



# Intel<sup>®</sup> Server RAID Controller U2-1 (SRCU21)

Specification Update

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June 2001

The Intel<sup>®</sup> Server RAID Controller U2-1 (SRCU21) may contain design defects or errors known as errata which may cause the Intel<sup>®</sup> Server RAID Controller U2-1 (SRCU21) to deviate from published specifications. Current characterized errata are documented in this Specification Update.

Order Number: 245413-016



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The Intel® Server RAID Controller U2-1 (SRCU21) may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature may be obtained by calling 1-800-548-4725 or by visiting Intel's website at <http://www.intel.com>.

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## Revision History

Date	Version	Description
06/20/00	016	No changes.
4/18/01	015	Added Erratum #G-36. Added Spec Clarification #5.
03/21/00	014	No changes.
02/21/01	013	Added Errata #G-35.
01/17/01	012	Added Errata #G-33. and #G-34. Added Spec Clarification #4.
12/13/00	011	No changes.
11/15/00	010	Added Errata #G-31. and #G-32. Changed Errata #G-19. from Eval to Fixed. Added Global Build Version 3.28 information. See the <a href="#">Summary Table of Changes</a> and the <a href="#">Software Version Identification Matrix</a> .
10/18/00	009	Added Errata #G-29. and #G-30. Removed Spec Clarification #2 and #4 from September update. Added Documentation change #5. Added Global Build Version 3.27 information. See <a href="#">Software Version Identification Matrix</a> .
9/13/00	008	Added Errata #G-25., #G-26., #G-27., #G-28. and #M-5. Changed to 'Fixed' Errata #G-22. and #M-2. Modified Errata #G-21. Added Specification change #3. Added Spec Clarification #3. Added Doc Changes #4. Added Global Build Version 3.23 information. See <a href="#">Software Version Identification Matrix</a> .
8/16/00	007	Added Errata #L-1. and #L-2. Modified Spec Change #2. Added RAID Software Suite for Linux information (see <a href="#">Software Version Identification Matrix</a> and <a href="#">RAID Software Suite for Linux</a> ).
7/12/00	006	Added Errata #G-22., #G-23. and #G-24. Added Spec Changes #1. and #2. Added Spec Clarification #4. Added Doc Changes #2. and #3. Added Global Build Version 3.21 information.
6/14/00	005	Added Erratum #G-21. Added Spec Clarification #2. Updated the status in #G-3., # G-4., #G-6., #G-9., #G-10., #G-12. and #M-3. to Eval. Updated the status in #G-17. to Fixed.
5/17/00	004	Added Errata #G-19. and #G-20.

## Revision History



Date	Version	Description
4/19/00	003	Added Errata #G-17. and #G-18.
3/15/00	002	Modified Errata: #G-14., #G-15., #G-16. and #M-2.
2/9/00	001	This is the new specification update document.

# Preface

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This document is an update to the specifications contained in the Affected Documents/Related Documents table below. This document is a compilation of device and documentation errata, specification clarifications and changes. It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools.

Information types defined in Nomenclature are consolidated into the specification update and are no longer published in other documents.

This document may also contain information that was not previously published.

## Affected Documents/Related Documents

Title	Order
Intel® Server RAID Controller U2-1 (SRCU21) User's Manual	273327
Intel® Server RAID Controller U2-1 (SRCU21) Technical Product Specification	245412

## Nomenclature

**Errata** are design defects or errors. These may cause the RAID Controller's behavior to deviate from published specifications. Hardware and software designed to be used with any given stepping must assume that all errata documented for that stepping are present on all devices.

**Specification Changes** are modifications to the current published specifications. These changes will be incorporated in any new release of the specification.

**Specification Clarifications** describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in any new release of the specification.

**Documentation Changes** include typos, errors, or omissions from the current published specifications. These will be incorporated in any new release of the specification.

**Note:** Errata remain in the specification update throughout the product's lifecycle, or until a particular stepping is no longer commercially available. Under these circumstances, errata removed from the specification update are archived and available upon request. Specification changes, specification clarifications and documentation changes are removed from the specification update when the appropriate changes are made to the appropriate product specification or user documentation (datasheets, manuals, etc.).



# Summary Table of Changes

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The following table indicates the errata, specification changes, specification clarifications, or documentation changes which apply to the RAID Controller product. Intel may fix some of the errata in a future stepping of the component, and account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

## Codes Used in Summary Table

### Global Build Version

X:	Errata exists in the stepping indicated. Specification Change or Clarification that applies to this stepping.
(No mark)	
or (Blank box):	This erratum is fixed in listed stepping or specification change does not apply to listed stepping.

### Page

(Page):	Page location of item in this document.
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### Status

Doc:	Document change or update will be implemented.
Fix:	This erratum is intended to be fixed in a future step of the component.
Fixed:	This erratum has been previously fixed.
NoFix:	There are no plans to fix this erratum.
Eval:	Plans to fix this erratum are under evaluation.

### Row

	Change bar to left of table row indicates this erratum is either new or modified from the previous version of the document.
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## Errata (Sheet 1 of 3)

No.	Global Build Version				Ref	Page	Status	Errata
	3.15	3.21	3.23	3.28				
G-1.	x					22	Fixed	Windows NT* Setup blue screen in systems with AMI BIOS
G-2.	x	x	x	x		22	NoFix	Microsoft Internet Explorer* 5.0 Dr. Watson error when running Storage Console
G-3.	x					22	Fixed	Booting RAID 5 volume configurations that are degraded due to a missing disk and have modified strip size parameters may read data incorrectly
G-4.	x					23	Fixed	Possible server hang while performing volume or array migration actions with write-back caching enabled during certain write operations
G-5.	x	x	x	x		23	Eval	Attempting to address a non-existent RAID adapter with Storage Console may cause a blue screen
G-6.	x					23	Fixed	RAID 5 volumes may re-initialize upon startup of UnixWare* 7.1
G-7.	x					24	Fixed	NT Volume still available to OS after being deleted in Storage Console
G-8.	x					24	Fixed	Old data is still accessible on a newly created NT volume
G-9.	x					24	Fixed	-1 MB available on disks
G-10.	x					25	Fixed	Storage Console Enclosure page does not appear when there are no disks in a SAF-TE enclosure
G-11.	x					25	Fixed	"I2O Config Dialog Error" in Storage Console
G-12.	x					25	Fixed	RAID Configuration Utility (RCU) states a volume is already created when no volume exists
G-13.	x	x	x	x		25	Eval	Slow performance when write-back caching enabled on the Windows NT system drive
G-14.	x	x	x	x		26	Eval	Flash Update Utility fails with RAID adapter installed in a RAIDport III* PCI slot
G-15.	x					26	Fixed	System hang or ABEND when booting to an initializing, expanding or migrating RAID volume
G-16.	x					26	Fixed	0505: Expansion ROM not initialized - PCI in Slot 0x error on Intel SPKA4 motherboard.
G-17.	x					27	Fixed	Dual RAID Controller configuration in systems built with the L440GX+ or C440GX+ motherboards may cause system hang during POST.
G-18.	x	x	x	x		27	NoFix	Unable to connect via a browser to the RAID subsystem running on a remote NT Server that has been upgraded to Service Pack 6 (SP6) or higher.
G-19.	x	x	x			28	Fixed	NT initiates a 'CHKDSK' upon each reboot of a computer where NT is installed to a RAID volume that has been formatted with the FAT file system.
G-20.	x					28	Fixed	Computer may 'Blue Screen' during the NT installation and setup to a RAID 5 volume if the RAID 5 volume is initializing in the background.

