HP StorageWorks Emulex fibre channel host bus adapters for ProLiant and Integrity servers using Linux and VMware operating systems release notes
Description

These release notes contain driver, firmware, and other supplemental information for the Emulex fibre channel host bus adapters (HBAs) for ProLiant and Integrity servers using Linux® and VMware ® operating systems. See Product models for a list of supported HBAs.

Update recommendation

Routine

Prerequisites

Before you perform HBA updates, you must:

- Ensure that the system is running one of the operating system versions listed in “Operating systems” on page 4.
- See the HP server PCI slot specifications to determine if your server is compatible with these HBAs.
- If you are installing the Linux operating system for the first time, load the operating system and then download and install the supported Linux HBA driver from the HP website http://welcome.hp.com/country/us/en/support.html.

Please refer to the section below for a list of HBA and Mezzanine part numbers.

Product models

The following HBAs and Mezzanine cards support Linux on ProLiant servers:

- HP Emulex LPe1105–HP 4Gb FC HBA for HP c-Class BladeSystem (product number 403621–B21)
- HP Emulex-based BL20p fibre channel Mezz HBA (product number 394757–B21)
- HP Emulex-based BL25/30/35/45p fibre channel Mezz HBA (product number 394588–B21)

The following HBAs support Linux on ProLiant and Integrity servers:

- HP StorageWorks FC2143 (product number AD167A)
- HP StorageWorks FC2243 (product number AD168A)
- HP StorageWorks FC2142SR (product number A8002A)
- HP StorageWorks FC2242SR (product number A8003A)

Devices supported

The Emulex HBAs for Linux are supported on HP servers that:

- Support the Linux operating systems described in “Operating systems” on page 4.
- Support the servers listed on the HP website http://www.hp.com/products1/serverconnectivity/support_matrixes.html.
- Support the following storage arrays for Linux:
  - Modular Smart Array 1000
  - Modular Smart Array 1500
  - Enterprise Virtual Array 3000/5000 GL
  - Enterprise Virtual Array 4000/6000/8000 XL
  - XP12000, XP1024/128, XP10000

HP StorageWorks Emulex fibre channel host bus adapters for ProLiant and Integrity servers using Linux and VMware operating systems release notes
For the latest supported array firmware, see the HP storage array website http://h18006.www1.hp.com/storage/arraysystems.html.

**NOTE:**
For Modular Smart Arrays and Enterprise Virtual Array, active/passive storage arrays are supported in single-path mode only.

## Operating systems

### Linux on ProLiant servers

**Table 1** This table lists software support with the following 2.6 versions of x86 and x64 Linux: RHEL 5 — (2.6.18–8.1.8.el5) and SLES 10 SP1 — (2.6.16.53–0.8).

<table>
<thead>
<tr>
<th>HBA</th>
<th>Driver</th>
<th>Firmware</th>
<th>BIOS</th>
<th>Universal Boot</th>
<th>MultiPulse</th>
<th>HBAAnyware</th>
</tr>
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<tr>
<td>FC2143 (AD167A)</td>
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<td>1.71a0</td>
<td>5.02a1</td>
<td>2.2.29</td>
<td>3.2a16</td>
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<tr>
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<td>3.00a4</td>
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<td>3.2a16</td>
</tr>
<tr>
<td>BL20p (394757-B21)</td>
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<td>1.71a0</td>
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<td>3.2a16</td>
</tr>
<tr>
<td>BL25/30/35/45p (394588-B21)</td>
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<td>1.91a5</td>
<td>1.71a0</td>
<td>n/a</td>
<td>2.2.29</td>
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</tr>
</tbody>
</table>

**Table 2** This table lists software support with the following 2.6 versions of x86 and x86_64 Linux: RHEL 4 U4 and U5, SLES 9 SP2 and SP3, SLES 10 initial release.

<table>
<thead>
<tr>
<th>HBA</th>
<th>Driver</th>
<th>Driver for SLES 10</th>
<th>Firmware</th>
<th>BIOS</th>
<th>Universal Boot</th>
<th>MultiPulse</th>
<th>HBAAnyware</th>
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<tr>
<td>FC2143 (AD167A)</td>
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<td>1.71a0</td>
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<td>2.2.22</td>
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<td>BL20p (394757-B21)</td>
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<td>1.71a0</td>
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Table 3 This table lists software support with the following 2.4 kernel versions of x86 and x86_64 Linux: RHEL 3 U7 and U8.

