



Release Notes

RAID Array 230/Plus Subsystem Software V1.1 for Alpha and Intel-Based Systems

These notes provide information not incorporated into the RAID Array 230/Plus documentation set. Known restrictions of the utilities and various specifications for these products, such as part numbers and version levels are here identified.

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NOTE

Consult the file RELNOTES.TXT found on each disk in the RAID Array 230/Plus Subsystem Software kit for any updates to these Release Notes.

The information contained in these Release Notes, part #AA-R07ED-TE updates and supersedes prior versions of Release Notes for StorageWorks RAID Array 230/Plus Subsystem Software for Alpha-based Systems. If you received this Note as part of an update kit, disregard any earlier version of these Release Notes you may have received.

General Notes

Feedback

We encourage you to send us feedback on our products. If there are any suggestions or comments you would like to make, please send to:

Email to: sbemgr@subsys.enet.dec.com

U.S. Mail to: SBEMGR
Digital Equipment Corporation
Mail Stop SHR3-2/W8
334 South Street
Shrewsbury, MA 01545

Visit our Web Site for the Latest Information

Check out web for the latest drivers, technical tips, and documentation. We can be found in the technical area of our web page, <http://www.storage.digital.com/>

Controller Terminology

In reading the accompanying RAID Array 230/Plus documentation, please note the following terminology associations:

This	Refers to	Also known as
RAID Array 200 Family	any combination of KZPAC, KZPSC, or KZESC controllers	
RAID Array 230/Plus controller	KZPAC-AA, KZPAC-CA, KZPAC-CB	
RAID Array 230 controller	KZPSC-xA, KZPSC-xB	SWXCR-PA, SWXCR-PB
RAID Array 210 controller	KZESC-xA, KZESC-xB	SWXCR-EA, SWXCR-EB

Some RAID Array 200 Controller Family documentation and software uses SWXCR for generic references to KZPAC/KZPSC/KZESC controllers.

Software Kit Considerations in a Mixed RAID Array 200 Family Controller Environment

While the KZPAC controller shares many functional characteristics in common with the KZPSC and KZESC controllers, the associated software kits are not interchangeable. In a system environment where other members of the RAID Array 200 family reside with KZPAC controllers, use the RAID Array 230/Plus software kit.

Revision History

This is the second release of the KZPAC series of backplane RAID controllers. The KZPAC controller is a performance enhanced follow-on to the KZPSC controller. This kit now contains firmware which is common to the KZPAC and KZPSC PCI RAID controllers.

The following table cross references the hardware board revision levels for the RAID Array 230/Plus controllers with the release date and revision level of the software accompanying the board. The FW and BIOS columns refer to firmware and BIOS revision levels; the other columns refer to the version numbers of the Software Kit itself and the respective distribution diskettes for the RAID Configuration Utility (RCU), Windows NT (NT), Digital UNIX (UNIX), OpenVMS (VMS), NT Intel, and RCU Intel.

Hardware and Software Kit Revision Matrix for Alpha Platforms

Product	Board Rev	FW	BIOS	Software Kit	RCU	NT	UNIX	VMS	NT Intel	RCU Intel
KZPAC	E01 (1/97)	2.40	1.20	1.0	1.0	1.0	1.0	1.0	--	--
KZPAC	E02 (2/97)	2.42	1.20	1.0A	1.0A	1.0	1.0	1.0	--	--
KZPAC	E02 (6/97)	2.42	1.20	1.0B	1.0A	1.0	1.0	1.0	--	--
KZPAC	E02 & E03 (7/97)	2.42	1.20	1.1	1.0B	1.0A	1.0A	1.0A	1.0	1.0

KZPAC Document Part Numbers included in the RAID Array 230/Plus Software Kit V1.1

