

RSV-S4-X

User Manual

Content

1	WELCOME	6
1.1	PRECAUTION	6
1.2	FEATURES	7
1.2	2.1 DATA SECURITY	7
1.2	2.2 DATA PERFORMANCE	7
1.2	2.3 DATA VERSATILITY	7
1.3	EASE OF USE	7
1.4	SPECIFICATIONS	8
1.5	SUPPORTED OPERATING SYSTEMS	8
1.6	PRODUCT CONTENTS	9
റ	INTRODUCTION TO RAID	10
<u> </u>		<u>10</u>
2.1	RAID VOLUMES	
2.2	SEGMENTING DISKS	
2.3	RAID LEVELS	
	3.1 DISK STRIPING (RAID 0)	
	3.2 DISK MIRRORING (RAID 1)	
	3.3 DISK MIRRORING AND STRIPING (RAID 10)	
	3.4 PARITY RAID (RAID 5) 3.5 CONCATENATION	
	3.5 CONCATENATION	
2. . 2.4		
2.4		
•		
<u>3</u>	INSTALLATION	15
3.1	COMPONENTS	
3.2	INSTALLING HARDWARE	15
3.3	INSTALLING ON WINDOWS 2000	

3.3.2	INSTALLING SATARAID5 UTILITY	
3.3.3	DISK DRIVE MODE SETUP	
3.3.4	ALLOCATING PARTITION	
3.4 II	NSTALLING ON WINDOWS XP (32/64-BIT)	32
3.4.1	INSTALLING SATA RAID HOST BUS ADAPTER	
3.4.2	INSTALLING SATARAID5 UTILITY	35
3.4.3	DISK DRIVE MODE SETUP	39
3.4.4	ALLOCATING PARTITIONS ON WINDOWS XP 32-BIT	39
3.4.5	ALLOCATING PARTITIONS ON WINDOWS XP 64-BIT	
3.5 II	NSTALLING ON WINDOWS SERVER 2003 (32/64-BIT)	55
3.5.1	INSTALLING SATA RAID HOST BUS ADAPTER	55
3.5.1 3.5.2		
0.011	INSTALLING SATARAID5 UTILITY	58
3.5.2 3.5.3	INSTALLING SATARAID5 UTILITY	58 62
3.5.2 3.5.3 3.5.4	INSTALLING SATARAID5 UTILITY DISK DRIVE MODE SETUP	58 62 62
3.5.2 3.5.3 3.5.4	INSTALLING SATARAID5 UTILITY DISK DRIVE MODE SETUP ALLOCATING PARTITIONS	58 62 62 71
3.5.2 3.5.3 3.5.4 3.6 	INSTALLING SATARAID5 UTILITY DISK DRIVE MODE SETUP ALLOCATING PARTITIONS NSTALLING ON WINDOWS VISTA (32/64-BIT) INSTALLING SATA RAID HOST BUS ADAPTER	58 62 62 71 71
3.5.2 3.5.3 3.5.4 3.6 II 3.6.1	INSTALLING SATARAID5 UTILITY DISK DRIVE MODE SETUP ALLOCATING PARTITIONS NSTALLING ON WINDOWS VISTA (32/64-BIT) INSTALLING SATA RAID HOST BUS ADAPTER INSTALLING SATARAID5 UTILITY	
3.5.2 3.5.3 3.5.4 3.6 3.6.1 3.6.2 3.6.3	INSTALLING SATARAID5 UTILITY DISK DRIVE MODE SETUP ALLOCATING PARTITIONS NSTALLING ON WINDOWS VISTA (32/64-BIT) INSTALLING SATA RAID HOST BUS ADAPTER INSTALLING SATARAID5 UTILITY	58 62 71 71 71 73 77

4.1	OVERVIEW	84
4.2	CREATING RAID GROUPS	85
4.2.	.1 CONTIGUOUS RAID GROUPS	85
4.2.	2 CONCATENATED RAID GROUPS	
4.2.	3 STRIPED RAID GROUPS	
4.2.	4 MIRRORED RAID GROUPS	
4.2.	5 MIRRORED STRIPED RAID GROUPS	
4.2.	6 PARITY RAID GROUPS	
4.2.	7 RAID GROUPS OVERVIEW	
4.3	ADDITIONAL MENU COMMANDS	91
4.3.	1 CONFIGURATION	
	2 EXIT	
4.3.	3 CREATE SPARE	
	4 DELETE SPARE	
4.3.	5 DELETE MEMBER	
4.3.	6 DELETE ORPHAN	