<table>
<thead>
<tr>
<th>HBA</th>
<th>Driver</th>
<th>Driver for 10</th>
<th>SLES Firmware</th>
<th>BIOS</th>
<th>Universal Boot</th>
<th>HBAnyware</th>
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<td>FC2243 (AD168A)</td>
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<td>8.1.6.8</td>
<td>2.70a5</td>
<td>1.71a0</td>
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Linux on Integrity servers

The following versions of Linux are supported on Integrity servers.

Table 4 This table lists software support with the following 2.6 versions of Itanium Linux: SLES 10 SP 1.

<table>
<thead>
<tr>
<th>HBA</th>
<th>Driver</th>
<th>SLES 10 driver</th>
<th>Firmware</th>
<th>EFI</th>
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Table 5 This table lists software support with the following 2.6 versions of Itanium Linux: RHEL 4 U4 and U5, SLES 9 SP2 and SP3, and SLES 10 initial release.

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<th>Driver</th>
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</tbody>
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VMWare

HP fully supports the use of Windows and Linux as a guest OS on VMware ESX versions 2.5.x and 3.x. When running VMware, fibre channel HBAs are supported by embedded drivers supplied with ESX. Windows and Linux fibre channel HBA drivers are not used. To insure that your HBA is fully

Installing the Linux device driver using HP Kit

HP does not support building the lpfc driver from source code. The driver versions for kernel-based distributions are as follows:

- Driver 7.x.x for the 2.4 kernel
- Driver 8.x.x.x for the 2.6 kernel

To install the Linux driver:

- Download the appropriate driver kit for your distribution where the driver kit file will be in the form of hp-lpfc-yyy-mm-dd.tar.gz.
- Copy the driver kit to the target system.
- Uncompress and untar the driver kit by using the command:

  ```
  # tar zxvf hp-lpfc-yyy-mm-dd.tar.gz.
  ```

- Change directory to the hp-lpfc-yyy-mm-dd directory.
- Execute the INSTALL command.

  The INSTALL command syntax will vary depending on your configuration. Use the -h option of the INSTALL script for a list of all supported arguments. If you have a previous driver kit installed, you can invoke the INSTALL command without any arguments as the script will use the currently loaded configuration:

  ```
  # ./INSTALL
  
  For SLES 10 SP1 only:
  Use ./INSTALL -p
  If you want to force the installation to failover mode, use the -m flag:
  ./INSTALL -m
  ```

- Use ./INSTALL -mp
- If you want to force the installation to single-path mode, use the -s flag:

  ```
  # ./INSTALL -s
  ```

- Use ./INSTALL -sp

- The INSTALL script will install the appropriate driver RPM for your configuration, as well as the appropriate fibreutils RPM. Once the INSTALL script is finished, you will either have to reload the Emulex driver modules (lpfc, lpfdcfc and lpfcmpl) or reboot your server. To unload the driver, enter the following command:

  ```
  # modprobe -r lpfcmpl
  ```

**NOTE:**

`modprobe -r lpfcmpl` is for MultiPulse configuration only.

```
# modprobe -r lpfcdfc # modprobe -r lpfc
The commands to load the driver are:
# modprobe lpfc
# modprobe lpfcdfc
# modprobe lpfcmpl
```

**NOTE:**

`modprobe lpfcmpl` is for MultiPulse configuration only.

```
The command to reboot the server is:
#reboot
If your boot device is a SAN attached device, you will have to reboot your server. To verify what RPM driver version is installed, use the RPM command with the -q option.
```
Example 1.
# rpm -q hp-lpfc
# rpm -q hp-multipulse
For MultiPulse configuration only:
# rpm -q fibreutils

Installing HBAnyware

To install HBAnyware:

1. Download the file HP_ElxApps-<Kernel Version>-<HBAnyware Version>-<Driver Version>.zip to the target system.

Example 2.
HP_ElxApps-26-3.2a16-8.1.10.11.zip

NOTE:
Please refer to Table 1, 2, 3, 4 and 5 for HBAnyware and Driver version info. Kernel Version: 26 for 2.6 Kernels and 24 for 2.4 Kernels.

2. Unzip the file on the target system.

Example 3.
# unzip HP_ElxApps-26-3.2a16-8.1.10.11.zip

3. Make the file executable under Linux.

Example 4.
# chmod +x HP_ElxApps-26-3.2a16-8.1.10.11.bin

4. Install the application.

Example 5.
# ./HP_ElxApps-26-3.2a16-8.1.10.11.bin

5. Launch the application.

Example 6.
# HBAnyware or # /usr/sbin/hbanyware/hbanyware

NOTE:
Refer to application’s online help for more information.

