README.TXT

Adaptec ASA-7085H/ASA-7805H/ASA-70165H/ASA-70165He/ASA-71605H/ASA-71605He SAS Host Bus Adapters
Adaptec ASR-6405H/ASR-6805H SAS Host Bus Adapters

NOTE: All Adaptec by PMC products are UL listed and for use only with UL listed ITE.
as of April 3, 2013

Please review this file for important information about issues and errata that were discovered after completion of the standard product documentation. In the case of conflict between various parts of the documentation set, this file contains the most current information.

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1. New Features in this Release

First release of Adaptec Series 7H/7He and Adaptec Series 6H SAS Host Bus Adapters (HBAs). Key features include:

• Support for SAS and SATA HDDs, SSDs, removable media, and SAS tape drives
• uEFI pre-boot BIOS, Ctrl-A configuration utility
• Flash ROM for updates to firmware and BIOS
• up to 16 ports, 6 Gb/s I/O
• SAS 2.1, PCIe Gen 3.0 (Series 7H/7He), PCIe Gen 2.0 (Series 6H)
• Low-profile MD2 SFF card size
• Support for SES2 enclosure management devices
• Hardware Encryption (Series 7He models only)

2. Software and Documentation

2.1 Firmware and Driver Software
- Adaptec Firmware/BIOS/Drivers Version 1.00.00

NOTE: The latest versions of firmware, BIOS, driver software and utilities can be downloaded from the Adaptec Web Site at www.adaptec.com.

- Drivers on this DVD

The drivers on this DVD have been tested and certified on the following operating systems. You can load the drivers on out-of-box operating system versions, the latest service pack, or software update. Compatibility issues may be seen with untested OS versions.

Windows Drivers:
- Windows Server 2012 64-bit
- Windows Server 2008 R2, 64-bit
- Windows SBS 2011 (all versions)
- Windows 7, Windows 8, 32-bit and 64-bit

Linux Drivers:
- Red Hat Enterprise Linux 6.3, IA-32 and x64

VMware Drivers:
- VMware ESXi 5.0

2.2 Documentation on this DVD

PDF Format (English/Japanese):
- Adaptec Serial Attached SCSI Host Bus Adapters Installation and User's Guide

Text Format:
- Adaptec SAS Host Bus Adapters README.TXT file
- Task-specific readmes (see sections 3.3 and 3.6)

3. Installation and Setup

3.1 Installation Instructions

The Adaptec Serial Attached SCSI Host Bus Adapters Installation and User's Guide contains complete installation information for the adapters and drivers. It also contains usage information for the configuration utility.

3.2 uEFI-Mode Setup

On servers that support the Unified Extensible Firmware Interface, or uEFI (version 2.10 or higher), you can install the OS and setup your HBA from the uEFI BIOS.

To install the OS, boot the server to uEFI (typically by pressing DEL), then insert the OS installation DVD. Assuming the DVD is device fs0, type:

Shell>fs0:
fs0:> \efi\boot\bootx64.efi

When the installation screen is displayed, follow the on-screen instructions to complete the installation.

3.3 Windows Installation and Setup

Follow the instructions in the installation guide to install the Windows driver using the 'Create Diskette' option on the DVD menu.
To install the Windows driver manually, by copying the driver to a USB drive or other portable media, use these drivers in the Windows driver directory on the installation DVD:

- DRV-HIA-SBS-WIN7-ADAP for Small Business Server 2011 + Win 7 + Win 2008 R2
- DRV-HIA-WIN8-WIN2012-ADAP for Win 8 + Win 2012

For more information, see the readme in the Windows driver directory on the installation DVD (readme_win_spc_stor.txt).

3.3.1 Windows 7 Installation Continuation Issues

When installing Windows 7 (32-bit, 64-bit) on an HBA with multiple drives attached, installation continuation, after initial reboot, may take 30-70 minutes to complete. Following installation, install the hotfix at the link below:

http://support.microsoft.com/kb/2468345

3.3.2 uEFI-Mode Setup - Windows SBS 2011

Installing Windows SBS 2011 in an expander configuration is not supported in uEFI-mode.