## Errata (Sheet 2 of 3)

No.	Global Build Version				Ref	Page	Status	Errata
	3.15	3.21	3.23	3.28				
G-21.	x	x	x	x		28	Eval	RAID 5 volumes may Re-initialize or Fail after rebooting while using DOS or NetWare
G-22.	x	x				29	Fixed	Blue screen with two (2) SRCU21 adapters in one computer system using Global Build Version 3.21 software.
G-23.	x	x	x	x		29	Eval	Second RAID volume created under UnixWare is not detected by the OS if UnixWare is installed on a RAID volume.
G-24.	x	x	x	x		29	Eval	I/O subsystem pauses for approximately thirty (30) seconds under heavy I/O using Sequential Caching.
G-25.	x	x	x	x		30	Eval	The RAID Controller doesn't accept System or User-initiated Standby or Hibernate Power Management commands
G-26.	x	x	x	x		30	Eval	UnixWare 'Panics' when booting with 'Failed' volumes.
G-27.	x	x	x	x		30	Eval	Advanced RAID Configuration Utility menus may be unreadable.
G-28.	x	x	x	x		31	Eval	Unable to create large number of RAID volumes on two adapters using the Advanced RAID Configuration Utility (ARCU).
G-29.	x	x	x	x		31	Eval	New updated OSM drivers' version number unchanged.
G-30.	x	x	x	x		31	Eval	Online Array Roaming Requires a Shutdown of both Computers
G-31.	x	x	x	x		31	Eval	Incorrect Silk Sreen Label on Jumper J7D1 (IOP Mode Select)
G-32.	x	x	x	x		32	Eval	RAID Software Suite Fails to Uninstall
G-33.	x	x	x	x	905	32	Eval	Deleting DEGRADED RAID Volume Instructs User to Call Customer Support
G-34.	x	x	x	x	906	33	Eval	"ftdisk" Message Reported in Event Log
G-35.	x	x	x	x	945	33	Eval	RAID 5 Volume reinitializes upon reboot when marked as Dynamic Disk in Disk Management
G-36.	x	x	x	x	1160	33	Eval	RAID subsystem events on NetWare* 5.1 not detected by HP OpenView*
M-1.	x					34	Fixed	RAID Monitor reports Normal volume when status is actually Expanding or Migrating.
M-2.	x	x				34	Fixed	RAID Monitor will only report events for the first adapter installed in the system.
M-3.	x					34	Fixed	RAID Monitor missing events from newly created volume
M-4.	x					35	Fixed	RAID Monitor information does not refresh under NetWare* 4.2 and 5.0
M-5.	x					35	Fixed	The RAID Monitor application does not always send a pop-up message after a disk or volume status has changed.



## Errata (Sheet 3 of 3)

No.	Global Build Version				Ref	Page	Status	Errata
	3.15	3.21	3.23	3.28				
S-1.	x					35	Fixed	No DMI or SNMP information displayed when there are no RAID volumes
S-2.	x					35	Fixed	Component Shared DLL error in %systemroot%\system32\eventapi.dll
S-3.	x					36	Fixed	SNMP Extension Agent does not show migrating volumes
S-4.	x					36	Fixed	SNMP Extension Agent does not initialize in SCO UnixWare 7.1

## Linux Errata

No.	Global Build Version			Page	Status	Errata
	1.0					
L-1.	x			36	Fix	IRVIEW reports incorrect volume and disk sizes.
L-2.	x			36	Fix	Running FDISK on a RAID volume from the console generates I2O error messages.

## Specification Changes

No.	Global Build Version			Page	Status	Specification Changes
	3.21	3.23				
1.	x	x		37	N/A	Local Storage Console option eliminates the requirement to install Microsoft's Internet Information Server (IIS)
2.	x	x		37	N/A	Support for Linux Operating System, Red Hat Linux 6.2
3.		x		37	N/A	Support for Microsoft Windows 2000 operating system

## Specification Clarifications

No.	Global Build Version			Page	Status	Specification Clarifications
	3.15	3.21	3.23			
1.	x	x	x	38	N/A	RAID 0 volumes still show normal status after a member disk has failed
2.	x	x	x	38	N/A	Performance impact of adding memory to the RAID adapter
3.		x	x	38	N/A	Clarification between the Linux kernel shipped with Redhat 6.2 and the kernel supported by the RAID adapter
4.		x	x	38	N/A	RAID configuration reappears after Destructive Bus Scan when drives are moved to another server
5.		x	x	38	N/A	Failure Reclaiming Pass-Through for Raid causes conflicting reboot message

## Documentation Changes

No.	Document Revision		Page	Status	Documentation Changes
	1.0	2.0			
1.	x	x	39	N/A	Troubleshooting: Windows NT*
2.		x	39	N/A	Section 5.1.3.5 Array Roaming
3.		x	39	N/A	Table 5-3 and Table 5-5: RAID 1 and RAID 10 Volume Characteristics
4.		x	39	N/A	Windows 2000 support
5.		x	39	N/A	Replacing/Upgrading (Swapping) a RAID Adapter that has Windows 2000 Installed to a Bootable RAID Volume



# Identification Information

## Software Version Identification Matrix

This matrix identifies the various software module version numbers for a given global build version. It is possible that a new release may not affect all software modules. It is also possible that a new module can be released individually without a release revision.

### Global Build Contents (Sheet 1 of 2)

Module Name	File/Package Name	Global Build Version				
		3.15	3.21	3.23	3.27	3.28
		Module Version				
Adapter Firmware	RAID.BIN	3.13	3.21	3.23	3.27	3.23
RAID Configuration Utility	N/A	3.10	4.14	4.17	4.17	4.17
Flash Update Utility	FUU.EXE	3.07	3.07	3.07	3.07	3.07
Flash Recovery Utility	FRU.EXE	3.08	4.04	4.04	4.04	4.04
DMI	DISK.MIF	9/23/99	3/17/00	3/17/00	3/17/00	3/17/00
	RAID.MIF	10/7/99	1/06/00	01/06/00	01/06/00	01/06/00
	RAIDCI.EXE	NA	5/10/00	04/06/00	04/06/00	04/06/00
SNMP	RAIDXA.DLL	10/20/99	5/10/00	5/10/00	5/10/00	5/10/00
	RAIDXA.MIB	NA	10/19/99	10/19/99	10/19/99	10/19/99
HP OpenView* Integration	SETUP.EXE	5,52,164,0	5,52,164,0	5,52,164,0	5,52,164,0	5,52,164,0
Windows NT*: RAID Software Suite	SETUP.EXE	5,52,164,0	5,52,164,0	5,52,164,0	5,52,164,0	5,52,164,0
	IOP.EXE	1,0,0,1Exec	1,0,0,1Exec	1,0,0,1Exec	1,0,0,1Exec	1,0,0,1Exec
	I2OAPP.DLL	NA	0,4,0,13	0,4,0,13	0,4,0,13	0,4,0,13
Windows NT: RAID Monitor Service	RAIDSERV.EXE	10/20/99	5/10/00	5/10/00	5/10/00	5/10/00
Windows NT: RAID Monitor Application	RAIDMON.EXE	3.08	4.11			
Windows NT: OSM	IOPBUS.SYS	1.50-69C	1.50-69d	1.50-69d	15,323 bytes	15,320 bytes
	I2OEXEC.SYS	1.50-69C	1.50-69d	1.50-69d	15,005 bytes	15,005 bytes
	I2ODISK.SYS	1.50-69C	1.50-69d	1.50-69d	32,877 bytes	32,877 bytes
	I2OMP.SYS	4.01	4.01	4.01	4.01	4.01
	I2OFILT.SYS	4/20/99	4/20/99		2,829 bytes	2,829 bytes
	I2OSCSI.SYS	3.08	3.08	3.08	8,800 bytes	8,800 bytes
Netware*: RAID Monitor	RAIDMON.NLM	3.14	4.11			
Netware: OSM	BKSTROSM.HAM	1.14a	1.18a	1.18a	1.18a	1.18a
	I2OPCI.NLM	1.09	1.09	1.09	1.09	1.09
	IOPX.NLM	1.25	1.27	1.27	1.27	1.27
	SCSIOSM.HAM	1.05	1.05	1.05	1.05	1.05

**Global Build Contents (Sheet 2 of 2)**

Module Name	File/Package Name	Global Build Version				
		3.15	3.21	3.23	3.27	3.28
		Module Version				
Netware: DMI CI	RAIDCI.NLM	3.14	4.11	4.11	4.11	4.11
Netware: SNMP	RAIDXA.NLM	3.14	4.06	4.06	4.06	4.06
Windows 2000: OSM	IOP.EXE i2oDisk.SYS i2oEXEC.SYS IOPBUS.SYS i2omp.SYS i2obus.inf i2odisk.inf			1,0,0,1 1.50-68i 1.50-68a 1.50-69a	1,0,0,1 37,750 bytes 14,390 bytes 22,276 bytes  4,061 bytes 6,100 bytes	1,0,0,1 37,750 bytes 14,390 bytes 22,276 bytes  4,061 bytes 6,100 bytes
Unixware*: RAID Monitor	RAIDMON	1.0	1.0	1.0	1.0	1.0
Unixware: OSM	i2oOSM	ptf7066c	ptf7066c	ptf7066c	ptf7066c	ptf7066c
Unixware: DMI CI	RAIDCI	1.0	1.0	1.0	1.0	1.0

**RAID Software Suite for Linux**

Module Name	File/Package Name	Global Build Version		
		1.0		
		Module Version		
Installation Script	install.sh	none		
OSM's	i2o_block i2o_pci i2o_core i2o_config	2.2.16 (part of kernel)		
RAID Configuration Services	iird	none		
RAID Configuration ServicesAdministration	iradmin	none		
IRVIEW (RAID Monitor)	irview	0.7		
User's Manual (documentation)	iir.pdf index.fm	1.0		

**Module Identification Methods**
**Release Version Identification**

A "Release" is provided on a CD-ROM from Intel Corporation. The release version will be listed on the CD-ROM label and as the CD-ROM's volume label in the following format:

X.YY.ZZZ

Where:

- X = Major Version
- Y = Minor Version
- Z = OEM/IHV identification code

The release version is not identifiable in software.