Documentation Part Number	Title
AA-R07ED-TE	RAID Array 230/Plus Subsystem Software Kit V1.1 Release Notes
AA-R07GA-TE	RAID Array 230/Plus RAID Configuration Utility User's Guide
AA-R07FA-TE	RAID Array 230/Plus Installation User's Guide
AA-Q6TGD-TE	RAID Array 200 Online Management Utility for Digital UNIX User's Guide
AA-Q6WVB-TE	RAID Array 200 Online Management Utility for OpenVMS AXP User's Guide
AA-R07DA-TE	RAID Array 230/Plus Subsystem RAID Management Utility for Windows NT User's Guide

KZPAC Option Part Numbers

Product Part Number	Description
BN31L-1E	8 bit SCSI cable (1.5 meter) for KZPSC/KZPAC
BN31M-1E	16 bit Wide SCSI cable (1.5 meter) for KZPSC/KZPAC
BN31S-1E	16 bit wide SCSI right angle cable (1.5 meter) for KZPSC/KZPAC to BA356 StorageWorks enclosure
BN31S-02	16 bit wide SCSI right angle cable (2.0 meter) for KZPSC/KZPAC to BA356 StorageWorks enclosure. Note: Use the BN31S-1E 1.5 meter cable where possible
BN31K-0E	Single 16 bit wide SCSI internal cable w/bulkhead (0.5 meter) for KZPSC/KZPAC third channel external connections
KZPAC-SB	Dual 16 bit wide SCSI internal cables w/bulkhead (0.5 meter) for two KZPSC/KZPAC third channel external connections
KZPSC-UB	Battery backup for KZPSC/KZPAC cache memory

Number of RAID Array 200 Family Controllers Supported

All Alpha-based RAID Array 200 Family drivers and utilities support four controllers. This may be any combination of KZPAC, KZPSC, or KZESC controllers up to a total of four controllers per system.

Install the RAID Management Utilities for Your Operating System

After performing the hardware installation and configuration of your RAID Array 200 Family controller, please install the appropriate online RAID Array 200 RAID Management Utility for your operating system. These utilities will allow you to manage and monitor the state of your RAID array during operating system runtime.

Providing Power to the System and Storage Enclosures

It is important for the correct operation of the RAID Array 200 subsystem to observe the following power-on sequence when using the RAID Array 200 Family controller with external storage enclosures. You must first provide power to the storage enclosure(s) followed by power-on of the system containing the controller. Follow the reverse order when powering off.

SCSI Termination and Fault Management

The controller must be at the end of the SCSI bus for proper termination of the SCSI signals. Consult the appropriate documentation for your storage enclosure to ensure it is properly terminated.

When using Fault Management, the terminators used must support Fault Management. RAID Array 200 controllers are supplied with termination that supports Fault Management. Check with your system supplier to be sure that system/device termination supports Fault Management, otherwise the Fault Management option must be DISABLED on the controller. If a terminator that does not support Fault Management is attached to any channel of the RAID Array 200 controller, the disk drive fault light LEDs may indicate inaccurate status when Fault Management is ENABLED.

Write Back Cache

If you plan to use the Write Back cache setting on the KZPAC controller you should use the KZPSC-UB battery backup option to avoid data loss under circumstances where the controller is unable to complete a write operation to disk (for example, power failure).

UltraSCSI Support

KZPAC supports UltraSCSI devices. In order to enable this feature, the MAX setting found under the RCU's SCSI Xfer Parameter submenu should be selected as explained in the next paragraph.

Usage of the MAX Setting under SCSI Xfer Parameter Submenu

The MAX setting found under the RCU's SCSI Xfer Parameter submenu enables the KZPAC controller to negotiate UltraSCSI (20 MHz) bus transfer speeds with qualified UltraSCSI capable storage devices. The MAX setting will not be displayed when configuring KZESC or KZPSC controllers.

Please consult your DIGITAL Sales Representative for availability of supported UltraSCSI devices for the KZPAC. When using the MAX setting on the KZPAC controller with UltraSCSI devices be sure to follow appropriate UltraSCSI configuration rules. Consult your storage enclosure or subsystem component documentation for more information.