Workaround: Use Legacy mode to install the OS on the expander.

3.3.3 uEFI-Mode Setup - Removing Drive Metadata

When installing Windows in uEFI mode, clearing prior metadata on the HDDs is required if, for example, the HDDs are moved from an Adaptec RAID controller to the HBA. Clearing the metadata is not required in Legacy mode (non-uEFI).

3.4 Red Hat Linux Installation and Setup

- When installing the Red Hat driver using the instructions in the user’s guide, you may see a message stating that 'no drivers were found or the disk has already been loaded'. To complete the installation, click 'Continue', then finish the installation normally.

- When installing the Red Hat driver, the first 16 drives in the expander (if present) are listed in alphabetical order. To determine the first 8 bootable devices, select "Create Custom Layout" in the installation screen. This will display the drives in the order in which they were discovered. You can install the OS on any of the first 8 drives.

3.5 Boot Drive Selection

NOTE: Use the following procedure for Legacy mode (non-uEFI) boot drive selection. For uEFI-mode boot drive selection, after OS installation, use the system BIOS Boot menu to move the OS image to priority.

Selecting Boot Drive when BBS=Device (default):

If BBS is set to "Device" in the Ctrl+A Configuration utility, you can select any of the first 8 drives as the bootable drive.

1. Power on the system, go to the Ctrl+A utility, select Controller Configuration, then set BBS Support=Device.

2. Go to system BIOS setup menu, set CD/DVD ROM as the first bootable device, then select the HDD on which the OS will be installed as the 2nd bootable device in boot priority. You can choose any of the 8 devices listed.

3. Boot from the OS DVD and load the HBA driver. The installer displays the drives in order. Select the drive for the installation.
NOTE: The boot device in the system BIOS and the OS installation device must match. The installer will create the system partition on the first bootable device set in the system BIOS.

Selecting Boot Drive when BBS=Controller:

If BBS is set to "Controller" in the Ctrl+A Configuration utility, only the first drive can be set as the bootable drive.

1. Power on the system, go to the Ctrl+A utility, select Controller Configuration, then set BBS Support=Controller.

2. Go to system BIOS setup menu, set CD/DVD ROM as the first bootable device and Controller as the 2nd bootable device in boot priority.

3. Boot from the OS DVD and load the HBA driver. The installer displays the drives in order. Select the 1st drive for OS installation. (You cannot select any other drive.)

3.6 Building the Open Source Drivers

For complete instructions for building and installing the Linux open source drivers, see the readme in the Linux driver directory on the Adaptec Installation DVD (pm80xx_build_procedure.txt).

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4. Command Line Tool

A command line tool for Windows, Linux, and VMware is provided in the Adp80xxapp folder on the Adaptec Installation DVD. Use the command line tool to obtain information about the HBA and to flash the firmware image.

NOTE: The device driver must be installed prior to flashing an HBA. On Windows systems, Adp80xxapp requires Admin privileges.

These forms are available:

a. To check card info:

   ./Adp80xxapp info

   Provides information about an adapter (FW revision no., bus no., slot no., device id, vendor id). Identifier varies from 0 to N-1, where N is the total number of adapters in the system.

b. To flash firmware image:

   ./Adp80xxapp fwflash <id> <firmware-image-name>

   Ex: ./Adp80xxapp fwflash 0 SPCV6G_2085501.bin

   For Windows systems, place images in the directory where the executable is located. For Linux systems, place images in the /lib/firmware directory. Use 'Adp80xxapp info' to confirm that the image flashed correctly.

c. To get help:

   ./Adp80xxapp help

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5. Known Limitations

5.1 Maximum Number of Adapters, Expanders, and Bootable Drives

You can install a maximum of TWO same-series Adaptec HBAs on one system (two Series 7 HBAs, two Series 6 HBAs). See Section 5.2 for more information.
Adaptec Series 7H/7He HBAs support a maximum of:
- 8 bootable drives and 2 expanders during boot time (GSM discovery)
- 128 drives with 5 expanders during PMM under OS control (using drivers)

Adaptec Series 6H HBAs support a maximum of:
- 4 bootable drives and 1 expander during boot time (GSM discovery)
- 128 drives with 5 expanders during PMM under OS control (using drivers)

5.2 Mixing Series 7 and Series 6 Adapter Models
In this release, mixing Adaptec Series 7H/7He and Adaptec Series 6H HBAs in the same system is not supported. Doing so may cause the BIOS to hang on POST.