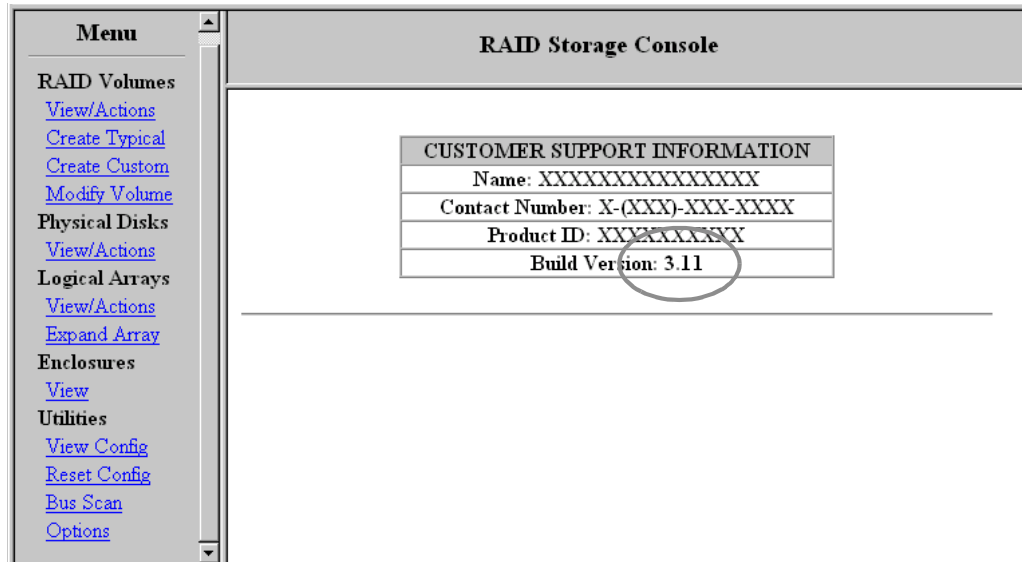
**Note:** The methods for Module Identification differ between Global Build Version 3.15 and later releases. Refer to the appropriate section to identify software modules correctly.

## Global Build Version 3.15

### Adapter Firmware Version Identifier

The primary method for identifying the adapter firmware version requires that the system be booted into the host operating system running the Storage Console application. With Storage Console running, select “Options” in the left frame and then “Support Info” in the right frame. The firmware version is listed in the table next to the words “Build Version”. See [Figure 1](#).

**Figure 1. Build Version**

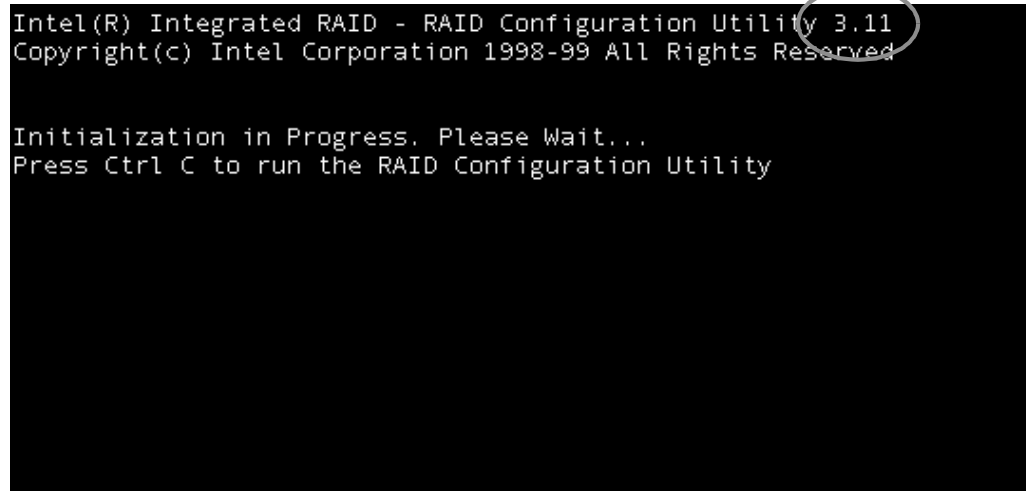


Should the adapter be installed in a system where the Storage Console application cannot be accessed, a secondary method for identifying the firmware/build version is available. Boot the host system and execute the RAID Troubleshooting Utility (IOPSETUP) using the bootable Intel Integrated RAID CD-ROM or the bootable RAID Troubleshooting diskette. Navigate through the menus until you reach the RAID Storage Console link. Then navigate through to the “Options” and then “Customer Support” links.

### RAID Configuration Utility (RCU)

During the system boot process, the RAID Controller firmware initializes the RAID Configuration Utility. The end of the first line on the screen shown in [Figure 2](#) displays the RCU version number.



**Figure 2. RCU Version Number**

```
Intel(R) Integrated RAID - RAID Configuration Utility 3.11
Copyright(c) Intel Corporation 1998-99 All Rights Reserved

Initialization in Progress. Please Wait...
Press Ctrl C to run the RAID Configuration Utility
```

## Global Build Version 3.21 and Higher

### Adapter Firmware Version Identifier

There are two methods for identifying the firmware version installed on the RAID adapter. While the system is booting, the RAID controller firmware initializes and displays the information shown in [Figure 1](#) to the screen. The firmware version is displayed next to the words “RAID Controller Firmware”.

An alternative method for identifying the adapter firmware version requires that the system be booted into the host operating system running the Storage Console application. With Storage Console running, select “Options” in the left frame and then “Support Info” in the right frame. The firmware version is listed in the table next to the words “Build Version”. See [Figure 1](#).

Figure 3. Firmware Version Displayed in RCU

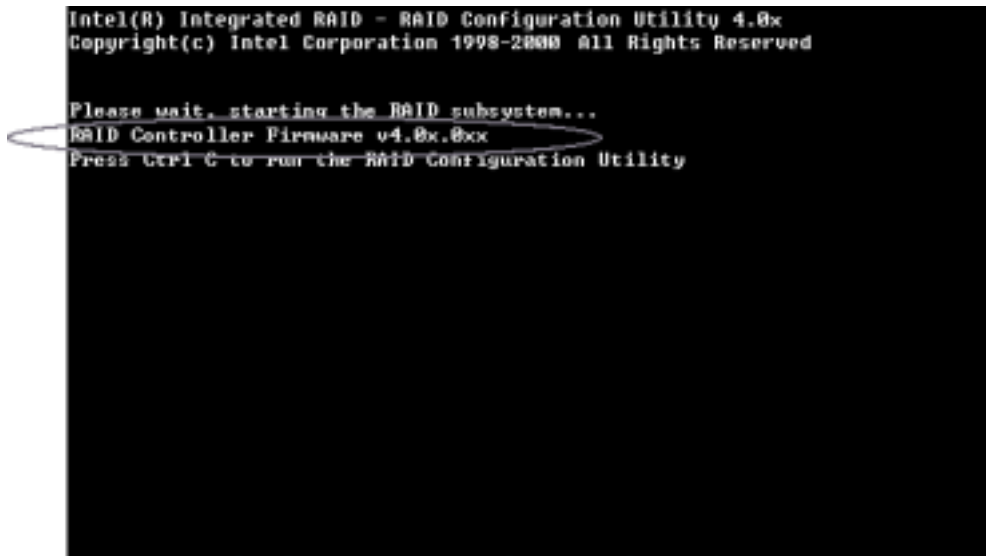
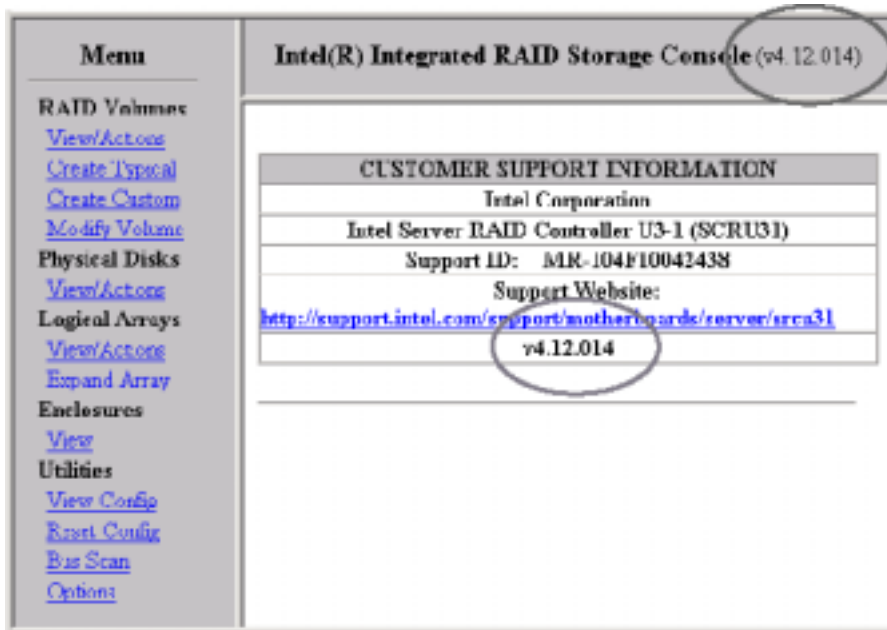


Figure 4. Firmware Version Displayed in Storage Cosole



### RAID Configuration Utility (RCU)

During the system boot process, the RAID Controller firmware initializes the RAID Configuration Utility. The end of the first line on the screen shown in Figure 5 displays the RCU version number.