Languages

American English

Important information

Restrictions
This section describes restrictions that apply to Linux and this release of HBAs:
• SuSE10 SP1 has a known issue related to Boot hang and udev timeout. To correct the issue, use the .INSTALL script with the –p flag. See the above section, ?? for more installation options.
• The Emulex MultiPulse 2.2.22 driver only supports active/active storage arrays.
• If using MultiPulse 2.1.x, you can have a maximum of four physical paths to a LUN. More than
four paths can cause improper failure.
• If using MultiPulse 2.2.x, you can have a maximum of eight physical paths to a LUN. More than
eight paths can cause improper failure.
• Because the order in which a switch reports fibre channel ports to a name server can vary, the order
in which LUNs are discovered can vary between system boots. Use a LUN persistency tool to ensure
that the name of a device does not change between system boots. HP recommends that you use the
Udev utility to ensure that the name of a device does not change between system boots. For detailed information, see the website
• Boot from SAN is not supported on the A8002A with RHEL 4 U3 and U4, ia64, or SLES 10 ia64.
• When using MultiPulse with SUSE Linux systems in Boot from SAN configurations, HP recommends
that you use the Udev utility to ensure that your system successfully boots. For detailed information
about this procedure, see "Using the Udev utility with SUSE Linux systems" in the Booting Itanium Linux
systems from a storage area network application notes, available on the web site:
• If you are installing the Linux operating system for the first time, load the operating system
and then download and install the supported Linux HBA driver from the HP website
• XP LUNs presented to Linux hosts must start with LUN 0.
• MultiPulse can coexist with multipathing products such as QLogic® failover driver, Secure Path,
or Device Mapper. However, note that MultiPulse only works with Emulex-based HBAs; it will not
configure multiple paths for other HBAs in the system.
• HP recommends that you implement zoning with HBA, as described in the HP StorageWorks
storageworks/san/documentation.html.

When running the scsi_info command on older XP arrays such as XP1024/128, you may see
output similar to that shown in the following example. Ignore the error, and note that the XP array’s
WWN is not all zeros.
The XP array returns INQUIRY data that differs slightly from that returned by EVA or MSA arrays.
[root@coco /] # scsi_info /dev/sdal SCSI_ID="4,0,8,0":
VENDOR="HP" : MODEL="OPEN-
$E":FW_REV="5005":WWN="0000000000000000":LUN="5235303020303030-3130353930203030"
[root@coco /] # scsi_info /dev/sdam
SCSI_ID="4,0,8,0":VENDOR="HP" : MODEL="OPEN-
$E":FW_REV="5005":WWN="0000000000000000":LUN="5235303020303030-3130353930203030"
[root@coco /] # scsi_info /dev/sdan
SCSI_ID="4,0,9,0":VENDOR="HP" : MODEL="OPEN-
$E":FW_REV="2114":WWN="0300000000201e9":LUN="5234353120303030-333031303203030"
[root@coco /] # scsi_info /dev/sdko
SCSI_ID="4,0,9,1":VENDOR="HP" : MODEL="OPEN-
$E":FW_REV="2114":WWN="0b00000000600000":LUN="5234353120303030-333031303203030"

FC2142SR and FC2242SR HBAs for Linux on ProLiant systems
HP ProLiant DL380 (G4) servers must have Systems ROMPaq Firmware 4.05 P51-08/16/2005 or later to
be compatible with the FC2142SR and FC2242SR. Failure to use this ROMPaq version can cause the
HBAs to hang during the power-on self-test (POST). For detailed information, see
Compatibility and interoperability

- The HBAs support the servers and switches described in “Devices supported” on page 3, and support the operating systems described in “Operating systems” on page 4.

Determining the current version

This section describes how to determine the HBA driver and firmware versions.

2.4 kernels

To view driver and firmware information:

1. Go to the /proc/scsi/lpfc directory to view a list of SCSI HBAs. A numbered file (such as 0 or 1) represents each HBA on the system.
2. Open the file to view the version information.

2.6 kernels

To view driver and firmware information:

1. Go to the /sys/class/scsi_host directory to view a list of SCSI HBAs. A numbered file (such as host0 or host1) represents each HBA on the system.
2. Review the following files for version information:
   - lpfc_drvr_version contains driver information.
   - fwRev contains firmware information.

Effective date

December 2007