
README.TXT

Adaptec ASR-5085/ASR-5405/ASR-5445/ASR-5805/ASR-51245/ASR-51645/ASR-52445 Unified Serial Controllers
Adaptec ASR-2045/ASR-2405 Unified Serial Controllers
Adaptec ASR-5405Z/ASR-5445Z/ASR-5805Z Unified Serial Controllers

NOTE: All Adaptec products are UL listed and for use only with UL listed ITE.
as of October 29, 2009

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.

NOTE: The latest firmware, BIOS, drivers and documentation can be downloaded from www.adaptec.com when they become available.

The following information is available in this file:

1. Software and Documentation
 - 1.1 Controller & Utility Software
 - 1.2 Documentation on this CD
2. Installation and Setup
 - 2.1 Installation Instructions
 - 2.2 MaxIQ SSD Cache Performance Kit Setup
 - 2.3 Power Management Setup
 - 2.4 Linux Setup
 - 2.5 VMware Setup
3. General Cautions
4. Known Limitations
 - 4.1 ACU Utility
 - 4.2 AFU Utility
 - 4.3 Creating an Array from the Adaptec Storage Manager CD
 - 4.4 Using the Controller with an Adaptec S50 JBOD Enclosure
 - 4.5 UnixWare and OpenServer
 - 4.6 OpenServer 6.0
 - 4.7 SuSE Linux Enterprise Server 10 with Service Pack 2
 - 4.8 Hot-adding Disk Drives
 - 4.9 SuperMicro Disk Drive Enclosures
 - 4.10 Using the Controller with the SuperMicro X7DBE Motherboard
 - 4.11 Using the Controller with a Seagate Barracuda 1TB SATA Drive
 - 4.12 Intel SE7525RP2 and SE7320EP2 Motherboards
 - 4.13 Windows Server 2008 64-Bit SCSIport Driver
 - 4.14 Boot Drive Failure after OCE/RLM
 - 4.15 Online Capacity Expansion (OCE) Limits
 - 4.16 Power Management under FreeBSD
 - 4.17 Using RAID10 under FreeBSD
 - 4.18 Power Management with Seagate SAS Drive ST31000640SS
 - 4.19 Linux Cache Synchronization
 - 4.20 Listing Devices in VMware ESX 4.0 Console
 - 4.21 BIOS Hangs When Booting RAID Controller with Batteryless Backup (ZMCP)
 - 4.22 Updating Firmware on Hitachi HUS1514xxVLS300 SAS drives
 - 4.23 Installing windows OS from Direct-Attached Non-DASD Device
 - 4.24 MaxIQ SSD Cache Performance
 - 4.25 Exceeding 2TB LUN Size on VMware ESX Server
 - 4.26 PHY Rate Limitations on Western Digital 2TB WD2002FYPS Hard Drives

1.1. Controller & Utility Software

Note: The latest versions of firmware, BIOS and driver software can be downloaded from www.adaptec.com when they become available.

- BIOS
- ACU
- Windows Drivers
 - o Windows Server 2008, Enterprise, Standard, Datacenter (32-bit, 64-bit)
 - o Windows Server 2008 R2, Enterprise, Standard, Datacenter (32-bit, 64-bit)
 - o Windows Server 2003, Enterprise, Standard, Datacenter (32-bit, 64-bit)
 - o Windows Server 2003 R2, Enterprise, Standard, Datacenter (32-bit, 64-bit)
 - o Windows XP, All versions
 - o Windows Vista, All versions
 - o Windows 7, All versions
- Linux Drivers
 - o Red Hat Enterprise Linux 4.7, IA-32 and x64
 - o Red Hat Enterprise Linux 5.3, IA-32 and x64
 - o SuSE Linux Enterprise Server 9, IA-32 and x64
 - o SuSE Linux Enterprise Server 10, IA-32 and x64
- FreeBSD Drivers
 - o FreeBSD 6.4, 7.1
- SCO Drivers
 - o OpenServer 6.0
 - o UnixWare 7.1.4
- VMware Drivers
 - o VMware ESX Server 3.5, 4.0
- Sun Solaris Drivers
 - o solaris 10 Update 4