UltraSCSI Configuration Guidelines

DIGITAL has recently introduced several new UltraSCSI StorageWorks components. Some quick rules, an UltraSCSI component listing, and a sample configuration will help make your transition to UltraSCSI successful.

In UltraSCSI mode, the KZPAC has not been qualified on all platforms. Consult the *DIGITAL Systems & Options Catalog Hardware ordering and configuring guide* for the Alpha platform on which you wish to install the KZPAC to ensure the KZPAC is a supported option.

Quick Rules

For Adapters/Controllers:

Homogeneous cable configurations, only, are supported. Therefore, attaching devices to both the internal SCSI connectors (via ribbon cables) and external SCSI connectors (via BN39A) off the same SCSI port is not supported.

For UltraSCSI Disks:

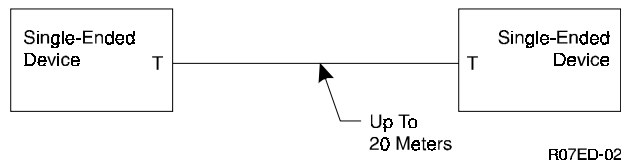
1. UltraSCSI drives are enclosed in blue-colored StorageWorks Building Blocks (SBB's) while F10 drives will continue to be offered in green SBB's.
2. The DS-RZ1XB-VW (UltraSCSI 16-bit wide) disk drives are not supported in a BA356 shelf on the same SCSI bus with 5-1/4" devices (SBB's).

For UltraSCSI BA356:

1. The new blue-colored BA356 UltraSCSI shelf is required for UltraSCSI configurations.
2. The blue BA356 UltraSCSI shelf contains an UltraSCSI personality module and 180W power supply.
3. The 180W power supply (BA35x-HH) is required to support up to seven 3.5" devices and the UltraSCSI personality module within a BA356 storage enclosure.
4. Green F10 drives may be used in the blue UltraSCSI shelf.

For UltraSCSI in General:

Single-ended bus segments may be up to 20-meters long provided the segment is point to point; that is, there are no devices (targets, initiators, or bus expanders) on the bus segment other than at the ends of the bus segment.

**StorageWorks UltraSCSI Components**

The following components are supported as of this printing. Please check your DIGITAL supplier for an updated list.

Disk Drives:

Part #	Description
RZ1BB-VW	2 GB, 7200 RPM, UltraSCSI, Wide, 3.5" Blue SBB
RZ1CB-VW	4 GB, 7200 RPM, UltraSCSI, Wide, 3.5" Blue SBB
RZ1DB-VW	9 GB, 7200 RPM, UltraSCSI, Wide, 3.5" Blue SBB

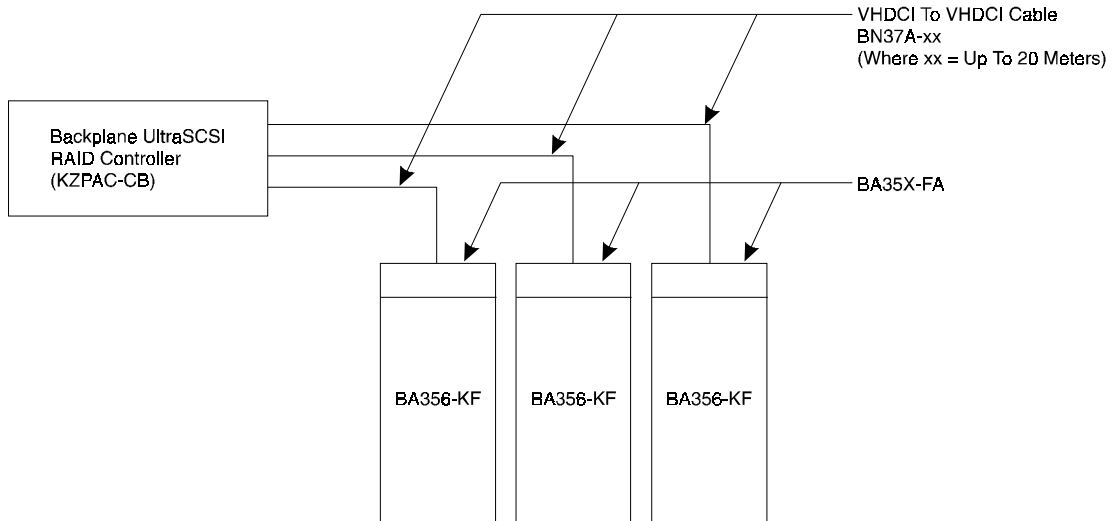
BA356 Blue Enclosures:

Part #	Description
BA356-KF	7 device Pedestal with BA35X-FA & BA35X-HH
BA356-KG	7 device Pedestal with BA35X-FB & BA35X-HH

VHDCI Cables:

Part #	Description
BN37A-02	2.0 meter VHDCI male to VHDCI male
BN37A-2E	2.5 meter VHDCI male to VHDCI male
BN37A-03	3.0 meter VHDCI male to VHDCI male
BN37A-05	5.0 meter VHDCI male to VHDCI male
BN37A-10	10.0 meter VHDCI male to VHDCI male
BN37A-15	15.0 meter VHDCI male to VHDCI male
BN37A-20	20.0 meter VHDCI male to VHDCI male

Sample Configuration – Single-Ended 3-Channel RAID Controller and UltraSCSI Shelves



R07ED-01

New Drives Supported

<u>Part #</u>	<u>Description</u>
RZ28L-VA	2.1GB, Narrow, SBB SCSI Disk Drive
RZ29L-VA	4.3GB, Narrow, SBB SCSI Disk Drive
RZ40-VA	9.1GB, Narrow, SBB SCSI Disk Drive

When using 9.1GB drives, be aware that the largest logical drive that can be configured is 32GB. To use all the space on the 9.1GB drives, you may need to define more than one logical drive per drive group. (A drive group consists of from one to eight physical drives.)

RAID Configuration Utility Notes

The following notes apply to the software found on the RAID Array 230/Plus Software V1.0B RAID Configuration Utility for Alpha Systems diskette.

RAID Configuration Utility File Descriptions

RA200RCU.EXE	RAID Configuration Utility
RA200SRL.EXE	RAID Configuration Utility – serial console version
RA200FL.EXE	Firmware download utility for RA200 family controllers
SWXCRFWP.242	2.42 Firmware for the KZPAC and KZPSC RAID controllers

WARNING

Make sure you use the correct firmware file for the type of controller to be upgraded. Using the wrong firmware file can render your controller inoperative. The SWXCRFWP.242 file is for KZPAC or KZPSC controllers only.

WARNING

The RAID Configuration Utility in this kit should not be used on DEC2000 and DECpc α Xp 150 series systems. Owners of these systems should contact their Digital Service Representative or call 1-800-STORWORK to obtain the appropriate RCU for their needs.

Usage of the MAX Setting under SCSI Xfer Parameter Submenu

The MAX setting found under the RCU's SCSI Xfer Parameter submenu enables the KZPAC controller to negotiate UltraSCSI (20 MHz) bus transfer speeds with qualified UltraSCSI capable storage devices. The MAX setting will not be displayed when configuring KZESC or KZPSC controllers.

Please consult your DIGITAL Sales Representative for availability of supported UltraSCSI devices for the KZPAC. When using the MAX setting on the KZPAC controller with UltraSCSI devices be sure to follow appropriate UltraSCSI configuration rules. Consult your storage enclosure or subsystem component documentation for more information.

Fix for Initializing Drives

Version 4.73 of the RCU fixes a problem when initializing drives on an AlphaBIOS-Based computer. The problem seen was excessive time needed to initialize the logical drives. It is recommended that you initialize the logical drives with the cache policy in the write-back state. Once the initialization of your logical drives is complete, change the cache policy back to write-through if you do not have a cache battery backup unit installed on the RAID Array 230/Plus.

