Description

These release notes contain driver, firmware, and supplemental information for the Emulex host bus adapters (HBAs) for Integrity Linux® and Microsoft® Windows® systems. See "Product models" on page 3 for a list of supported HBAs.

Update recommendation

Routine

Product models

The following HBAs support Linux and Windows:

- HP StorageWorks FC2143, product number AD167A
- HP StorageWorks FC2243, product number AD168A

The following HBAs support only Windows:

- HP StorageWorks A7298A, product number A7298A
- HP StorageWorks AB232A, product number AB232A
- HP StorageWorks AB466A, product number AB466A
- HP StorageWorks AB467A, product number AB467A
- HP PCI-e single-port 4Gb FC adapter, product number A8002A
- HP PCI-e dual-port 4Gb FC adapter, product number A8003A

Devices supported

The Emulex HBAs for Integrity Linux and Windows are supported on HP server that:

- Support the Linux operating systems described in "Operating systems" on page 4.
- Support the Windows operating systems described in "Operating systems" on page 4.


- Support the following storage arrays:

| NOTE: |

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

- Modular Smart Array 1000
- Modular Smart Array 1500
- Enterprise Virtual Array 3000/5000 GL
- Enterprise Virtual Array 4000/6000/8000 XL
- XP12000, XP1024/128, XP512/48

For the latest supported array firmware, see the HP storage array website: http://h18006.www1.hp.com/storage/arraysystems.html.
Operating systems

Linux

Table 1 lists the requirements for the following HBAs that support Linux on Integrity servers:
• HP StorageWorks FC2143, product number AD167A
• HP StorageWorks FC2243, product number AD168A

Table 1 HBA requirements for Linux

<table>
<thead>
<tr>
<th>Feature</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux 2.6 kernel operating systems</td>
<td>RHEL 4, Updates 3 and 4&lt;br&gt;SLES 9, SP2 and SP3&lt;br&gt;Linux driver: 8.0.16.27&lt;br&gt;SLES 10&lt;br&gt;Linux driver: 8.1.6.6</td>
</tr>
<tr>
<td>Linux HBA firmware</td>
<td>HBA firmware: 2.1a35 for RHEL 4 and SLES 9</td>
</tr>
<tr>
<td>EFI driver</td>
<td>3.11a5 (included in the Universal Boot Image 5.02a1)</td>
</tr>
<tr>
<td>Emulex MultiPulse driver</td>
<td>2.1.9&lt;br&gt;Supported on SLES 9 and RHEL 4 only</td>
</tr>
</tbody>
</table>
Windows

Table 2 lists the requirements for HBAs that support Windows.

### Table 2 HBA requirements for Windows

<table>
<thead>
<tr>
<th>HBAs</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2Gb HBAs:</strong></td>
<td></td>
</tr>
<tr>
<td>HP StorageWorks A8232A, product number A8232A</td>
<td>Windows Server 2003 for Itanium-based systems (Enterprise and Datacenter editions)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>HP StorageWorks A8466A, product number A8466A</td>
<td>Windows Server 2003 SP1 for Itanium-based systems (Enterprise and Datacenter editions)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>HP StorageWorks A8467A, product number A8467A</td>
<td>HBA firmware: 1.91a5</td>
</tr>
<tr>
<td>HP StorageWorks A7298A, product number A7298A</td>
<td>EFI driver: 3.11a5 (included in the Universal Boot Image 5.02a1)</td>
</tr>
<tr>
<td></td>
<td>SCSIPORT miniport driver: 6-5.30a2</td>
</tr>
<tr>
<td></td>
<td>Storport miniport driver: 6-1.20a7</td>
</tr>
<tr>
<td><strong>4Gb HBAs:</strong></td>
<td></td>
</tr>
<tr>
<td>HP StorageWorks FC2143, product number AD167A</td>
<td>Windows Server 2003 SP1 for Itanium-based systems (Enterprise and Datacenter editions)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>HP StorageWorks FC2243, product number AD168A</td>
<td>HBA firmware: 2.50a6</td>
</tr>
<tr>
<td></td>
<td>HBA firmware: 210a10</td>
</tr>
<tr>
<td>HP PCI-e single-port 4Gb FC adapter, product number A8002A</td>
<td>EFI driver: 3.11a5 (included in the Universal Boot Image 5.02a1)</td>
</tr>
<tr>
<td>HP PCI-e dual-port 4Gb FC adapter, product number A8003A</td>
<td>HBA firmware: 2.50a6</td>
</tr>
<tr>
<td></td>
<td>Storport miniport driver: 6-1.20a7&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup>If you are using the Storport miniport driver with Windows Server 2003 with SP1 or later, you will need the Microsoft hot fix QFE-916048. This hot fix contains updates for Microsoft's storport.sys driver. To obtain the QFE, see the website [http://support.microsoft.com/kb/916048](http://support.microsoft.com/kb/916048).

<sup>2</sup> If you are using the Storport miniport driver with Windows Server 2003 with no service pack installed, you will need the Microsoft hot fix QFE-908980. This hot fix contains updates for Microsoft's storport.sys driver. To obtain the QFE, see the website [http://support.microsoft.com/kb/908980/en-us](http://support.microsoft.com/kb/908980/en-us).