4.3.7	MAKE PASS-THRU	
4.3.8	DEVICE SUMMARY	
4.3.9	CREATE RAID GROUP	
4.3.10	REBUILD RAID GROUP	
4.3.11	DELETE RAID GROUP	
4.3.12	BRING RAID GROUP ONLINE	
4.3.13	RAID GROUP SUMMARY	
4.3.14	TASK MANAGER	
4.3.15	EVENT LOG	
	RESOURCES	
	CREATE LEGACY RAID GROUP	
4.3.18	HELP TOPICS	
4.3.19	ABOUT	

1 WELCOME

RSV-S4-X enhances your data storage by combining advanced RAID¹ features typically seen on high-end data systems with low cost/high capacity Serial ATA drives. By using industry standard SATA drives and Silicon Image Host Bus Adapters, you can achieve extraordinarily low costs while remaining assured that your data is protected against hardware failure.

1.1 PRECAUTION

Please read the safe precautions carefully before you using RSV-S4-X storage appliance. Ensure that you use the product correctly according to the procedure described in this guide.

The following safety precautions are intended to remind you to operate the product safely and correctly. Please read and ensure that you understand them before you proceed to the other sections of this guide.

- Do not attempt to disassemble or alter any part of the product that is not describe in this guide.
- Do not allow the product to come into contact with water or other liquids. In the event that water or other liquids enter the interior, immediately unplug the product from the computer. Continued use of the product may result in fire or electrical shock. Please consult your product distributor or the closest support center.
- Do not handle the product near a heat source or expose them to direct flame or heat.
- Never place the product in close to equipment generating storage electromagnetic fields.
 Exposure to strong magnetic fields may cause malfunctions or corrupt data.
- Can't operate properly under Windows 3.x/ 95 / 98SE/ ME/ NT.
- Hard disk drive is not including.

¹ Redundant Array of Independent Devices, a method of combining drives to provide better protection and/or performance.

1.2 FEATURES

1.2.1 DATA SECURITY

The RSV-S4-X software driver includes support for monitoring to predict suspect drives.

RSV-S4-X provides our highest commitment to data security through the use of RAID architecture to back up and protect data. RAID levels 1, 10, and 5 provide data security. RSV-S4-X supports sophisticated sparing support so that hardware failure risk can be minimized by automatically regenerating the failed disk's data on a backup disk. The RSV-S4-X software driver includes support for Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.²) to predict disk failures. Drives can be moved between controllers without losing data.

1.2.2 DATA PERFORMANCE

The RSV-S4-X can also increase storage throughput by combining the throughput of multiple drives into a single volume. RAID levels 1, 10, and 5 support this ability. Furthermore, each volume can be tailored to provide the best performance for the data contained on that disk.

1.2.3 DATA VERSATILITY

The RSV-S4-X software driver also supports Contiguous and Concatenated drives for applications which do not require increased security or performance.

1.3 EASE OF USE

The RSV-S4-X utility offers an easy to use utility for creating and managing your storage. It also supports the latest SATA enhancements including SATA-II Port Multiplier support, and up to 3Gbit/sec transfer rates on controllers that support that speed. Creating and deleting volumes is also possible without requiring a restart of the operating system and rebuilds never require the data to be taken off-line.

Drives can also be moved between controllers without losing the data.

² Self Monitoring, Analysis and Reporting Testing.