Compatibility Considerations with Previous Versions of the SWXCRMGR Utility

The RCU included in the RAID Array 230/Plus Software Kit must be used whenever configuring the KZPAC controller. Prior versions of the RCU (known as SWXCRMGR in the KZPSC/KZESC software kits) should not be used with the KZPAC. The RCU included with this kit is fully backward compatible in usage with the KZPSC and KZESC controllers. You should not revert to using the earlier versions of the RCU once you employ the RCU included in this kit for configuration of your RAID Array 210 or 230 product.

Controller Read Ahead Parameter Setting Has Been Removed from the RCU

The *Controller Read Ahead* function found in prior versions of the RCU under the Controller Parameters/Hardware Parameters submenu has been removed from the RCU when configuring KZPAC and KZPSC controllers. When these controllers are configured, the RCU will set the appropriate value for best performance. The *Controller Read Ahead* function is present for KZESC controllers to support legacy configuration requirements.

Avoid Configuring Redundant and Non-Redundant Logical Drives within the Same Drive Group

Though it is possible to create redundant (RAID levels 0+1 and/or RAID 5) and non-redundant (RAID 0) logical drives in the same grouping of physical drives, this is not recommended. Logical drives created in this manner will not automatically fail over to a Hot Spare and must be rebuilt manually should one of the disk members fail. For highest availability, configure redundant RAID sets on different physical drive groups than those used for non-redundant RAID levels.

Serial Console Version of the RAID Configuration Utility

The RAID Configuration Utility for the KZPAC controller can be run using a VTxxx terminal and serial connection to the host system. Consult section 1.3 of the RAID Array 230/Plus RAID Configuration Utility User's Guide for further information on usage.

Handling Drives which Appear in the UNF state

The RCU will sometimes indicate disk drives in the UNF (unformatted) state during display of the device array in the utility. This can happen because the disk device was not fully ready at the time the utility scanned for available devices. By reselecting the appropriate controller in the *Select Controller* function of the RCU Main Menu, the utility may subsequently find the drives formerly indicated as UNF ready and display their correct status.

File Naming in the Backup/Restore Configuration Function

When specifying filenames in the *Backup/Restore Conf* function under the Tools Menu of the RCU, it is possible to specify filenames which do not conform to the MS-DOS 8x3 filename convention. Further, the RCU for Alpha platforms will always write/read configuration file information from the first floppy disk located on the system; it is not necessary to append a device specification to the specified filename for the *Backup/Restore Conf* function; any such specification would become part of the target filename. Thus, it is recommended for maximum portability of the saved configuration file, to specify a filename no longer than eight characters and three character extension with no appended device specification.

Considerations When Manually Failing a Drive

Failing a drive with the RAID Configuration Utility will spin the drive down. Selecting Format under the *Rebuild* option will not spin the drive up. Reselecting the controller under the *Select Controller* option will spin the drive up and allow a format under the *Rebuild* option.

Clarification of the '-v' Option in the RAID Configuration Utility Manual

(as documented in sections A.1.1.2 and A.1.2.2 of the RCU manual)

When using the -v option, the correct command syntax does NOT have a space between the '-v' option switch and the firmware version number. The '-v' should be immediately followed by the firmware version number specified for download.

For example to download version 2.42 firmware to all controllers, you would use the following command line:
RA200FL.EXE -v242

Digital UNIX Notes

The following notes apply to the software found on the RAID Array 230/Plus RAID Management Utility Software V1.0A for Digital UNIX diskette.

Subset Names

SWXCRMGR115	StorageWorks RAID Array 200 Online Management Utility version 1.1.5
SWXCR123	StorageWorks SWXCR Utility for Digital UNIX version 1.2.3

Running Multiple Copies of the SWXCRMGR Utility

Do NOT run multiple copies of the SWXCRMGR utility at one time.

