit (4 of 40) is the PCI bus number (or Module ID) and the second digit (0 of 40) is the slot number in that bus (the value is shown in **bold** in the example).

```
# emux_stty -c
Board 1 id 0x8 PMUX-64P Slot 01
Board 2 id 0x8 PMUX-64P Slot 11
Board 3 id 0x8 PMUX-64P Slot 12
Board 4 id 0x8 PMUX-64P Slot 40
```

```
# emux_diag
+-----Board Status -----+
| Board Type  Address      Size      Slot  |
| PMUX-64P    0xFC200000    0x200000  01    |
| PMUX-64P    0xFC200000    0x200000  11    |
| PMUX-64P    0xFC400000    0x200000  12    |
| PMUX-64P    0xFC000000    0x200000  40  |
+-----+-----+-----+-----+
```

Patches and Fixes in This Version

This section lists the fixes and patches that have been applied in version B.11.00.15 of the PCI Mux products.

Patches

PHNE_25489

Fixes

This release contains the fixes listed below.

Table 2-1 **Fixes Included in This Release**

SR/CR Number	Problem
SR: 8606227010 CR: JAGad96072	The initialization process has been modified to pre-set all necessary registers with appropriate values.
SR: 8606215957 CR: JAGad85129	Terminal cross talk when using A6749A PCI-MUX 64 port with 25 ft cable A6749A has been corrected.

Software Availability in Native Languages

This version (B.11.00.15) of the PCI Mux software is in English.

Available Documentation

The PCI Mux-related documentation is as follows:

- *HP EISA/PCI Multiplexer Family Cabling Diagnostics and Troubleshooting Manual*, Customer Order Number J3592-90001 (English)

Note that this manual is also available on the HP WWW site <http://www.docs.hp.com>.

- *HP EISA/PCI Mux Quick Installation Card*, Customer Order Number 5966-8645, is localized in French, German, Italian, Japanese and Spanish.

3 Release Note for HP-UX 10.2x

Announcement

The information in this chapter is for HP-UX systems running HP-UX version B.10.20.11 software. For information about version B.11.00.15, please see Chapter 2. For information about version 11i (B.11.11.07), please see Chapter 1.

The following is a list of the cards, the number of ports supported by each, and their appropriate operating voltages.

Table 3-1 Mux board versions

PART NUMBER	NUMBER OF PORTS	BUS VOLTAGE
A6748A	8	3.3 & 5.0 V
A6749A	64	3.3 & 5.0 V
J3593A	64	5.0 Volt Only
J3592A	8	5.0 Volt Only

The following is a list of the systems that are supported by these products.

- Workstations:
 - B180 (3.3 volt versions only)
 - B1000, B2000 and B4000 (3.3 volt versions only)
 - C3000 and C3600
 - J5000, J5600, J6000 and J7000
- Servers:
 - A180, A180C, and A500

What's in This Version

The information in this section is for version B.10.20.11 of the PCI RS-232 Mux product.

Features and Benefits

This version of the PCI Mux software offers the following new features and benefits:

- There is no charge for the software (for all board versions). The software is bundled with the hardware and requires no software license or codeword. Software support, manuals, and release notes are also part of the hardware product structure. Below is the new product structure for all versions of this product:

All Versions	PCI Mux card and driver
#0B1	Add manual set (<i>HP EISA/PCI Multiplexer Family Cabling, Diagnostics and Troubleshooting Manual</i>)
#0D1	Factory integration and software ignition
#AVN	Release notes
#Support	Hardware and software support

- The problem with earlier versions of the J3592A's connector not fitting well with the Mux cable has been fixed.
- The tool *emux_diag* displays the board revision number to determine whether a card is a 3.3 volt version or a 5.0 volt version without having to open the system cabinet. The board version number may be found under the drop-down menu titled **Driver Status**, selection **Board Status**, field **Rev_ID**. The meaning of each code is as follows:
 - Revision number **5** means a 3.3 volt, 8-port PCI mux card
 - Revision number **4 or 6** means a 3.3 volt, 64-port PCI mux card
 - Any other number means a 5 volt card

Known Problems and Workarounds

The known problems and corresponding workarounds for version B.10.20.09 of the PCI Mux product are as follows:

- SAM improperly identifies PCI Mux Cards as “EISA MUX” Cards on the device screen. Other than potentially causing confusion, this misidentification has no other adverse impact.

To fix the problem for the current release, you may correct the file, `/usr/sam/lib/C/pd_devinfo.tx`, by changing the following line from:

```
CARD::pci_mux0:. *PCI.*:::EISA MUX Card::::
```

to:

```
CARD::pci_mux0:. *PCI.*:::PCI Mux Card::::
```

- Disconnecting or connecting port modules while the system is active might generate a break character on the serial ports of any port module still connected. The `gettys` active on those ports might treat the break as an auto-speed detection loop and change the baud rate, causing the ports to appear “hung”.