<sup>3</sup>The FC2143 and FC2243 HBAs are supported only with the Storport driver on Windows Server 2003 SP1 for Itanium-based systems.

**HBAAnyware utility**

The supported HBAAnyware versions are:

- **Linux**: SLES 9 and RHEL 4: 2.1a35
- **Windows**: 3.0a16, 3.2a1 - ONLY supported with Storport driver.

**NOTE:**

See “HBAAnyware” on page 8 for HBAAnyware restrictions.

**Languages**

American English

**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.

Fixes
This section describes fixes for this release.

SCSIPORT miniport driver
On Windows Server 2003 systems, clients may be disconnected, generating Event ID 11 and Event ID 15 in the application log. This problem can occur under high-stress conditions due to a SCSIPORT miniport driver error. It can also cause network timeouts if remote computers are accessing data on drives that use the SCSIPORT driver on the Windows Server 2003 system.

To correct this problem, install the latest Microsoft QFE from the website http://support.microsoft.com/default.aspx?scid=kb;en-us;895573.

Important information
This section describes restrictions and other important HBA information.

Linux
The following known restrictions apply to Linux and this release of the HBAs:

• When presenting XP LUNs to a Linux host, the LUNs must start with LUN 0.
• The Emulex MultiPulse 2.1.9 driver only supports active/active storage arrays.
• 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 http://www.kernel.org/pub/linux/utils/kernel/hotplug/udev.html.

• 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.

• A page allocation failure may occur intermittently when running a management application such as HBAnyware. The subsequent trace may contain lpfcdfc in the stack. Ignore this event; there is no functional impact.

• 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="5235303020303030-313035393020303030"

[root@coco /]# scsi_info /dev/sdam SCSI_ID="4,0,8,1":VENDOR="HP":MODEL="OPEN-E":FW_REV="5005":WWN="0000000000000000":LUN="5235303020303030-313035393020303030"

[root@coco /]# scsi_info /dev/sdan
Windows

This section describes fixes and restrictions for Windows and HBAs.

Storport miniport driver installation restrictions

If you are upgrading to the Storport miniport driver, consider the following:

- The Storport miniport driver is supported only on Windows 2003 with SP1 for Integrity systems.
- On a given server, SCSPORT and Storport miniport drivers from different vendors may be mixed across an HBA population. However, on that server, all HBAs from a single vendor must operate exclusively with either all SCSPIORT miniport drivers or all Storport miniport drivers.
- If you are running Secure Path for Windows, you must upgrade to Secure Path 4.0c SP2 or later for Windows. Storport is not supported with earlier versions of Secure Path.

Smart Component restrictions

The following Smart Component restrictions could occur during driver installation:

- When using the Smart Component to install drivers, if you observe the following message during reboot, ignore it and complete the reboot procedure. No known issue has been observed in connection with the display of this message.
  The application failed to initialize because the window station is shutting down.
- When booting as a single-path boot device from a Modular Smart Array (MSA) directly attached through an I/O module to the HBA, you may lose connectivity temporarily to the boot LUN at the EFI driver level. If this occurs, restart the server. Temporary loss of connectivity only occurs during initial startup of the EFI driver and does not affect normal system operations.
- When using the Smart Component to install drivers, if you observe windows with the following information during reboot, click Finish, do not reply to Microsoft, and then complete the reboot procedure. No known issue has been observed in connection with the display of these messages.
  There was a problem installing this hardware. This device is not working properly because Windows cannot load the drivers required for this device. (Code 31)
  Uninstall and then reinstall your device.

Secure Path 4.0c SP1 restrictions

With Secure Path 4.0c SP1, during a rolling driver upgrade, a blue-screen error may occur under any of the following conditions:

- The server boots from a SAN.
- All HBAs are accessing their LUNs in a single-path configuration.
- The HBA is directly attached in a single path to its own MSA controller.

If the blue-screen error occurs, reboot the server and check the driver revisions to verify that the upgrade is complete on all HBAs.

Upgrading to Secure Path 4.0c SP2 corrects this problem.
HBAware

Consider the following restrictions for HBAware:

- For Windows systems:
  - You must use HBAware 3.0a16 or later. HP recommends that you use the latest version.
  - You must uninstall any previous versions of HBAware before installing the drivers.
  - Before disabling or uninstalling an HBA using Device Manager, you must close HBAware.
  - In the presence of a failed path, HBAware may remove LUNs from the tree display. The display is corrected when the failed path is restored.
- For Linux systems, if you are installing the hp-lpfc kit and HBAware for the first time, enter the following command to ensure that HBAware displays all HBAs:
  
  ```
  # /opt/hp/hp-lpfc/remove_lpfc_hbaconf_entry.sh
  ```

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.

Using HBAware

To use HBAware with Windows or Linux:

1. Start HBAware:
   - Enter the following command at a command line on your Linux or Windows system:
     ```
     HBAware
     ```
   - For Windows, you can alternatively double click the HBAware icon.
2. Select View and then select one of the following options:
   - Group HBAs by HostName
   - Group HBAs by Fabric Address
   The HBAs appear in the Discovered Elements pane.
3. Click an HBA to display the driver and firmware version in the Adapter Summary pane.
4. Click the Firmware tab to view BIOS information.
Using Linux files

Locate files in Linux directories to view HBA information. The file locations vary by kernel.
for 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

February 2007