Performing Rebuilds with the SWXCRMGR Utility

When performing rebuilds across multiple controllers with the GUI, rapidly changing back and forth between controllers can cause the utility to crash. The utility crash does not otherwise affect system operation and all rebuilds will continue. We recommend not switching controllers after the last rebuild has started until all rebuilds complete.

SWXCRMGR Does Not Report Automatic Rebuilds

The GUI does not report rebuilds which the controller automatically initiates. If an automatic rebuild is occurring the GUI will mark the drive as WOL. Do not start a second rebuild on a controller that is currently doing an automatic rebuild.

Canceling a Parity Check or Rebuild with the SWXCRMGR

You can cancel a parity check or rebuild that is in progress by reselecting the *Parity Check* or *Rebuild* function from the *Management* menu, and then clicking the *Cancel* button on the main window.

SWXCRMON Utility

The accompanying disk contains version V1.2.3 of the SWXCR monitor utility for Digital UNIX. Version 1.2.3 of the monitor utility for Digital UNIX incorporates changes from earlier versions of the utility to allow event notification via a mail client's Subject: line when the utility is used to log messages via the mail facility.

Installation and usage of this utility is as described in the document "StorageWorks RAID Array 200 Online Management Utility for Digital UNIX User's Guide". Prior to installing the utility, you should remove any prior installations of the utility. The following instructions are a quick summary of the steps to install the utility. Consult your Digital UNIX documentation if you need further explanation.

1. Identify any previous installations of the SWXCR Utility for Digital UNIX (OSF/1). Use the 'setld -i' command to determine if previous versions of the utility are installed.

for example: `setld -i | grep -i swxcr`

This command may identify subsets for either the 'StorageWorks RAID Array 200 Management Utility' or the StorageWorks SWXCR Utility for Digital UNIX (or OSF/1). You should note the subset name of any 'StorageWorks SWXCR Utility for Digital UNIX (or OSF/1)' for use in the following step.

2. Remove any "SWXCR Utility for Digital UNIX (or OSF/1)" subsets that are identified in step 1. This is accomplished using the 'setld -d' command with the subset name(s) identified in step 1. For example using the SWXCR Utility for Digital UNIX v1.2.1 subset's name SWXCR121, you would type

`setld -d SWXCR121`

You are now ready to install the new monitor utility.

3. Mount the accompanying distribution disk to a convenient file system mount point such as /mnt.
4. Install the monitor utility using the 'setld -l' command. Using the example mount point /mnt, you would type:

`setld -l /mnt`

5. Select the monitor utility's subset, SWXCR123, when prompted and confirm your choices. The utility will then be installed.
6. Dismount the utility disk and you are done.

Running SWXCRRATE

Ensure the SWXCRMGR GUI is not running when you change the default rebuild rate using the SWXCRRATE command line utility.

OpenVMS Notes

The following notes apply to the software found on the RAID Array 230/Plus RAID Management Utility Software V1.0A for OpenVMS Alpha diskette.

Utilities Provided with This Kit

This kit contains an extended command line utility, SWXCR, used for monitoring the RAID array and performing parity checks on its devices. A GUI based RAID management utility, SWXCRMGR, is supported on OpenVMS version 6.2-1H3 and higher.

Running Multiple Copies of the SWXCRMGR Utility

Do NOT run multiple copies of the SWXCRMGR utility at one time.

Performing Rebuilds with the SWXCRMGR Utility

When performing rebuilds across multiple controllers with the GUI, rapidly changing back and forth between controllers can cause the utility to crash. The utility crash does not otherwise affect system operation and all rebuilds will continue. We recommend not switching controllers after the last rebuild has started until all rebuilds complete.

SWXCRMGR Does Not Report Automatic Rebuilds

The GUI does not report rebuilds that the controller automatically initiates. If an automatic rebuild is occurring the GUI will mark the drive as WOL. Do not start a second rebuild on a controller that is currently doing an automatic rebuild.