Figure 5. RCU Version

```
Intel(R) Integrated RAID - RAID Configuration Utility 4.0x
Copyright(c) Intel Corporation 1998-2000 All Rights Reserved

Please wait, starting the RAID subsystem...
RAID Controller Firmware v4.0x.0xx
Press Ctrl C to run the RAID Configuration Utility
```

## Novell Netware\* Modules

Novell Netware components of the RAID Controller software are distributed in “modules”. The module command is used to determine the version number of installed modules. Refer to your Novell Netware documentation for more detail.

## SCO Unixware\* Packages

SCO Unixware components of the RAID Controller software are distributed in “packages”. Though there are various methods, typically the pkginfo command is used to determine the version number of installed modules.

You may also use the `scoadmin` utility to determine package version numbers by doing the following:

1. Start the SCO Admin utility by running `scoadmin`.
2. Browse to the Software\_Management branch and double-click on Application Installer.
3. Select the appropriate package and select Info. The version number will be displayed.

Refer to your SCO Unixware documentation or man pages for more detail.

## RAID Software Suite for Linux

The 1.0 release of the RAID Software Suite for Linux did not include version number information for several of the components. As new components are released, version numbers for those components will be documented in this Specification Update:

## ***Identification Information***



OSM's – The OSM's are taken from the 2.2.16 kernel.

IRVIEW – Display the version number by running (code font) `/usr/local/bin/irview -V`

User's Manual – The User's Manual version number is printed on the front page of the documentation.

# Compatibility

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The following products have demonstrated the inability to co-exist in the same system as the RAID Controller.

Product	Note
Adaptec ARO-1130U2* RAID Controller	To workaround in NT, open the device's applet in Control Panel and disable the AAATIMEIO entry.
DPT Decade* PMT1554U2 RAID Controller	
AMI MegaRAID* 438 and 466 RAID Controller	Does not work in I <sub>2</sub> O Mode. The products will co-exist if the AMI controllers are run in Mass Storage mode. Refer to the AMI product documentation for more information.
SMC 9432 LAN* Adapter	
Western Digital 18.3 GB SCSI Hard Drive (model #WDE18310-0042A1)	

# Errata

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## General Errata

### **G-1. Windows NT\* Setup blue screen in systems with AMI BIOS**

**OS:** Windows NT Server 4.0

**Problem:** After the first reboot of the Windows NT Setup process, NT may stop with an “INACCESSIBLE\_BOOT\_DEVICE” error, when attempting to install to a RAID Volume or Pass-Thru SCSI Disk controlled by the RAID Controller.

**Implication:** The RAID Controller does not function in systems using AMI BIOS.

**Workaround:** None

**Status:** Fixed. See the “Summary Table of Changes”.

### **G-2. Microsoft Internet Explorer\* 5.0 Dr. Watson error when running Storage Console**

**OS:** Windows NT Server 4.0

**Problem:** Microsoft Internet Explorer 5.0 may occasionally close with a Dr. Watson error while running Storage Console.

**Implication:** The action being taken when the Dr. Watson error occurred may need to be re-submitted.

**Workaround:** You may attempt to restart the browser and re-submit the action, utilize a different version of a supported web browser, or use the “RAID Troubleshooting” (3.15) or “Advanced RAID Configuration Utility” (3.21) feature from diskette or the bootable RAID software CD-ROM.

**Status:** NoFix. See the “Summary Table of Changes”.

### **G-3. Booting RAID 5 volume configurations that are degraded due to a missing disk and have modified strip size parameters may read data incorrectly**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** Application data being read from a RAID volume into system memory may be inconsistent with the data on the RAID volume in some circumstances. Each of the following conditions must be met to create this situation:

1. Volume affected must be RAID 5
2. one drive must have status of “missing” when the server boots. This normally requires the drive to be physically pulled from the server while the system is off.
3. The strip size of the volume must be 128 KB.
4. The read request must be  $\geq$  128KB in size.

**Implication:** The data returned by the RAID controller to the OS may be inconsistent with the data residing on the disk. The data on the member disks of the affected volume will have the correct data, though writing incorrect data to disk is possible if the application making the read request does not detect the inconsistency between the data on the disk and the data in memory. Most file systems will not use greater than 64KB transfer sizes.

**Workaround:** Do not boot the server with a missing disk when you have RAID 5 volumes with 128KB strip size.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

**G-4. Possible server hang while performing volume or array migration actions with write-back caching enabled during certain write operations**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** The server may hang while performing volume or array migration actions with write-back caching enabled. Actions that cause volume migrations are:

- Expand Array
- Modify Volume RAID Level
- Modify Volume Strip Size

This behavior may appear when an OS sends a write operation during a stripe size migration, when the total initial stripe size is less than 512K and the total final stripe size is over 512K.

**Implication:** The server may hang for a period of time, and may have to be restarted. There is no risk of data corruption for data in the RAID adapters local memory.

**Workaround:** Disable caching on all volumes that are members of the array being modified. Write-Back caching may be reapplied once the migration process has completed.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

**G-5. Attempting to address a non-existent RAID adapter with Storage Console may cause a blue screen**

**OS:** Windows NT Server 4.0

**Problem:** If the adapter card being specified is not present in the system, Windows NT may experience an IRQL\_NOT\_LESS\_OR\_EQUAL blue screen. The process for accessing a second RAID adapter installed in a server with Storage Console is to enter the following URL: <http://hostname/scripts/iop.exe/n/0x00008/0>

When n = 0 it refers to the first adapter card in the system. n=1 refers to the second adapter card.

**Implication:** A blue screen will require the server to be rebooted.

**Workaround:** The user should not attempt to access non-existent RAID adapters.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

**G-6. RAID 5 volumes may re-initialize upon startup of UnixWare\* 7.1**

**OS:** UnixWare 7.1

**Problem:** During a normal shutdown, timing synchronization issues between the operating system and RAID adapter may result in the RAID subsystem being unable to confirm the completion of the final RAID 5 parity write operation.

**Implication:** A RAID 5 OS volume will re-initialize at startup.

**Workaround:** Wait 60 seconds after the “Safe to Shutdown” message before powering off or rebooting the machine. This helps ensure adequate time for the OS to send its delayed write requests and allows the RAID adapter to shutdown in a clean state.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

**G-7. NT Volume still available to OS after being deleted in Storage Console****OS:** Windows NT Server 4.0**Problem:** Deleting a RAID volume with Storage Console without first removing the partition with Disk Administrator may allow the drive letter of the original partition to remain accessible to the OS and applications.**Implication:** The previous drive letter will appear in My Computer and Windows Explorer until the system is rebooted. Any new data copied to the previously existing partition via the same drive letter will appear to copy correctly onto the drive but will not be accessible.**Workaround:** Delete existing partitions with Disk Administrator prior to deleting the RAID volumes they reside on within Storage Console. If the partition is not deleted from within Disk Administrator first, the system will need to be rebooted to remove the old drive appearance.**Status:** Fixed. See the “[Summary Table of Changes](#)”.**G-8. Old data is still accessible on a newly created NT volume****OS:** Windows NT Server 4.0**Problem:** Data that existed on a previous partition may appear to be accessible and new data may be copied to it, if the following sequence occurs:

1. Delete a RAID volume with Storage Console without first removing the partition with Disk Administrator.
2. Using Storage Console, create a new RAID volume of the *same size* as the previous RAID volume.
3. Partition and format the new volume with Disk Administrator.