1.2. Documentation on this CD

- Adaptec SAS RAID Controllers Installation and User's Guide
- Adaptec RAID Controller Command Line Utility User's Guide
- Adaptec SAS RAID Controllers Quick Start Guide
- Adaptec SAS RAID Controllers README.TXT file

2. Installation and Setup

2.1 Installation Instructions

The Adaptec SAS RAID Controllers Installation and User's Guide contains complete installation information for the controllers and drivers, as well as complete instructions for all utilities. The Adaptec Storage Manager User's Guide

readme.txt

contains complete installation information for the Adaptec Storage Manager software.

2.2 MaxIQ SSD Cache Performance Kit Setup

- o The Adaptec MaxIQ SSD Cache Performance Kit supports Adaptec MaxIQ-branded/Intel X25-E Solid State Disks only.
- o You can install a maximum of 4 SSDs on a controller for MaxIQ caching.
- o Before connecting the MaxIQ SSDs to your controller, install the latest firmware, driver software and Adaptec Storage Manager (ASM), as described in the manual. Shut down the system, then connect the SSDs to one of the SATA/SAS ports on your controller following these steps:
 1. Observe the following precautions:
 - o Keep the drive in the protective anti-static container until you are ready to install the SSD in your server.
 - o Handle the SSD with care. Do not touch the connectors.
 - o Do not remove the encasement or disassemble the SSD; such actions void the warranty.
 2. Plug the SSD into an array that is connected to a Series 2, Series 5, or Series 5Z Adaptec Controller. Do NOT plug the SSD into a blank SATA slot on the motherboard; the controller will not recognize it.
 3. For servers with a standard 2.5-inch drive tray, install the SSD directly into the tray. If your server does not have a standard 2.5-inch drive tray, use a bracket/SLED which enables it to fit properly. (SSD hot-plug is supported.)
- o After connecting the SSDs to your controller, use either the CTRL+A/BIOS utility or ASM to initialize the SSD(s) and add one or more SSDs to the MaxIQ pool. Create a RAID array or Simple Volume with read caching enabled, then enable MaxIQ caching on the array. (See the user's guide for details on these procedures.)

2.3 Power Management Setup

You must use a compatible combination of Adaptec Storage Manager and controller firmware and driver software to use the power management feature. All software components must support power management. You can download the latest controller firmware and drivers from the Adaptec Web site at www.adaptec.com.

2.4 Linux Setup

Before installing the Linux operating system on a logical drive, Adaptec recommends clearing (removing) old data first. If you do not remove old data prior to installation, the OS may not boot. As a workaround, use the boot parameter 'aacraid.wwn=2'.

2.5 VMware Setup

Upgrading the VMware driver to ESX 4.0 is currently supported only for non-bootable arrays. For bootable arrays, upgrading will result with booting only to an ESX recovery shell with no

readme.txt

option to reboot to ESX server normally.

NOTE: A newer version of the driver will be posted on the Adaptec web site, when available, at www.adaptec.com.

3. General Cautions

- While an array is being built or cleared, do NOT remove and re-insert any drive from that array. Doing so may cause unpredictable results for any of the controller's arrays.
 - Do NOT move drives containing an array from one controller to another while the power is on. Doing so could cause the loss of the array configuration or data, or both. Instead, power off both affected controllers, move the drives, and then restart.
-

4. Known Limitations

4.1 ACU Utility

- o On some Intel and IBM systems, when you try to run the ACU utility, this message appears:

```
"Not enough free memory to load the utility!  
Press any key to attempt loading the utility forcibly  
OR wait for the system initialization to be completed  
[Default]"
```

This is normal. On Intel systems, wait for the system initialization to be completed. Then the ACU will run. On IBM systems, press any key when prompted to load the utility forcibly.