1.4 SPECIFICATIONS

- A single eSATA host port to 4 SATA 3.5-inch hard disks, with tool-less screws & door cover.
- Power and host status LED, and devices status and activity LED.
- Metal chassis (SECC) and plastic panel frame (ABS) design.
- 135 (W) x 180 (H) x 255 (D) mm, NW: 2.7 Kgs, GW: 3.1Kgs.
- Design based on the Silicon Image Sil3726 Port-Multiplier with Sil3132R5 PCI-Express 1X HBA.
- Support Striped (RAID 0), Mirrored (RAID 1), Mirrored Striped (RAID 10), Parity RAID (RAID 5) modes, and hot spare on Mirrored (RAID 1) and Parity RAID (RAID 5) modes.
- Support Contiguous (Single Drive) & Concatenation (Combined Drives) modes.
- 150 watts, 100 & 240 Vac / 50~60Hz with FCC, CE requirement.
- Single packing (color box with handle) and 4 in 1 outer box.

1.5 SUPPORTED OPERATING SYSTEMS

The following operating systems are supported by the RSV-S4-X software driver.

- Windows 2000
- Windows XP, 32/64-bit
- Windows Server 2003, 32/64-bit
- Windows Vista, 32/64-bit
- Windows Server 2008, 32/64-bit
- Windows 7, 32/64-bit

1.6 PRODUCT CONTENTS

The following parts are content.

- RSV-S4-X Port-Multiplier Box
- Sil3132R5 PCI-Express 1X HBA
- eSATA Cable
- AC Cable
- Tool-less Screw x 8
- Setup and Installation Driver Repository CD

2 INTRODUCTION TO RAID

2.1 RAID VOLUMES

RAID technology allows one or more disks to be combined into a logical volume which provides greater performance and/or protection than standard disk drives. These volumes, also known as RAID Groups, appear like regular disk drives to the operating system and can be partitioned, formatted and used just like any other normal disk. The complexity of the RAID is hidden within the driver.

There are several different methods of combining disks, each with its own advantages and disadvantages. Each method is referred to as a RAID "level" such as RAID 1, or RAID 5. The details of each level are summarized below and detailed in the following sections.

RAID LEVEL	CONFIGURED AS	ADVANTAGES	DISADVANTAGES
0	Striped	Excellent performance, low cost	No data protection
1	Mirrored	Excellent data protection	High cost
10	Mirrored Striped	High performance, excellent data protection.	High cost.
5	Parity RAID	Good data protection, good value	Some performance degradation for writes.
Combination	Concatenated	Good performance, low cost, large Volume size	No data protection
Single Drive / Segment	Contiguous	Same as single disk	Same as single disk

2.2 SEGMENTING DISKS

For increased versatility, the SATARAID5 software allows individual disks to be divided into smaller segments which can then be combined into different volumes. As an example, if a user has one set of data that must be protected at all costs, another set of data which should be protected at reasonable cost and another set that doesn't need any protection at all; the user can divide three disks into sections as shown in Figure 1. The yellow regions define the

high security volume, the greem section is the middle security volume and the light blue shows the unprotected area.



Figure 1: Dividing Disks into Members

2.3 RAID LEVELS

2.3.1 DISK STRIPING (RAID 0)

Striping is a performance-oriented, non-redundant data mapping technique. While Striping is discussed as a RAID Group type, it is does not provide any fault tolerance. With modern SATA and ATA bus mastering technology, multiple I/O operations can be performed in parallel, enhancing data throughput. Striping arrays use multiple disks to form a larger virtual disk. The figure below illustrates a three-disk stripe set. Stripe one is written to disk one, stripe two to disk two, and so forth. RAID 0 sets can be comprised of two, three, or four drives. If the sizes of the disk segments are different, the smallest disk segment will limit the overall size of the RAID Group.



2.3.2 DISK MIRRORING (RAID 1)

Disk mirroring creates an identical twin for a selected disk by having the data simultaneously written to two disks. This redundancy provides instantaneous protection from a single disk failure. If a read failure occurs on one drive, the system reads the data from the other drive. RAID 1 sets are comprised of two drives, and a third drive can be allocated as a spare in case one of the drives in the set fails. If the sizes of the disk segments are different, the smallest disk segment will limit the overall size of the RAID Group.



2.3.3 DISK MIRRORING AND STRIPING (RAID 10)

RAID 10 combines the features of both RAID 0 and RAID 1. Performance is provided through the use of Striping (RAID 0), while adding the fault tolerance of Mirroring (RAID 1). The implementation of RAID 10 requires four drives. The drives are assigned as two sets of striped pairs.