**Implication:** All existing data on the partition and any new data copied to it will be inaccessible.**Workaround:** Delete existing partitions with Disk Administrator prior to deleting the RAID volumes they reside on within Storage Console.**Status:** Fixed. See the “[Summary Table of Changes](#)”.**G-9. -1 MB available on disks****OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1**Problem:** Under certain circumstances, if you attempt to create a RAID volume on a set of non-arrayed disks where the volume size is greater than the available disk space, the attempt may fail and the disks may appear to have -1MB remaining.**Implication:** You will not be able to create volumes on the affected disks.**Workaround:** Performs the following steps:

1. Create a RAID1 volume using the 'Create Custom' option. Select all affected disks and request a volume size larger than the sum of the space on the disks.
2. You should get a message stating "Not Enough Available Disk Space";
3. View the “physical disk” page and the size of the "-1 MB" disks should now correctly display the actual size.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.



**G-10. Storage Console Enclosure page does not appear when there are no disks in a SAF-TE enclosure**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** Starting a server without disks inserted in a SAF-TE enclosure may cause inconsistent behavior in Storage Console's Enclosure page.

**Implication:** The Storage Console Enclosure page will not appear. If you insert and remove disks under this condition, the Enclosure page will appear, however enclosure slot information may be inaccurate.

**Workaround:** Do not rely on information presented by Storage Console's Enclosure page after booting with an empty SAF-TE enclosure.

**Status:** Fixed. See the "Summary Table of Changes".

**G-11. "I2O Config Dialog Error" in Storage Console**

**OS:** NetWare 4.2, NetWare 5.0

**Problem:** Storage Console may occasionally display an "I<sub>2</sub>O Config Dialog Error" under Netware. This may occur when changing a volume's migration priority, if the system has disks with the "=" character in the serial number, or on a remote connection under heavy network utilization.

**Implication:** The actions being submitted in Storage Console will not occur.

**Workaround:** There are three workarounds:

1. Navigate back to the appropriate page with Storage Console and attempt to re-submit the request.
2. Connect to Storage Console on the Netware server from a remote browser session.
3. Use the RAID Troubleshooting utility.

**Status:** Fixed. See the "Summary Table of Changes".

**G-12. RAID Configuration Utility (RCU) states a volume is already created when no volume exists**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** When using the RCU application with more than 8 disks connected to the RAID adapter, the RCU application indicates a volume has already been created when in fact no RAID volume exists.

**Implication:** The server administrator will be unable to create a RAID volume using the RAID Configuration Utility.

**Workaround:** There are two workarounds:

1. Remove disks until there are 8 or fewer connected to the RAID adapter. You may re-attach the disks after RCU has created the first volume.
2. Use the RAID Troubleshooting (IOPSETUP) utility to create your first volume.

**Status:** Fixed. See the "Summary Table of Changes".

**G-13. Slow performance when write-back caching enabled on the Windows NT system drive**

**OS:** Windows NT Server 4.0

**Problem:** Due to the nature in which the RAID adapter caching algorithms and NT's disk caching interact, enabling write-back disk caching on an NT system volume may slow system performance.

**Implication:** Poor system performance when write-back caching is enabled on the NT system volume.

**Workaround:** Do not enable write-back caching on a Windows NT system drive. Write-back caching may be used on data volumes.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

#### **G-14. Flash Update Utility fails with RAID adapter installed in a RAIDport III\* PCI slot**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** When the RAID adapter is installed in a RAIDport III\* PCI slot and a CD-ROM is connected to the SCSI controller embedded on the motherboard, the Flash Update Utility may fail to update the RAID adapter firmware.

A RAIDport III PCI slot is a PCI slot that is designed to support the Adaptec ARO-1130\* RAID card. The following Intel motherboards contain a RAIDport III PCI slot:

L440GX+ (PCI slot 4)

C440GX+ (PCI slot 4)

**Implication:** The RAID adapter firmware cannot be updated unless the workaround is performed.

**Workaround:** Move the RAID adapter to another PCI slot prior to using the Flash Update Utility.

**Status:** Eval. See the Table “[Summary Table of Changes](#)”.

#### **G-15. System hang or ABEND when booting to an initializing, expanding or migrating RAID volume**

**OS:** NetWare 4.2, NetWare 5.0

**Problem:** The server may hang or ABEND at startup if the OS boot volume is expanding (due to an array expansion) or migrating (due to RAID level or strip size migration) or initializing.

The following message may be displayed at the system console:

“IOPX-1.25-0 RM: Initializing IOP’s to operational state. Depending on the number of attached peripherals, this may take a minute.”

**Implication:** The system will not complete booting until the workaround is performed.

**Workaround:** Allow the initialization, expansion or migration process to complete before rebooting the server. This hang only occurs once, so if the server has already been rebooted and has hung, reboot the system and it will boot normally.

**Status:** Fixed. See the Table “[Summary Table of Changes](#)”.

#### **G-16. 0505: Expansion ROM not initialized - PCI in Slot 0x error on Intel SPKA4 motherboard.**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** After enabling Console Redirection or Booting to a service partition via the system BIOS setup tool (F2 at boot-up) or the DPC (Direct Platform Control) tool, the following error message is displayed on the system console:

```
0505: Expansion ROM not initialized - PCI in Slot 0x
```

```
Bus:02, Device: 0C, Function: 01
```

```
Press <F1> to resume, <F2> to Setup
```

```
X = the PCI Slot number
```

This affects the Intel SPKA4 motherboard.

**Implication:** One or more of the following may result from the above problem:

- The service partition will not be available if the service partition resides on a RAID volume or a pass through drive is attached to the RAID controller.
- Disk Diagnostics for disks attached to the RAID controller will not be available when booting to the service partition if the service partition resides on a drive attached to the on-board Adaptec or IDE controllers.

**Workaround:** Use one of the following workarounds depending on your configuration:

1. If the service partition resides on a RAID volume or pass through drive attached to the RAID controller, use the system BIOS setup tool (push F2 at reboot) to disable the on-board Adaptec controller. To disable the on-board Adaptec controller:
  - Press F2 at system boot-up to enter the system BIOS setup tool
  - Go to the “Advanced” page and select “PCI Configuration”
  - Select the “PCI Device, Embedded SCSI” (Adaptec) menu option
  - Set the “Option ROM Scan” to “Disabled”
  - Press F10 to save and exit the system BIOS tool

The on-board Adaptec controller may be re-enabled after using the service partition by using the BIOS setup tool and setting “Option ROM Scan” to “Enabled”.

2. If the service partition resides on a drive attached to the on-board Adaptec or IDE controller, Press F1 to continue when the “*Press <F1> to resume, <F2> to Setup*” message is displayed. Note that disk diagnostics will not be available for drives attached to the RAID controller.

**Status:** Fixed. See the Table “[Summary Table of Changes](#)”.

### **G-17. Dual RAID Controller configuration in systems built with the L440GX+ or C440GX+ motherboards may cause system hang during POST.**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** If two SRCU21 adapters are installed into a system built with either the L440GX+ motherboard running a BIOS revision prior to revision 12 or the C440GX+ motherboard running a BIOS revision prior to revision 7, the system may not complete POST and hang.

**Implication:** The system may not complete POST and hang.

**Workaround:** For systems with L440GX+ motherboards, update the BIOS to revision 12 or greater. For systems with C440GX+ motherboards, update the BIOS to revision 7 or greater.

**Status:** Fixed. Fixed in the L440GX+ motherboard's BIOS revision 12 and in the C440GX+ motherboard's BIOS revision 7. See the Table “[Summary Table of Changes](#)”.

### **G-18. Unable to connect via a browser to the RAID subsystem running on a remote NT Server that has been upgraded to Service Pack 6 (SP6) or higher.**

**OS:** Windows NT Server 4.0

**Problem:** Windows NT Challenge Response authentication via MS IIS does not work with SP6 when using a trusted domain account. There is an issue with MS IIS whereby trusted domain accounts cannot be validated using “Windows NT Challenge Response”.

**Implication:** You may not be able to remotely manage the RAID subsystem from a system located in a trusted domain.

**Workaround:** Use either of the methods below to work-around this problem

- Create a user account with password in the domain of which the RAID server is a member, or create a local account on the server itself. Add that account to the RAID server's local Administrators group. Create an identically named account and password in the local trusted domain where you will be remotely administering the server from, thus using NT's 'Pass-through Authentication' to remotely connect.
- Enable "Basic (Clear Text)" Authentication in Microsoft Internet Information Server (IIS) on the target RAID server. This configuration will prompt the user for a password before connecting remotely and allow access.

Note: Transactions with "Basic (Clear Text)" Authentication enabled are not protected with encryption. You should use some other encryption method (e.g. Secure Sockets Layer "SSL") to secure the password during transactions.