- o The ACU erroneously displays deleted logical drives in the JBOD list. The logical drive(s) continue to appear in the JBOD list until you delete all of the JBODs.
- o With some enclosures, the ACU displays incorrect box/slot information for managed disk drives; for example, Exp/Phy instead of Box/Slot.

4.2 AFU Utility

- o When running the AFU in Menu Mode, you can update (flash) only one controller at a time. You must reboot the system before updating the next controller.
- o Flashing a 5-series high-port controller (51245, 51645, 52445) with down-level firmware and an older version of the AFU crashes the system. To recover, you must use a Mode 0 reset using the latest firmware version. See the user's guide for details on the Mode 0 method.

4.3 Creating an Array from the Adaptec Storage Manager CD

When you create an array with the Adaptec Storage Manager bootable CD, the maximum size of the array is 2 TB.

4.4 Using the Controller with an Adaptec S50 JBOD Enclosure

readme.txt

Temperature warnings from the Adaptec S50 JBOD Enclosure with firmware version T016 are not shown in Adaptec Storage Manager (or on the enclosure). To correct the problem, upgrade to the latest firmware version.

4.5 UnixWare and OpenServer

Adding or moving controllers in an existing UnixWare or OpenServer system may cause some device resources to change, which may lead to the operating system being unable to boot. Currently, there is no workaround available in the operating system. Before installing the operating system, make sure all PCI devices are either enabled or installed.

4.6 OpenServer 6.0

Arrays may not be displayed correctly, even after you restart your computer.

To resolve the problem:

As root, run 'resmgr -r -m vtoc' until it fails. Then, as root, run '/etc/conf/bin/idconfupdate -f'. Then, reboot.

4.7 SUSE Linux Enterprise Server 10 with Service Pack 2

If your boot array is installed on the controller, and the boot OS is SLES10 SP2 with driver version 1.1.5-2458, you must add 'aacraid.wwn=1' to the kernel boot command line. Alternatively, install the latest aacraid driver.

4.8 Hot-adding Disk Drives

- o If you hot-add multiple disks simultaneously to a large configuration (100 disk drives or more), it may take a large amount of time before those disk drives appear in Adaptec Storage Manager.
- o With Intel Backplanes AXX4DRV3GEXP and AXX6DRV3GEXP, if a drive bay is empty at enclosure power on and then a SATA disk drive is hot-added into the empty bay, the controller does not detect the new disk drive. To work around this issue, remove and re-insert the SATA disk.

4.9 SuperMicro Disk Drive Enclosures

If the controller does not detect disk drives installed in a SuperMicro M28E2 Mobile Rack, use backplane SAS connectors marked with "SAS In" only.

4.10 Using the Controller with a SuperMicro X7DBE Motherboard

The ASR-2405 and ASR-2045 do not support the SuperMicro X7DBE motherboard. Adaptec recommends using the SuperMicro X7DBE+.

4.11 Using the Controller with a Seagate Barracuda 1TB SATA Drive

To ensure reliability when using Adaptec 2-series and 5-series controllers with a Seagate Barracuda ES.2 1TB SATA Drive (ST31000340NS), Adaptec recommends using Seagate firmware version AN05 or SN06(or higher).

4.12 Intel SE7525RP2 and SE7320EP2 Motherboards

The Intel SE7525RP2 and SE7320EP2 motherboards do not support Mode 0 flash. These motherboards use 64-bit PCI addressing. The AFU currently supports 32-bit PCI addresses only.

4.13 Windows Server 2008 64-Bit SCSIport Driver

The Windows Server 2008 64-Bit SCSIport driver is in the process of being certified and is not supported in this release. Use the Storport driver instead.

4.14 Boot Drive Failure after OCE/RLM

The system may fail to boot after a boot drive OCE/RLM (online capacity expansion/RAID level migration). To correct the problem, verify that the boot drive is still listed as the first logical device in Adaptec Storage Manager (ASM). If not, use the Control-A BIOS utility to reselect the proper boot device.