Workaround: Pressing the **Break** key a few times will bring the `getty` back to the original baud rate.

- The `emux_diag` program relies on HP terminal function keys. If you change the terminal function key definitions from the default values, `emux_diag` will not work.

Workaround: If you have changed the HP terminal function key definitions from their default values (press `cntl-menu` to see the menu on HP terminals), you need to change them back to the default values (that is, `f1=<ESC>p`, `f2=<ESC>q`,... `f8=<ESC>v`) before running the `emux_diag` program.

- When adding a new port module to an already configured system, `insf` does not automatically create device files for new ports at boot time.

Workaround: Each time you add a new port module to an installed PCI Mux card, you must enter the command below to create device files for each newly added port:

```
insf -e -d pci_mux0
```

- `Xterm` does not support HP function keys. Because `emux_diag` relies on HP terminal function keys, `emux_diag` will not work with `Xterm`.

Workaround: Configure your console to use `dtterm` or `hpterm`.

Compatibility Information and Installation Requirements

This section describes the requirements for installing version B.10.20.11 of the PCI Mux product on HP-UX 10.20.

Software Requirements

You must have installed the HP-UX 10.20 Operating System before installing this product. To install this product, use the `swinstall` program.

HP-UX Operating System Patch Dependencies

Table 3-2 below lists the HP-UX 10.20 Operating System patches that version B.10.20.11 of the PCI Mux product has dependencies on. Please note that you *must* install these patches (or any patches that supersede them) *before* you install the PCI Mux product.

Table 3-2 PCI Mux HP-UX 10.20 Operating System Patch Dependencies

HP-UX System	Patch Number	Description
Servers & workstations	PHCO_17633	PCI Mux support on <code>insf</code>
Servers	PHKL_16751	SIG_IGN/SIGCLD, LVM, JFS, PCI/SCSI cumulative patch
	PHKL_13583	PCI Mux support on WSIO and CDIO
Workstations	PHKL_16750	SIG_IGN/SIGCLD, LVM, JFS, PCI/SCSI cumulative patch
	PHKL_17658	PCI Mux support on WSIO and CDIO

Hardware Requirements

The HP-UX A-Class Enterprise Servers and HP VISUALIZE UNIX B-Class, C-Class, and J-Class Workstations the B.10.20.11 version of the PCI Mux product is installed on must be equipped with the PCI bus. B-Class workstations can only use the 3.3 volt version of this product: A6748A and A6749A.

Disk Space

The disk space required is 500 KBs.

Installation Information

Listed below are some things to keep in mind when installing the PCI Mux product:

- You must install the PCI Mux hardware when the system is down.
- You must apply patches to HP-UX 10.20 prior to installation. These patches are listed in “HP-UX Operating System Patch Dependencies” above.
- You must install the PCI Mux driver software before installing the Mux cards, to avoid a second reboot.
- The kernel dynamically assigns the major number for the PCI mux when you install the PCI Mux driver.

This major number can differ from system to system. However, once a major number is assigned, it remains unchanged across reboots until the driver is removed. You can find out the major number by entering the following command:

```
lsdev -d pci_mux0
```

(pci_mux0 is the driver name of the PCI Mux.)

Patches and Fixes in This Version

This section lists the fixes and patches that have been applied in version B.10.20.11 of the PCI Mux products.

Patches

PHNE_23881.

Fixes

This release contains the fixes listed in Table 3-3 below.

Table 3-3 Fixes Included in This Release

SR/CR Number	Problem
5003438879 (SR) JAGaa42340 (CR)	Port 4 fails on 8-port EISA mux.
1653298273 (SR) JAGaa95443 (CR)	Port 4 fails on 8-port EISA mux at 11.0.
5003458190 (SR) JAGab03644 (CR)	When cards are initialized in the wrong sequence mux driver will cause HPMC.
8606101689 (SR) JAGab63551 (CR)	System panic in EQNX_sst_proc on the stack trace.
8606176724 (SR) JAGad45959 (CR)	Installation results in an unneeded note.

Software Availability in Native Languages

This version (B.10.20.11) of the PCI Mux software is in English.

Available Documentation

The PCI Mux-related documentation is as follows:

- *HP EISA/PCI Multiplexer Family Cabling Diagnostics and Troubleshooting Manual*, Customer Order Number J3592-90001 (English)

Note that this manual is also available on the HP WWW site <http://www.docs.hp.com>.

- *HP EISA/PCI Mux Quick Installation Card*, Customer Order Number 5966-8645, is localized in French, German, Italian, Japanese and Spanish.