5.3 BIOS Not Accessible with two 7805 Adapters in Supermicro X8DTU-F
With two Adaptec 7805 adapters in a Supermicro X8DTU-F system, you cannot start the system BIOS by pressing the "DEL" key.

Workaround: Remove one adapter and start the system BIOS. Navigate to Advanced -> Remote AccessConfiguration, then set "Redirection After BIOS POST... [Disabled]". After changing the BIOS setting, put the adapter back.

5.4 Formatting Limitations for Multiple Drives
You can format multiple SAS drives only in the BIOS. Formatting multiple SATA drives is not supported.

5.5 uEFI BIOS Not Available while Formatting a Drive
While formatting a drive with the uEFI BIOS, you cannot perform any other operation until the formatting is complete.
Once formatting is complete, the BIOS responds normally.

5.6 HDDs Listed in Reverse Order on NewIsys Expanders
With Adaptec HBAs in NewIsys expanders, PHY numbers and slot numbers are listed in reverse order during POST; eg, 12-1 vs 1-12.

5.7 Expander Slot Mapping Issues
Box/Slot information for Adaptec HBAs is reported incorrectly in some expanders. For Promise J830, DataOn DNS-1400SM, and Miramar 335SAS expanders, the Box/Slot information is shown as BoxPP/SlotPP for all slots, instead of Box00/Slot00, and so on. In other cases, the Box/Slot mapping is unpredictable.

5.8 Dell System Compatibility Issues
- Dell PowerEdge R610 servers may hang on POST with Adaptec Series 7H/7He or Series 6H adapters.
  Workaround: Upgrade the server with the latest firmware and BIOS.
- Dell PowerEdge T310 and R520 servers are not supported in this release.

5.9 SATA Drive Detection on Chenbro Ci Backplanes
On Chenbro RM21508B Ci backplanes, the BIOS may not detect SATA devices on POST during a cold reboot (power down/power up). On warm reboot, all drives are detected.

5.10 Blink LED Not Supported for Expanders
BLINK LED is not supported for expanders. BLINK LED for drives on the expander is available.
5.11 No Activity LED for SATA Drives

With I/O running, the Activity LED blinks for SAS drives but not SATA drives.

5.12 Suspend/Resume Not Supported on Linux OSs

The driver does not support suspend/resume/hibernate for SAS devices on Linux or Linux/VMware OSs.

5.13 Drives Offline with Default Windows SAN Policy

With the default SAN Policy on Windows, a cold reboot leaves some disk drives (above drive 8) offline.

Workaround: Enter these commands at the Windows command prompt:

1. diskpart
2. san policy=onlineall
3. san

5.14 Drive Write Cache Settings

In this release, setting the drive write cache to enable/disable is limited to the OS tools for Windows and Linux. This feature is not available in the HBA BIOS.

From Windows:

1. Open the "Computer Management" console, then select "Device Manager".
2. Select "Disk Drives".
3. Double-click the drive you want to work with, then select "Policies".
4. Select/unselect "Enable write caching on the device", then click OK.
5. Reboot the system.

From Linux:

1. Login as root.
2. Type one of these commands:

```
/sbin/hdparm -W 0 /dev/hdX 0  # disable write caching
/sbin/hdparm -W 1 /dev/hdX 1  # enable write caching
```

where X is any logical drive on that system; a/b/c... etc

5.15 Documentation Issues: 7805H Max Drives

For the Adaptec 7805H HBA, the user's guide lists support for 16 direct-attached disk drives. That is not correct. The 7805H supports a maximum 8 direct-attached disk drives.

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