The data is written to RAID Group A, which is mirrored (RAID 1) and provides data redundancy. Alternating blocks of data are then striped across another RAID 1 mirrored set, shown as Set B in the figure above. This provides improved speed.

Under certain circumstances, a RAID 10 set can sustain multiple simultaneous drive failures.

2.3.4 PARITY RAID (RAID 5)

Parity or RAID 5 adds fault tolerance to Disk Striping by including parity information with the data. Parity RAID dedicates the equivalent of one disk for storing parity stripes. The data and parity information is arranged on the disk array so that parity is written to different disks. There are at least 3 members to a Parity RAID set. The following example illustrates how the parity is rotated from disk to disk. The following example illustrates how the parity is rotated from disk to disk.



Parity RAID uses less capacity for protection and is the preferred method to reduce the cost per megabyte for larger installations. Mirroring requires 100% increase in capacity to protect the data whereas the above example using three hard drives only requires a 50% increase. The additional required capacity decreases as the number of disks in the group increases (i.e., 33% for four drives or 25% for five drives).

In exchange for low overhead necessary to implement protection, Parity RAID degrades performance for all write operations. The parity calculations for Parity RAID may result in write performance that is somewhat slower than the write performance to a single disk.

2.3.5 CONCATENATION

The Concatenated mode combines multiple disks or segments of disks into a single large volume. It does not provide any data protection or performance improvement but can be useful for utilizing leftover space on disks. Concatenation allows the segments that make up the volume to be of different sizes.



2.3.6 SINGLE DRIVE / SEGMENT

The single drive is a virtual disk that can either be an entire disk drive or a segment of a single disk drive. Single drive is the "Contiguous" configuration option when creating RAID Groups (or sets) in the SATARAID5 software.

2.4 RAID VOLUME STATUS

A RAID volume can be in any one of the following statuses.

STATUS	MEANING			
Good	All disks are currently functioning as normal.			
	For RAID levels that provide data protection, one or more disks have			
Reduced	failed but the data is still available via the RAID algorithms. The failed			
	disk should be replaced as soon as possible to avoid loss of data.			
	A failed disk drive has been replaced and the data is being regenerated			
Rebuilding	on the replacement disk. When complete, the RAID Group will return to			
	Good status.			
	An error has occurred and RAID algorithms be regenerated on this			
Resynchronizing	RAID Group. When complete, the RAID Group will return to Good			
	status.			
	One or more disks have failed and RAID algorithms can no longer			
	regenerate the data. The minimum number of failures required to reach			
Failed	this state depends on the RAID level:			
	RAID 0, Concatenated, Contiguous: Single disk failure.			
	• RAID 1, 10, and 5: Two disk failure.			

3 INSTALLATION

3.1 COMPONENTS

There are three separate steps that must be install or setup for RSV-S4-X to function. These components are the HARDWARE, SATA RAID5 HBA DRIVER, and SATARAID5 Utility. The steps on how to setup these packages is described in the following sections.

3.2 INSTALLING HARDWARE

Follow the descriptions below, and step by step to complete the installation.

- Turn off your host computer.
- Install the Sil3132 PCI-Express 1X SATA RAID5 HBA into a PCI-Express slot (1X ~ 16X), than connect one end of the eSATA cable to the eSATA connector on the Sil3132 PCI-Express 1X SATA RAID5 HBA.
- Connect the other end to the eSATA connecter on RSV-S4-X.
- If hard disk drives are not installed in RSV-S4-X, insert the drives most of the way into bay 1 to 4 in order (from the bottom to top); gently insert the drive until the drive is fully inserted, and twist the tool-less screw shut to seat the drive securely.
- Switch the VAC to the correct position (For example, 115 for Japan, and 230 for UK) attach one end of the AC power cord to RSV-S4-X and the other end to the proper AC receptacle.
- Turn on RSV-S4-X, than turn on the host computer.

3.3 INSTALLING ON WINDOWS 2000

3.3.1 INSTALLING SATA RAID HOST BUS ADAPTER

Follow the descriptions below, and step by step to complete the setup.