4.15 Online Capacity Expansion (OCE) Limits

This release supports a maximum of 8 concurrent OCE tasks in the RAID array migration wizard.

4.16 Power Management under FreeBSD

The FreeBSD driver does not support power management in this release.

4.17 Using RAID10 under FreeBSD

If a RAID10 array fails under FreeBSD the firmware may crash causing the system to reboot automatically.

4.18 Power Management with Seagate SAS Drive ST31000640SS

Power Management is not supported by the Seagate ST31000640SS SAS drive. (The drive powers down but will not power up without rebooting.)

4.19 Linux Cache Synchronization

With Linux driver 1.1-5-2459 (or higher), you may see an improvement in performance if you suppress cache synchronization. For a controller with battery back-up, add 'options aacraid cache=6' to the /etc/modprobe.conf.local file. To completely suppress cache synchronization, add 'options aacraid cache=2'. Then, reboot. Note that the smaller value provides no protection in case of a power outage.

4.20 Listing Devices in VMware ESX 4.0 Console

After deleting an array with ARCCONF, the VMware ESX 4.0 Console will hang if you list available devices with 'fdisk -l'. As a work-around, rescan first, then try 'fdisk -l'.

4.21 BIOS Hangs When Booting RAID Controller with Batteryless Backup (ZMCP)

Possible Cause: After a system shutdown, the ZMM-100DB daughterboard remains active for several minutes. The Super Cap connector may have been improperly removed and/or re-inserted with a charge still present.

Solution: Plug the Super Cap connector in when the system is off

readme.txt

and, if the yellow activity LED is illuminated on the ZMM-100DB daughterboard attached to RAID Controller, wait for the LED activity indicator to go out. This may take several minutes. The system should then boot normally.

4.22 Updating Firmware on Hitachi HUS1514xxVLS300 SAS drives

Firmware upgrade on Hitachi HUS151473VLS300 and HUS151436VLS300 SAS drives is not supported for packet sizes below 4K (512/1024/2048).

4.23 Installing Windows OS from Direct-Attached Non-DASD Device

Adaptec RAID controllers do not support Windows OS installation from direct-attached Non-DASD devices ("Direct Access Storage Devices"), such as a tape drive, CD-ROM, or DVD-ROM. Adaptec recommends using a motherboard IDE or SATA DVD-ROM/CD-ROM device to install the Windows OS on a RAID array.

4.24 MaxIQ SSD Cache Performance

The MaxIQ cache contents is lost if the OS is not shut down cleanly (for example, by pressing the reboot button or pulling the power). When the system is restarted, the cache is rebuilt; until that time, you may see a temporary loss in performance.

4.25 Exceeding 2TB LUN Size on VMware ESX Server

Under VMware, if you create a logical drive with greater than 2TB of capacity, the OS will only be able to access the remaining storage above 2TB. For instance, with the 3.5TB LUN, only 1.5TB will be accessible; with a 5TB LUN, only 1TB will be accessible (first 2TB+2TB are skipped); and so on.

4.26 PHY Rate Limitations on Western Digital 2TB WD2002FYPS Hard Drives

To avoid data-phase errors with Western Digital 2TB WD2002FYPS hard drives, the PHY rate is set automatically to 1.5Gb/s rather than the maximum rate of 3.0Gb/s. In ASM and the Control-A/BIOS, the device properties continue to show the maximum rate (3.0Gb/s), not the reduced rate.

NOTE: This release includes a new Control-A/BIOS option for low-port RAID controllers that allows you to set the PHY rate to Auto (default), 1.5Gb/s, or 3.0Gb/s.

(c) 2009 Adaptec, Inc. All Rights Reserved.

This software contains the valuable trade secrets of Adaptec or its licensors. The software is protected under international copyright laws and treaties. This software may only be used in accordance with the terms of its accompanying license agreement.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written consent of Adaptec, Inc., 691 South Milpitas Blvd., Milpitas, CA 95035.