**Status:** NoFix. See the "[Summary Table of Changes](#)".

### **G-19. NT initiates a 'CHKDSK' upon each reboot of a computer where NT is installed to a RAID volume that has been formatted with the FAT file system.**

**OS:** Windows NT Server 4.0

**Problem:** If you install NT to a RAID volume that has been formatted with the FAT file system, every time following a dirty shutdown, NT will run 'CHKDSK' each subsequent time that the server is restarted.

**Implication:** Each time that the server is restarted, the user will see NT run a 'CHKDSK' on the file system.

**Workaround:** Convert the OS partition to NTFS.

**Status:** Fixed. See the "[Summary Table of Changes](#)".

### **G-20. Computer may 'Blue Screen' during the NT installation and setup to a RAID 5 volume if the RAID 5 volume is initializing in the background.**

**OS:** Windows NT Server 4.0

**Problem:** During the installation of Windows NT Server, the computer may experience a 'Blue Screen Crash Dump'. This occurs during the installation of NT to a RAID 5 volume that is large enough that it continues to initialize throughout the Windows NT setup process. The computer may 'Blue Screen' until the RAID 5 initialization completes.

**Implication:** You may not be able to complete the installation until the RAID 5 volume completes its initialization.

**Workaround:** Wait for the RAID 5 volume to complete initialization before starting the NT installation process.

**Status:** Fixed. See the "[Summary Table of Changes](#)".

### **G-21. RAID 5 volumes may Re-initialize or Fail after rebooting while using DOS or NetWare**

**OS:** MS-DOS, ROM-DOS, NetWare 4.2, Netware 5.0

**Problem:** During a normal shutdown, timing synchronization issues between the operating system and RAID adapter may result in the RAID subsystem being unable to confirm the completion of the final RAID 5 parity write operation.

**Implication:** A RAID 5 OS volume may re-initialize at startup if it was in a 'Normal' state or it may come up as 'Failed' if it was in a 'Degraded' state.

**Workaround:** If the volume is in a 'Normal' state, wait at least 5 seconds after the last disk write before powering off or rebooting the machine. This ensures adequate time for the OS to send its delayed write requests and allows the RAID adapter to shutdown in a clean state.

If the bootable volume is in a 'Degraded' state, prior to rebooting the system, replace the 'Failed' hard disk while the system is still online and 'Rebuild' the 'Degraded' volume to a 'Normal' state. After the volume has been rebuilt to a 'Normal' state, you may follow normal shutdown procedures.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### **G-22. Blue screen with two (2) SRCU21 adapters in one computer system using Global Build Version 3.21 software.**

**OS:** Windows NT Server 4.0

**Problem:** If an NT Server system is running with two (2) SRCU21 adapters using global build version 3.21 software and RAID volumes are defined on both adapters, during heavy I/O activity to the RAID volumes, the system may experience a blue screen system crash.

**Implication:** The server could experience a blue screen system crash.

**Workaround:** None. It is not recommended that you install two (2) SRCU21 adapters in a computer running NT 4.0 Server using the global build version 3.21 software. If you have an existing dual adapter configuration under Windows NT 4.0 Server using global build version 3.15 software -- do not upgrade your drivers or firmware.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

### **G-23. Second RAID volume created under UnixWare is not detected by the OS if UnixWare is installed on a RAID volume.**

**OS:** SCO UnixWare 7.1.0

**Problem:** If the UnixWare OS is installed to a RAID volume, the second RAID volume created will not be detected by the OS. Additionally an error message similar to the following will appear at boot time: *UX:sdimkdev: ERROR c0b0t0d0sXX. This device cannot be added to the system because the SCSI address of this device is used as GHOST Address for c0b0t2d0sXX.*

**Implication:** The second volume created will not be accessible to the OS. All volumes created after the second volume will not be affected.

**Workaround:** None. However, you can create a 1 MB placeholder volume as the second volume. This will limit the amount of wasted disk capacity to 1 MB. UnixWare will detect the initial volume created and all volumes created after the second volume is created.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### **G-24. I/O subsystem pauses for approximately thirty (30) seconds under heavy I/O using Sequential Caching.**

**OS:** Windows NT Server 4.0

**Problem:** Under any of the following conditions, the I/O subsystem may appear to hang or suspend all I/O processing:

- If the system administrator turns off Full Write Cache during I/O activity
- With Sequential Write Cache enabled
- When migrating a RAID volume's RAID level from RAID 0 to RAID 1 during I/O activity.

**Implication:** The I/O subsystem may appear to hang for approximately thirty (30) seconds before continuing. There is the possibility of disconnection of network clients that are accessing the computer system.

**Workaround:** None. The following actions are recommended to prevent the occurrence of this issue:

- Do not change Write Cache Policy during heavy I/O activity.
- Do not enable Sequential Write Cacheing.
- Do not migrate a RAID volume from RAID 0 to RAID 1 during heavy I/O activity.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### **G-25. The RAID Controller doesn't accept System or User-initiated Standby or Hibernate Power Management commands**

**OS:** Microsoft Windows 2000

**Problem:** Power management commands, Hibernate or Standby, when initiated either by the system or manually by the user, are not supported by the RAID Controller. Attempts to put the Server into a Power Management state will result in a pop-up error message informing the user that the RAID Controller does not support these commands.

**Implication:** Unable to put the operating system into any power management mode.

**Workaround:** None

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### **G-26. UnixWare 'Panics' when booting with 'Failed' volumes.**

**OS:** UnixWare 7.1

**Problem:** If any RAID volumes configured on the RAID adapter are in a 'Failed' state, the UnixWare OS may 'Panic' dump upon trying to reboot the OS.

**Implication:** You will not be able to reboot the operating system with 'Failed' volumes on the RAID adapter.

**Workaround:** If the operating system is up and running, either mark the 'Failed' volume(s) as 'Normal' and attempt to recover them, or delete the volume(s) if attempts to recover are unsuccessful.

If you have already rebooted the system, boot to the RAID CD-ROM, enter the Advanced RAID Configuration Utility, mark the 'Failed' volume as Normal and attempt to recover it. Then try rebooting to the operating system.

**Note:** The 'Recover' feature of the RAID adapter does not guarantee successful recovery of data. However, it marks the 'Failed' volume as 'Normal'. This allows the OS access to the volume in order to attempt data recovery from the volume.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### **G-27. Advanced RAID Configuration Utility menus may be unreadable.**

**OS:** DOS, ROMDOS, Linux

**Problem:** Some menu items may be unreadable due to formatting of the text-based browser.

**Implication:** The choices in the far right column may be unreadable except for the first few characters. User may be unable to accurately determine the correct selection.

**Workaround:** Boot to the OS and use the GUI Storage Console.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

**G-28. Unable to create large number of RAID volumes on two adapters using the Advanced RAID Configuration Utility (ARCU).****OS:** DOS**Problem:** When two RAID adapters are installed in the system, and you are attempting to create a combined large number of RAID volumes using the ARCU, the utility may be unable to create more than 16 volumes without locking up.**Implication:** If you have a configuration that requires more than 15 RAID volumes distributed over both installed RAID adapters, you will be unable to use the ARCU to create all the volumes.**Workaround:** Boot to the OS and use the RAID Storage Console to complete the configuration.**Status:** Eval. See the “Summary Table of Changes”.**G-29. New updated OSM drivers' version number unchanged.****OS:** Microsoft Windows 2000, Windows NT 4.0**Problem:** The version number of the Operating System Service Module (OSM) driver files were not revised when the drivers were revised. The version number can be viewed by using Windows Explorer and locating the files in the <Systemroot>/system32/drivers directory, right click on the file to bring up the properties window, and go to the 'version' tab.**Implication:** The installation of the drivers during an upgrade may result in the following message regarding the files version:

"The drivers on your system are the same or newer than the ones in this setup program..."

**Workaround:** Ignore the message and replace the files with the latest drivers received from the RAID vendor by clicking 'YES' to upgrade. To determine if you are installing the correct versions of the driver, go to the properties windows by right clicking on the file and check the file size (bytes). Compare the file size on your system with the file size listed in the Software Version Identification Matrix located in this document.**Status:** Eval. See the “Summary Table of Changes”.**G-30. Online Array Roaming Requires a Shutdown of both Computers****OS:** All**Problem:** 'Array Roaming' (transferring RAID arrays between computers whose RAID subsystems are being controlled by compatible RAID adapters) may fail if both computers are not powered-off before attempting to perform this action.**Implication:** 'Array Roaming' can not be performed while the computers involved are online.**Workaround:** Prior to performing this action, if you have to either rearrange disks on or remove disks from the computer that will be receiving the new RAID array, do so and run a bus scan before powering-off the computer. Then power-off both computers, transfer the RAID array, and power the computer back up with the new RAID array inserted.