- Insert the Setup and Installation Repository CD in the CD-ROM drive.
- When start the Windows O/S, new hardware will be found, click Next>.

Found New Hardware Wizard	
	Welcome to the Found New Hardware Wizard This wizard helps you install a device driver for a hardware device.
Statistics, Statist	To continue, click Next.
	< Back Next > Cancel

Select Search for a suitable driver for my device (recommended), than click Next>.



• Select **Specify a location**, than click **Next>**.



• Click **Browse...** to select to driver path, than click **OK**.



• Click Next> to install the Silicon Image Sil3132 SoftRaid 5 Controller driver.



• Click **Yes** to pass the Microsoft digital signature and continue the installation.

3	The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
	The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
	Silicon Image Sil 3132 SoftRaid 5 Controller
	If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
	Do you want to continue the installation?

• When the Silicon Image Sil3132 SoftRaid 5 Controller installation has completed, click **Finish**, and begin to the Silicon Image's Pseudo Processor Device driver installation.

Completing the Found New Hardware Wizard Silicon Image Sil 3132 SoftRaid 5 Controller Windows has finished installing the software for this device.
To close this wizard, click Finish.

• Windows will find the Silicon Image's Pseudo Processor Device hardware, click Next>.

Found New Hardware Wizard	Welcome to the Found New Hardware Wizard This wizard helps you install a device driver for a hardware device.
	< Back Next > Cancel

Select Search for a suitable driver for my device (recommended), than click Next>.



Select Specify a location, than click Next>.



• Click **Browse...** to select to driver path, than click **OK**.



Click Next> to install the Silicon Image's Pseudo Processor Device driver.



When the Silicon Image's Pseudo Processor Device installation has completed, click
 Finish.



3.3.2 INSTALLING SATARAID5 UTILITY

Follow the descriptions below, and step by step to complete the installation.

- Open the Setup and Installation Repository CD and select the SATARAID5 Array Manager software from the Utility folder.
- Double-click the **3132-W-I32-R.exe** file.



• Click <u>Next></u> to begin setup.



• Select I <u>Agree</u>, than click <u>Next></u>.

3132-W-I32-R SATAR	AID5			
icense Agreeme	ənt			R.
lease take a moment to rea gree", then "Next". Otherw			f you accept the ten	ms below, click ''l
SOF		ilicon Image, li E LICENSE A		<u>.</u>
PLEASE READ TH CAREFULLY BEF USING THE SOFT DOCUMENTATION THE TERMS AND	FORE I TWARI ON (CC	DOWNLOADI E OR ANY AC DLLECTIVEL	NG, INSTALL COMPANYIN Y, THE ''SOFT	ING OR G 'WARE'').
C I Do Not Agree	1			<u>ي</u> .
		Cancel	< Back	Next >

• Select **Place shortcut on Desktop**, than click **<u>N</u>ext> to create a shortcut on the desktop.**



• Click <u>Next></u> to use the default installation folder.

3132-W-I32-R SATARAID5	
Select Installation Folder	R.
he installer will install 3132-W-I32-R SATARAID5 to the following folder.	
o install in this folder, click "Next". To install to a different folder, enter it below	w or click "Browse".
<u>E</u> older:	
C:\Program Files\Silicon Image\3132-W-I32-R SATARAID5\	B <u>r</u> owse
	<u>D</u> isk Cost
Cancel < Back	Next >

• Click <u>Next></u> to begin the installation.



• When SATARAID5 installation has completed, click **<u>C</u>lose** to exit.

🐻 3132-₩-I32-R SATARAID5			
Installation Complete			()
3132-W-I32-R SATARAID5 has been	successfully installed.		
Click "Close" to exit.			
	Cancel	< <u>B</u> ack	

Select I <u>agree the terms in the license agreement</u>, than click <u>Next></u> to begin the Java platform installation.