Canceling a Parity Check or Rebuild with the SWXCRMGR

You can cancel a parity check or rebuild that is in progress by reselecting the *Parity Check* or *Rebuild* function from the *Management* menu, and then clicking the *Cancel* button on the main window.

SWXCRMGR VMScLuster Support

Some earlier versions of the KZPSC/KZESC utilities would not operate properly in a cluster environment when the SYSGEN parameter DR_UNIT_BASE number was non-zero. However, in a cluster environment, multiple servers could not both be set to zero. SWXCR Utilities have been modified so that they will operate properly when DR_UNIT_BASE is non-zero.

The modifications made to the utilities affect the SWXCR Monitor, the SWXCR Parity Check utility, and the SWXCR Manager.

The DR_UNIT_BASE number on any given node in a VMScLuster environment should be set at least eight apart from all DR_UNIT_BASE numbers on other nodes in the VMScLuster environment, in order to avoid naming conflicts.

SWXCRMGR

The SWXCRMGR program has been modified to allow examination of controllers on systems that have non-zero DR_UNIT_BASE values.

SWXCR MONITOR

The process name is changed from SWXCR\$MON_DRx (where `x` is the controller letter of the device specified in the `SWXCR MONITOR` command), to a name composed as follows:

"SW\$" + DECnet-node-name + "\$" + allocation-class + controller-letter

For example, if the user types the following command:

```
$ SWXCR MONITOR DRA10
```

on node ASTRO, where the allocation class is set to 5, the process name will be set to:

```
SW$ASTRO$5A
```

This naming convention, used above for the process name, is propagated to the log file name and the mailbox name, as well.

Using the example above, the log file name would be:

```
SW$ASTRO$5A.LOG
```

and the mailbox name would be:

```
SW$ASTRO$5A_MBX
```

Note that when you are running SWXCR MONITOR in a VMScluster environment, only those controllers that are local to the current node can be monitored from that node. In order to monitor a controller connected to a different node in the cluster, you must log into that particular node and start a new monitor process for that particular controller. If you attempt to monitor a controller which is not local to the current node in the cluster, an error is returned.

SWXCR CHECK

In a VMScluster environment, you may only perform a parity check operation on a device that is local to the node from which you are operating. In order to perform a parity check (with or without repair) on a logical drive associated with a controller connected to a different node in the cluster, you must log into that particular node and then issue the appropriate "SWXCR CHECK" command. If you attempt to perform a check operation on a logical drive unit that is not local to the current node in the cluster, an error is returned.

Running SWXCRRATE

Ensure the SWXCRMGR GUI is not running when you change the default rebuild rate using the SWXCRRATE command line utility.

Windows NT Notes — Alpha Platform

The following notes apply to the software found on the RAID Array 230/Plus RAID Management Utility Software V1.0A for Windows NT Alpha Systems diskette.

Installation of NT on KZPAC Boot Partitions with Multiple Logical Drives

There is a limitation in the Windows NT installation mechanism which results in a failure to successfully complete an installation to a KZPAC boot device when more than one logical drive is defined on that device.

Partition Restrictions under Windows NT

The Windows NT boot partition size cannot exceed 2024 MB in size. Please see Microsoft's Windows NT documentation for further details.

Passthru Device Support on the KZPAC Controller

Passthru device support exists for CD-ROM and tape devices on the KZPAC controller under Windows NT. The following list of CD-ROM and Tape devices are explicitly qualified; consult your Digital Sales Representative for an updated list of qualified devices:

Device Type	Supported Devices
CD-ROM	Digital Equipment Corporation RRD43, RRD44, RRD45
TAPE	Digital Equipment Corporation TLZ06, TLZ07, TZ86, TZ88

Updated Windows NT Driver for Windows NT V3.51 and NT V4.0 Installations

An updated driver exists which prevents system hang conditions from occurring in certain Windows NT V3.51 system configurations where the system disk is resident on a RAID Array 200 Family controller that also contains other logical drives that are the target of heavy I/O loading. Systems in this configuration can experience spontaneous hang conditions. The Alpha driver provided with the CD-ROM distribution of Windows NT V3.51 exhibits this problem.

