README.TXT

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

Adaptec ASR-5405Z/ASR-5445Z/ASR-5805Z Unified Serial Controllers

Adaptec ASR-5805Q/ASR-5805ZQ Unified Serial Controllers

Adaptec ASR-3405/ASR-3805 Unified Serial Controllers

Adaptec ASR-2045/ASR-2405/ASR-2405Q/ASR-2805 Unified Serial Controllers

NOTE: All Adaptec products are UL listed and for use only with UL listed ITE.

as of August 17, 2010

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.

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1. Software and Documentation

   1.1. Controller & Utility Software

      - Adaptec Firmware/BIOS/Driver/Utilities Version 5.4

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

      - Windows Drivers, All Controllers

  o Windows Server 2008, Enterprise, Standard, Datacenter (32-bit, 64-bit)

  o Windows Server 2008 R2, Enterprise, Standard, Datacenter (64-bit)

  o Windows Server 2003, Enterprise, Standard, Datacenter (32-bit, 64-bit)

  o Windows XP, Windows Vista, Windows 7 (all versions)

- Windows Drivers, 5-Series & 2-Series Controllers Only

  o Windows Server 2003 R2, Enterprise, Standard, Datacenter (32-bit, 64-bit)

 - Linux Drivers, All Controllers

  o Red Hat Enterprise Linux 4.8, IA-32 and x64

  o Red Hat Enterprise Linux 5.4, IA-32 and x64

  o SuSE Linux Enterprise Server 9 SP2 SP3 SP4, IA-32 and x64

  o SuSE Linux Enterprise Server 10 SP2, IA-32 and x64

- Linux Drivers, 5-Series & 2-Series Controllers Only

  o SuSE Linux Enterprise Server 11, IA-32 and x64

- FreeBSD Drivers, 3-Series Controllers Only

  o FreeBSD 6.1, 6.0

- FreeBSD Drivers, 5-Series & 2-Series Controllers Only

  o FreeBSD 6.4, 7.2, 8.0

- SCO Drivers

  o OpenServer 6.0 MP4

  o UnixWare 7.1.4

- VMware Drivers, All Controllers

  o VMware ESX Server 3.x

        - VMware Drivers, 5-Series & 2-Series Controllers Only

          o VMware ESX Server 4.0

        - Sun Solaris Drivers

          o Solaris 10 Update 7

    1.2 Documentation on this CD

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

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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
        contains complete installation information for the Adaptec
        Storage Manager software.

   2.2 MaxIQ SSD Cache Software Setup (5-Series & 2-Series Controllers Only)

        o The Adaptec MaxIQ SSD Cache Performance Kit supports
          Adaptec MaxIQ-branded/Intel X25-E Solid State Drives only.

        o Adaptec Q-series controllers support any MaxIQ-compatible
          SSD on the compatibility list; see www.adaptec.com/compatibility.

        o You can install a maximum of 8 SSDs on a controller for
          MaxIQ caching.

        See the user's guide for complete MaxIQ SSD installation and
        setup instructions.

   2.3 Power Management Setup (5-Series & 2-Series Controllers Only)

        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'.

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3. General Cautions

   - While an array is being built or cleared, do NOT remove and
     re-insert any drive in 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.

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4. Known Limitations

   4.1 ACU Utility

o If a non-MaxIQ (generic) SSD is connected to the controller
  on a lower port number than an Adaptec MaxIQ SDD, you cannot
  use the ACU utility to add the MaxIQ SSD to the MaxIQ pool.
  You must use Adaptec Storage Manager.

  NOTE: Adaptec Q-series controllers do not have this limitation.

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 Installation CD

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

4.4 Using the Controller with an Adaptec S50 JBOD Enclosure

  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 great
      deal 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 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.

4.11 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.

4.12 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.

4.13 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.

4.14 Online Capacity Expansion (OCE) Limits

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

4.15 Power Management under FreeBSD

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

4.16 Using RAID10 under FreeBSD

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

4.17 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.)

4.18 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.

4.19 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'.

4.20 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
     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.

4.21 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).

4.22 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.

4.23 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.

4.24 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.

4.25 PHY Rate Limitations on Western Digital Hard Drives

     To avoid data-phase errors with certain Western Digital hard
     drives, the PHY rate must be set 1.5Gb/s rather than the
     maximum rate of 3.0Gb/s.

     o For Western Digital WD2002FYPS and WD20EADS hard drives, the
       PHY rate is set automatically to 1.5Gb/s.

     You can set the PHY rate to Auto (default), 1.5Gb/s, or 3.0Gb/s.
     in the Control-A/BIOS utility.

     NOTE: For Adaptec low-port RAID controllers, the device
           properties in ASM and the BIOS utility will continue
           to report the maximum PHY rate (3.0Gb/s), not the reduced
           rate. For high-port controllers, the PHY rate is
           reported correctly.

4.26 Changing the Stripe Size for Large RAID Arrays

     For large RAID arrays, a RAID-level migration may fail with a
     firmware crash if you reconfigure the array with a different

        stripe size. No data is lost, however.

        Known migrations that result in a FW crash include:

        o 16/32/64/128 drive R0- 256/16 to 16/256 stripe change
        o 16/32/64/128 drive R0- 512/16 to 16/512 stripe change
        o 16/32/64/128 drive R0- 1024/16 to 16/1024 stripe change
        o 16/32 drive R5- 16 to 512/1024 stripe change
        o 16/32 drive R5- 512/1024 to 16 stripe change
        o 16/32 drive R6- 1024/16 to 16/1024 stripe change

    4.27 Hot-Adding MaxIQ SSDs

        If you remove two or more MaxIQ SSDs and then re-insert
        them at the same time, only one will be recognized as part
        of the MaxIQ pool. To reconstitute the pool, use Adaptec
        Storage Manager or the BIOS Utility to reconfigure
        the MaxIQ cache.

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