J2SE Runtime Environment 5.0 Update 5 - Licer	ise 🗙
License Agreement Please read the following license agreement carefully.	SULL.
Sun Microsystems, Inc. Binary Code License Agreement	
for the JAVA 2 PLATFORM STANDARD EDITION RUNTIME	ENVIRONMENT 5.0
SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENS BELOW TO YOU ONLY UPON THE CONDITION THAT YOU CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT TERMS (COLLECTIVELY "AGREEMENT"). PLEASE READ D DOWNLOADING OR INSTALLING THIS SOFTWARE, YOU / AGREEMENT. INDICATE ACCEPTANCE BY SELECTING THE BOTTOM OF THE AGREEMENT. IF YOU ARE NOT WILLING SELECT THE "DECLINE" BUTTON AT THE BOTTOM OF THE	ACCEPT ALL OF THE TERMS AND SUPPLEMENTAL LICENSE HE AGREEMENT CAREFULLY. BY ACCEPT THE TERMS OF THE "ACCEPT "BUTTON AT THE TO BE BOUND BY ALL THE TERMS,
[[<u>accept the terms in the license agreement</u>] [[<u>do not accept the terms in the license agreement</u>	
InstellShield	Next > Cancel

• Select **Typical**, than click **Next>**.



• When Java platform installation has completed, click **<u>Finish</u>** to exit.

🛃 J2SE Runtime Environm	ient 5.0 Update 5 - Complete 🛛 🗙
	Installation Completed
	The Install Wizard has successfully installed J2SE Runtime Environment 5.0 Update 5. Click Finish to exit the wizard,
ی <u>Sun</u> ی کے ا	
	< Back Finish Cancel

 Select Start > Programs > Silicon Image > SATARaid5Manager to start the Array Manager software.

3.3.3 DISK DRIVE MODE SETUP

Please refer to the chapter 4.

3.3.4 ALLOCATING PARTITION

Before creating any partitions, RAID groups must first be created using the SATARaid5Manager utility. Once the sets have been created, allow the system to load Windows.

• Right-click on **My Computer** icon and select **Manage** from the pop-up menu.

My Documents		
My Computer		
Open Explore Search Manage Map Network Drive		
Places Map Network Drive Disconnect Network Drive Create Shortcut Recycle Bin		
Properties		
Internet Explorer		
SATARaid5		
🎉 Start 🛛 🗹 🏈 🧐 😚 🔌	(1) 4. 1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (5:38 PM

• Select **Disk Management** under **Storage** to view the disk drives.

ree	Volume	Layout	Туре	File System	Status
Computer Management (Local) System Tools Define Event Viewer System Information Define Performance Logs and Alerts Define Shared Folders	- C:) backup (D:) NA1014008A (E:)	Partition Partition Partition	Basic Basic Basic	NTFS NTFS CDFS	Healthy (System Healthy Healthy
Device Manager Coal Users and Groups Storage Disk Management Disk Defragmenter Logical Drives Removable Storage	74.52 GB	ystem (C:) 4.75 GB NTFS ealthy (System)		ир (D:) GBNTFS У	
Gervices and Applications	DVD (E:) 163 MB	A1014008A (E:) 53 MB CDFS ealthy			

• When Write Signature and Upgrade Disk Wizard appears, click <u>Next></u>.



Select the new disk to write a signature, than click <u>Next></u>.



• Do not click any disk to upgrade to dynamic disk, than click **Next>**.

Write Signature and Upgrade Disk Wizard			×
Select Disks to Upgrade Choose the disks to be upgraded.			
Select the disks you want to upgrade:			
1 Disk 1			
		<u>2</u> ,	í.
	< Back	Next >	Cancel

• When the Write Signature and Upgrade Disk Wizard has completed, click Finish.

Write Signature and Upgrade	e Disk Wizard	×
	Completing the Write Signature and Upgrade Disk Wizard You have successfully completed the Write Signature and Upgrade Disk Wizard. You have selected these settings: Write a signature on the following disks: Disk 1 Upgrade the following disks: None To close this wizard, click Finish.	
	< Back Finish Cance	e

• Right-click on the **Unallocated** partition and select **Create Partition...** from the pop-up menu.

ree	Volume	Layout	Туре	File System	Status
Computer Management (Local) System Tools Down Event Viewer System Information Down Performance Logs and Alerts Down Shared Folders		Partition Partition Partition	Basic Basic Basic	NTFS NTFS CDFS	Healthy (System Healthy Healthy
Bevice Manager Cocal Users and Groups Storage Disk Management Disk Management Disk Defragmenter Logical Drives Premovable Storage Services and Applications	74.52 GB	ystem (C:) 4.75 GBNTFS lealthy (System)	back 59.77 Health	ир (D:) GBNTFS У	
		397.27 GB Inallocated		Create Partiti Properties	ion
	163 MB	IA1014008A (E:) 63 MB CDFS lealthy		Help	

• Click <u>Next></u> to create a partition on a basic disk.