**Note:** This feature is limited to disks that are members of a RAID array **only**. Do not attempt to transfer other disks such as: Hot Spares, Pass-through, and disks Marked Offline.

**Status:** Eval. See the “Summary Table of Changes”.**G-31. Incorrect Silk Sreen Label on Jumper J7D1 (IOP Mode Select)****OS:** N/A

**Problem:** The silk screen label on the adapter incorrectly identifies the jumper settings. It is currently labeled:

1-2 Flash Update  
2-3 Normal

It should be labeled:

1-2 Flash Recovery  
2-3 Flash Update/Normal

**Implication:** Users may confuse the two jumper settings and how they are used to set the two program modes for the flash memory.

**Workaround:** Use the following instructions to program the flash memory:

- Place the jumper on pins 1 and 2 when you need to recover (**Flash Recovery**) from a possible corrupted flash memory (when you boot to the RAID CD-ROM, use **option 4** of the ROMDOS menu).
- Leave the jumper in its '**Normal**' run position on pins 2 and 3 and for normal updates (**Flash Update**) of the flash memory (**option 2** of the ROMDOS menu).

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### G-32. RAID Software Suite Fails to Uninstall

**OS:** Windows 2000

**Problem:** The *Add/Remove* applets in Window's Control Panel fails to completely remove the RAID software suite. The *Uninstall* program terminates unexpectedly if the *SNMP Management* component was installed during the RAID software suite installation. The following error message is displayed:

Component Transfer error

Component: SNMP Management  
File Group: \_\_\_\_\_  
File: c:\winnt\system32\raidxa.dll  
error: access is denied

**Implication:** User will be unable to completely uninstall the RAID software suite from the system.

**Workaround:** Prior to beginning the uninstall process, stop the SNMP service. To do this, launch the *Services* applets from *Start/Programs/Administrative Tools*. Find the SNMP service and double click on it. Go down to the *Service status* section and click the [Stop] button to stop the service.

Now go to *Add/Remove* and uninstall the RAID software suite.

**Status:** Eval. See the “[Summary Table of Changes](#)”.

### G-33. Deleting DEGRADED RAID Volume Instructs User to Call Customer Support

**OS:** none (Adapter Expansion ROM)

**Problem:** While attempting to delete a degraded RAID volume in RAID Configuration Utility (RCU) the following message is displayed: "INTERNAL ERROR 4023 - Please report this error to customer support"

**Implication:** Erroneous message is displayed during volume deletion.

**Workaround:** None. Ignore the error message in this case and press any key to continue.



**Status:** Eval. See the “Summary Table of Changes”.

### **G-34. "ftdisk" Message Reported in Event Log**

**OS:** Microsoft Windows 2000

**Problem:** If a RAID volume attached to the RAID adapter is used as the boot device, a message stating that ftdisk was unable to load is entered into the event log each time the system is restarted.

**Implication:** The system will be unable to create a dump file on the bootable RAID volume in the event of a "Blue Screen".

**Workaround:** None

**Status:** Eval. See the “Summary Table of Changes”.

### **G-35. RAID 5 Volume reinitializes upon reboot when marked as Dynamic Disk in Disk Management**

**OS:** Microsoft Windows 2000

**Problem:** Windows 2000 Dynamic Disks are not notified by the operating system of an impending shutdown.

**Implication:** Because Dynamic disks are not notified of an impending shutdown, a reboot may appear to the IO subsystem as being an unexpected power loss. For a normal RAID5 volume the result would be the RAID5 volume re-initializing at every reboot. For a degraded RAID5 volume a reboot could result in the RAID5 volume going FAILED without any disk drives being FAILED.

**Workaround:** To rebuild a RAID 5 volume that has been marked FAILED, use the following steps to mark the volume as NORMAL prior to rebooting (this assumes that the disk drives have not actually failed):

1. Enter ARCU (option 3 in the ROMDOS Startup menu of the bootable RAID CD-ROM).
2. Press *Enter* to start the RAID Storage Console (press *Enter* a second time if Storage Console does not start within 5 seconds). Press *Enter* to complete loading of Storage Console.
3. Highlight RAID Volumes-View/Actions using the arrow keys - press *Enter*.
4. Arrow down to Action column, press *Enter*.
5. Arrow down to Mark Normal, press *Enter*.
6. Arrow down to Submit Action, press *Enter*.
7. Arrow down to YES, press *Enter*.
8. Arrow down to Submit, press *Enter* (Repeat to confirm).
9. Return to main menu, Highlight RAID Volumes-View/Actions using the arrow keys - press *Enter*.
10. Arrow down to Action column, press *Enter*.
11. Arrow down to Initialize Parity, press *Enter*.
12. Arrow down to Submit, press *Enter*.
13. Wait until volume completes initialization, press *Q* to quit, press *Y* to confirm quit.
14. Remove the CD-ROM and reboot.

**Status:** Eval. See the “Summary Table of Changes”.

### **G-36. RAID subsystem events on NetWare\* 5.1 not detected by HP OpenView\***

**OS:** Netware 5.1 (Support Pack 2a)

- Problem:** After upgrading the NetWare 5.1 server OS with Support Pack 2a, events logged by the RAID subsystem are not detected by HPOV management software over the network.
- Implication:** Network administrators using the HPOV management software will not be able to monitor the RAID subsystem events generated on the NetWare 5.1 server.
- Workaround:** After installing Support Pack 2a and configuring SNMP, 'Down' the server and do a command line 'Reset Server' to reset the server's OS and reinitialize the (LAN) hardware.
- Status:** Eval. See the ["Summary Table of Changes"](#).

## RAID Monitor Errata (M-#)

- M-1. RAID Monitor reports Normal volume when status is actually Expanding or Migrating.**
- OS:** NetWare 4.2, NetWare 5.0
- Problem:** When expanding an array or migrating a volume to a different RAID level under NetWare, RAID Monitor may report that the volume is Normal instead of Migrating. After the volume or array migration completes, the array or volume status may correctly report a Normal status.
- Implication:** RAID Monitor may not always report the true status of migrating RAID volumes.
- Workaround:** Refer to Storage Console for accurate status.
- Status:** Fixed. See the ["Summary Table of Changes"](#).
- M-2. RAID Monitor will only report events for the first adapter installed in the system.**
- OS:** NetWare 4.2, NetWare 5.0, UnixWare 7.1
- Problem:** If there are two RAID adapters in the system, the first adapter enumerated during system startup may be the only one registered for events. Events (disk failures, volume degradations, etc...) may not be displayed for arrays and disks connected to the second controller.
- Implication:** A system administrator relying on the RAID Monitor application will not be notified of significant RAID events for arrays and disks attached to the second controller.
- Workaround:** None
- Status:** Fixed. See the ["Summary Table of Changes"](#).
- M-3. RAID Monitor missing events from newly created volume**
- OS:** NetWare 4.2, NetWare 5.0
- Problem:** When deleting a volume and then creating a new volume without rebooting in between the two steps, any events associated with the new volume may not be reported. A new volume creation must follow a volume deletion without rebooting in between for this problem to occur.
- Implication:** If a volume is deleted, volume events may not be reported for the next new volume created until the system is rebooted.
- Workaround:** Reboot after deleting a volume, or reboot after creating the next new volume, or infer the status of a volume from disk events you receive, for example, if you get a disk failure you know that you have a possible volume failure.
- Status:** Fixed. See the ["Summary Table of Changes"](#).

**M-4. RAID Monitor information does not refresh under NetWare\* 4.2 and 5.0**

**OS:** NetWare 4.2, NetWare 5.0

**Problem:** Volume, array, or disk changes may not always display in the RAID Monitor utility automatically when the events occur.

**Implication:** RAID Monitor may not always display new events.

**Workaround:** If the RAID Monitor application is not receiving new events, then the RAID Monitor application module must be unloaded and reloaded to display the updated information. Rely on the Storage Console application for accurate device status.

**Status:** Fixed. See the “Summary Table of Changes”.

**M-5. The RAID Monitor application does not always send a pop-up message after a disk or volume status has changed.**

**OS:** Microsoft Windows 2000

**Problem:** The RAID monitor application doesn't always send a pop-up message indicating a change in a volume or disk status because the polling interval is set to 60 seconds and is not configurable by the end user.

**Implication:** Any object that changes states and then changes back to its previous state (e.g. a RAID volume that goes from Normal to Degraded back to Normal) in less than 60 seconds, will not be reported by the monitor application. There will be no event notification in this scenario. Typical state change events, such as drives failing, are not affected.