The new Alpha driver also fixes a problem with SCSI time-out errors being reported in the NT event viewer under both NT V3.51 and NT V4.0. The Alpha drivers provided with the CD-ROM distribution on both Windows NT V3.51 and NT V4.0 exhibit this problem. An updated driver can be found by consulting information at the following URL:

<http://www.windows.digital.com/support/drivers/drivers.asp>

Should this not be a convenient method of obtaining the new driver, please call 1-800-STORWORK for further information.

Installation Notes for the RAID Monitor Utility

The RAID Array 230/Plus Monitor Utility is installed as a Windows NT system service. This makes RAID array monitoring available whenever the system is booted. RAID array events are logged to the Windows NT Event Viewer Application Log. This log may be viewed remotely using standard Event Viewer facilities.

If you have a previously installed version of RAID Array 210 or 230 utilities for Windows NT, you should de-install them prior to installation of the RAID Array 230/Plus utility set.

Events NOT Being Logged to NT Event Viewer or Monitor Window

If you log into an administrator account, maximize, then minimize, the SWXCR monitor window and then log out of NT. Events may not be logged to the SWXCR monitor window or the Windows NT Event Viewer. If you experience events on the RAID Array 230/Plus not being logged, go into *Control Panel* and double click the *Services ICON*. Select the *Swxcrsrv* service and click on *Startup*. Deselect *Allow Service to Interact with Desktop* and click *OK*. You must stop and start the *Swxcrsrv* service for the change to take effect.

Windows NT Notes — Intel Platform

The following notes apply to software found on the RAID Array 230/Plus RAID Management Utility Software V1.0 for the Windows NT Intel diskette.

Windows NT V4.0 is the only version supported on Intel.

Installation of NT on KZPAC Boot Partitions with Multiple Logical Drives

There is a limitation in the Windows NT installation mechanism which results in a failure to successfully complete an installation to a KZPAC boot device when more than one logical drive is defined on that device.

Partition Restrictions under Windows NT

The Windows NT boot partition size cannot exceed 2024 MB in size. Please see Microsoft's Windows NT documentation for further details.

Passthru Device Support on the KZPAC Controller

Passthru device support exists for CD-ROM and tape devices on the KZPAC controller under Windows NT. The following list of CD-ROM and Tape devices are explicitly qualified; consult your Digital Sales Representative for an updated list of qualified devices:

Device Type	Supported Devices
CD-ROM	Digital Equipment Corporation RRD43, RRD44, RRD45
TAPE	Digital Equipment Corporation TLZ06, TLZ07, TZ86, TZ88

Updated Windows NT Driver for NT V4.0 Installations

A new version of the Windows NT driver fixes a problem with SCSI time-out errors being reported in the NT event viewer.

Refer to the driver.txt file on the RAID Array 230/Plus RAID Management Utility Software V1.0 for the Windows NT Intel diskette for instructions on how to load the updated driver.

Please check the StorageWorks Web site to see if there is a newer driver. See *Visit our Web Site for the Latest Information* under *General Notes*, above for instructions on accessing the Web site.

Installation Notes for the RAID Monitor Utility

The RAID Array 230/Plus Monitor Utility is installed as a Windows NT system service. This makes RAID array monitoring available whenever the system is booted. RAID array events are logged to the Windows NT Event Viewer Application Log. This log may be viewed remotely using standard Event Viewer facilities.

If you have a previously installed version of RAID Array 210 or 230 utilities for Windows NT, you should de-install them prior to installation of the RAID Array 230/Plus utility set.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

ACHTUNG!

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

AVERTISSEMENT!

Cet appareil est un appareil de Classe A. Dans un environnement résidentiel cet appareil peut provoquer des brouillages radioélectriques. Dans ce cas, il peut être demandé à l'utilisateur de prendre les mesures appropriées.