Select the partition type you want to create, than click Next>.



Specify the partition size you want to create, than click Next>.

Choose a partition size that is smaller than the maximum disk space. Maximum disk space: 1430805 MB Minimum disk space: 7 MB Amount of disk space to use: 1 1430805 MB	805 MB	How big do you want the partitio	n to be?
Minimum disk space: 7 MB		Choose a partition size that is sm	aller than the maximum disk space.
Amount of disk serves to use of		Maximum disk space:	1430805 MB
Amount of disk space to use: 1 1430305 MB	1806 E MB	Minimum disk space:	7 MB
		Amount of disk space to use: 1	1430805 × MB

• Assign the drive letter or path you want to create, than click **Next>**.



• Click Format this partition with the following settings and Perform a Quick Format, setup the File system to use, Allocation unit size, Volume label, than click Next>.



• When the **Create Partition Wizard** has completed, click **Finish**.

Completing the Create Partition Wizard
You have successfully completed the Create Partition Wizard.
You specified the following settings: Partition type: Primary Partition Disks Selected: Disk 1 Partition size: 1430805 MB Dive letter or path: F: File System: NTFS Allocation Unit Size: Default Volume To close this wizard, click Finish.
< Back Finish 🔪 Cance

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

📮 Computer Management					
🛛 Action View 🗍 🗢 🔿 🔁 💽	2 0 💀				
Tree	Volume	Layout	Туре	File System	Status
Computer Management (Local) System Tools Computer Viewer Computer Viewe	System (C:) backup (D:) New Volume (F:) NA1014008A (E:)	Partition Partition Partition Partition	Basic Basic Basic Basic	NTFS NTFS NTFS CDFS	Healthy (System) Healthy Healthy Healthy
 Device Manager Cocal Users and Groups Storage Disk Management Disk Defragmenter Logical Drives Removable Storage Services and Applications 	Disk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (System)	backu 59.77 Health	ар (D:) GB NTFS У	
	CP Disk 1 Basic 1397.27 GB Online	New Volume (F:) 1397.27 GB NTFS Healthy			
	CDRom 0 DVD (E:) 163 MB Online	NA1014008A (E:) 163 MB CDFS Healthy			
	Primary Partition	Extended Partition	Logical Drive		

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.



3.4 INSTALLING ON WINDOWS XP (32/64-BIT)

3.4.1 INSTALLING SATA RAID HOST BUS ADAPTER

Follow the descriptions below, and step by step to complete the setup.

- Insert the Setup and Installation Repository CD in the CD-ROM drive.
- When start the Windows O/S, new hardware will be found; Select No, not this time, than click Next>.

Found New Hardware W	izard
	Welcome to the Found New Hardware Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Read our privacy policy
	Can Windows connect to Windows Update to search for software? Yes, this time only Yes, now and every time I connect a device No, not this time
	Click Next to continue.
	K Back Next > Cancel

• Select Install from a list or specific location (Advanced), than click Next>.

Found New Hardware Wizard
This wizard helps you install software for: RAID Controller If your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? Install the software automatically (Recommended) Install from a list or specific location (Advanced) Click Next to continue.
K Back Next > Cancel

 Select Search for the best driver in there location, Include this location in the search, and click Browse to select the driver path, than click Next>.

Driver path for Windows 32-bit:



Driver path for Windows 64-bit:

Please choose your search and installation options.
 Search for the best driver in these locations. Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed. Search removable media (floppy, CD-ROM) Include this location in the search: E:\Driver\Sil3132R5\\Windows\64bits Browse
O Don't search. I will choose the driver to install. Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

When the installation has completed, click Finish.

Found New Hardware Wiz	ard
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: Silicon Image Sil 3132 SoftRaid 5 Controller
	Click Finish to close the wizard.