**Workaround:** None.

**Status:** Eval. See the “Summary Table of Changes”.

**System Management Errata (S-#)****S-1. No DMI or SNMP information displayed when there are no RAID volumes**

**OS:** Windows NT Server 4.0, NetWare 4.2 and 5.0, UnixWare 7.1

**Problem:** With DMI Component Instrumentation or SNMP installed and no RAID volumes created, some DMI CI and SNMP values for the RAID subsystem may be empty.

**Implication:** System Management applications registered to use DMI Component Instrumentation or SNMP will be unable to see some components of the RAID subsystem until the workaround is performed.

**Workaround:** Create a RAID volume. The missing DMI or SNMP information will then be accessible.

**Status:** Fixed. See the “Summary Table of Changes”.

**S-2. Component Shared DLL error in %systemroot%\system32\eventapi.dll**

**OS:** Windows NT Server 4.0

**Problem:** If the SNMP Management portion of the RAID Software Suite installation has been performed, and the RAID software installation process is restarted to install the DMI Management portion, then a DLL error may occur.

**Implication:** The DMI Component Instrumentation cannot be installed without performing the following workaround.

**Workaround:** Perform the following steps:

1. Stop the RAID Monitor and SNMP services

2. Begin the RAID Software Suite installation, and select only the DMI Management option
3. After the RAID Software Suite installation completes, start the RAID Monitor and SNMP services or restart the server.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

### **S-3. SNMP Extension Agent does not show migrating volumes**

**OS:** NetWare 4.2, NetWare 5.0

**Problem:** When a RAID volume is migrating from one RAID level to another, SNMP may show the volume as normal instead of migrating.

**Implication:** None. The system administrator should be aware of this event since human interaction is required to start a volume migration.

**Workaround:** None.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

### **S-4. SNMP Extension Agent does not initialize in SCO UnixWare 7.1**

**OS:** UnixWare 7.1

**Problem:** The SNMP Extension Agent for the RAID adapter in this release does not properly initialize in the SMNP MIF tables.

**Implication:** System administrator may not be able to use SNMP to view RAID subsystem events.

**Workaround:** None.

**Status:** Fixed. See the “[Summary Table of Changes](#)”.

## **Linux Errata (L-#)**

### **L-1. IRVIEW reports incorrect volume and disk sizes.**

**OS:** Red Hat Linux\* 6.2; Linux 2.2.16 kernel

**Problem:** IRVIEW reports incorrect volume and disk size information.

**Implication:** IRVIEW reports incorrect volume and disk sizes.

**Workaround:** Use Storage Console for getting the correct volume and disk sizes.

**Status:** Fix. See the “[Summary Table of Changes](#)”.

### **L-2. Running FDISK on a RAID volume from the console generates I2O error messages.**

**OS:** Red Hat Linux 6.2; Linux 2.2.16 kernel

**Problem:** When running FDISK on a RAID volume while using Linux in console (not X-Windows) mode, the following informational error messages will appear:  
 “i2o\_core: post\_wait reply: UTIL\_PARAMS\_GET, <6>ERROR\_PARTIAL\_TRANSFER / <6>UNKNOWN\_ERROR”  
 This message can be ignored.

**Implication:** None. This error message can be ignored.

**Workaround:** Use FDISK from an X-Windows session.

**Status:** Fix. See the “[Summary Table of Changes](#)”.

# Specification Changes

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## 1. **Local Storage Console option eliminates the requirement to install Microsoft's Internet Information Server (IIS)**

A local version of the Storage Console has been added to the RAID software installation options. This local version of the Storage Console eliminates the requirement to install Microsoft's Internet Information Server (IIS). If you have no need to remotely administer your server's RAID I/O subsystem via the Storage Console, then you can choose to install only the Local Storage Console. There is no requirement to install IIS when using the Local Storage Console. As a result, there are two (2) changes to the RAID software installation and setup wizard:

- Local Storage Console has been added in the setup options, and
- Local Storage Console is the default selection.

## 2. **Support for Linux Operating System, Red Hat Linux 6.2**

Linux Operating System, Red Hat Linux 6.2 is now supported.

## 3. **Support for Microsoft Windows 2000 operating system**

Windows 2000 operating system support has been added to the RAID adapter's supported operating systems.

# Specification Clarifications

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## 1. RAID 0 volumes still show normal status after a member disk has failed

This behavior is by design. A RAID 0 volume offers no inherent data fault tolerance. The RAID software still allows access to the RAID 0 volumes with failed member disks so that emergency data recovery may be attempted on the data residing on the remaining member disks. There are no guarantees that there will be accessible data on the remaining disks, nor are there any guarantees that any data gathered from the remaining disks will be valid.

## 2. Performance impact of adding memory to the RAID adapter

The RAID adapter is tuned for 32MB of ECC SDRAM memory installed on the adapter's DIMM connector. The adapter can operate with up to 128MB of ECC SDRAM installed on the adapter. Installation of more than 32MB should only provide a negligible performance improvement.

## 3. Clarification between the Linux kernel shipped with Redhat 6.2 and the kernel supported by the RAID adapter

The Linux kernel that ships with the Red Hat 6.2 release is the 2.2.14 kernel. The kernel must be updated to kernel version 2.2.16 in order for the Intel Server RAID controller to function properly. Scripts are provided on the Server RAID Controller Linux CD to automatically update the kernel included with Red Hat to the 2.2.16 kernel. It should be noted that after using these scripts to install the Intel Server RAID controller into a system using Red Hat, the version of the kernel resident on the system will be changed.

## 4. RAID configuration reappears after Destructive Bus Scan when drives are moved to another server

Contrary to the name, a destructive bus scan does NOT destroy configuration information on the disk. It just ignores it. So it is possible to take a disk that was destructively scanned and put it into another system with an add disk, and have the old configuration come up. This will only occur if the data on the disk has not been overwritten by new data (if the disk was not used after the destructive bus scan).

## 5. Failure Reclaiming Pass-Through for Raid causes conflicting reboot message

Reclaiming a disk drive that has been previously marked as Pass-through is the Disk action that is taken when the system administrator no longer wants to present that disk drive to the host OS as a single SCSI disk drive. Completing this action should make the disk drive available to the RAID subsystem to be used in RAID arrays and volumes or as a global hot spare.

Upon completion of the Claim for RAID action, the disk USAGE is displayed as Claim on Reboot which indicates that a reboot of the OS is required to fully complete the process. However, on the Linux OS, a reboot is not required. As soon as the first bus scan is completed (automatically for SAF-TE or manually for non-intelligent enclosures) following the action, the disk USAGE should indicate *Available* and the disk drive should be available to the RAID subsystem.

**Note:** For intelligent SA-TE enclosures, *Claim on Reboot* may never be indicated. The USAGE could go directly from *Pass-Through* to *Available*.

# Documentation Changes

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## 1. Troubleshooting: Windows NT\*

The following text should be added to the Troubleshooting chapter under the heading Windows NT.

Windows NT\* displays multiple instances of the i2Oscsi device in the SCSI Adapters Control Panel applet. This is the expected behavior of the RAID adapter. It does not impact the use of the system.

## 2. Section 5.1.3.5 Array Roaming

The sentence in section 5.1.3.5, “The array being moved must be connected to the destination server while it is offline.” should read “Array Roaming may be done while the target and destination servers are online by using the ‘Add Disks’ Bus Scan method described in section 4.3.9.3.”

## 3. Table 5-3 and Table 5-5: RAID 1 and RAID 10 Volume Characteristics

The ‘Strip Size’ row in these tables mention support for 64Kb strip size. The actual strip sizes supported for RAID 1 and RAID 10 volumes are: 4Kb, 8Kb, 16Kb, 32Kb, 64Kb, and 128 Kb.

## 4. Windows 2000 support

User Manual has been modified to include support for the Windows 2000 operating system.

## 5. Replacing/Upgrading (Swapping) a RAID Adapter that has Windows 2000 Installed to a Bootable RAID Volume

This is an addition to Section 2.5.2 of the User’s Manual.

Swapping a SCSI host adapter for another SCSI host adapter is similar to the procedure for adding a host adapter. The important distinction is that you add the new SCSI adapter into the system first, before removing the old adapter.

**Note:** If you do not install the new host adapter first, it may result in a Windows 2000 boot failure.

To swap adapters, follow these steps.

1. Power down your computer.
2. Insert the new (compatible) RAID adapter into an available PCI slot, leaving the existing RAID adapter intact.
3. Power up your computer. Windows 2000 should load up as normal and detect the new RAID adapter. Install the Windows 2000 driver if prompted to. If a driver install Wizard starts, follow the same driver installation procedures as in the User's Manual.
4. Reboot if prompted to.
5. Once the new RAID adapter is functioning properly, power down your computer.
6. Remove the old RAID adapter (leave the new RAID adapter in the slot that it was initially installed) and move all desired devices to the new adapter.
7. Ensure all attached devices are recognized.