3.4.2 INSTALLING SATARAID5 UTILITY

Follow the descriptions below, and step by step to complete the installation.

- Open the Setup and Installation Repository CD and select the SATARAID5 Array Manager software from the Utility folder.
- Double-click the utility file.





• Click <u>Next></u> to begin setup.

렇 3132-W-I32-R SATARAID5	
Welcome to the 3132-W-I32-R SATARAID5 Setup Wizard	
The installer will guide you through the steps required to install 3132-W-I32-R SATARAI computer. To continue, click Next.	D5 on your
Cancel < Back	Next > 🔪

• Select I <u>Agree</u>, than click <u>Next></u>.

i₿ 3132-W-I32-R SATARAID5	
License Agreement	()
Please take a moment to read the license agreement now. If you accept the terms be Agree", then "Next". Otherwise click "Cancel".	elow, click ''l
Silicon Image, Inc. SOFTWARE LICENSE AGREEMENT	
PLEASE READ THE FOLLOWING TERMS AND CONE CAREFULLY BEFORE DOWNLOADING, INSTALLING USING THE SOFTWARE OR ANY ACCOMPANYING DOCUMENTATION (COLLECTIVELY, THE "SOFTWA	GOR
THE TERMS AND CONDITIONS OF THIS SOFTWARE	
◯ I Do Not Agree 1	
Cancel K Back	Next>

• Select **Place shortcut on Desktop**, than click **<u>N</u>ext> to create a shortcut on the desktop.**
谩 3132-W-132-R SATARAID5 Do you want to add a s	shortcut to your Desktop?	
1 Place shortcut on Desktop		
		2

• Click <u>Next></u> to use the default installation folder.



• Click <u>Next></u> to begin the installation.



• When SATARAID5 installation has completed, click **<u>C</u>lose** to exit.



Select I <u>accept the terms in the license agreement</u>, than click <u>Next></u> to begin the Java platform installation.



• Select **Typical**, than click **Next>**.



• When Java platform installation has completed, click **<u>Finish</u>** to exit.



 Select Start > All Programs > Silicon Image > SATARaid5Manager to start the Array Manager software.

3.4.3 DISK DRIVE MODE SETUP

Please refer to the chapter 4.

3.4.4 ALLOCATING PARTITIONS ON WINDOWS XP 32-BIT

Before creating any partitions, RAID groups must first be created using the SATARaid5Manager utility. Once the sets have been created, allow the system to load Windows.

• Right-click on **My Computer** icon and select **Manage** from the pop-up menu.



• Select **Disk Management** under **Storage** to view the disk drives.

File Action View Window He	lp				_62
Computer Management (Local) Computer Management (Local) Computer Viewer Computer Viewer	Volume System (C:) Dackup (D:) NA1014008A (E:)	Layout Partition Partition Partition	Type Basic Basic Basic	File System NTFS NTFS CDFS	Status Healthy (Syster Healthy Healthy
Services and Applications	74.52 GB	system (C:) 14.75 GB NTF5 Healthy (Syste	5	backup (D 59.77 GB NT Healthy	:) F5
	163 MB	NA 1014008 163 MB CDFS Healthy	A (E:)		

When Initialize and Convert Disk Wizard appears, click <u>Next></u>.

Initialize and Convert Disk	Wizard	\mathbf{X}
	Welcome to the Initialize and Convert Disk Wizard This wizard helps you to initialize new disks and to convert empty basic disks to dynamic disks. You can use dynamic disks to create software-based RAID volumes that can be mirrored, or they can be striped or spanned across multiple disks. You can also expand single-disk and spanned volumes without having to restart the computer. After you convert a disk to dynamic, you can only use Windows 2000 and later versions of Windows on any volume of that disk.	
	< Back Next > Cance	

Select the new disk to initialize, than click <u>Next></u>.



• Do not click any disk to convert, than click **Next>**.



• When the Initialize and Convert Disk Wizard has completed, click Finish.



• Right-click on the **Unallocated** partition and select **New Partition...** from the pop-up menu.

IJ File Action View Window Help ← → 🔃 📧 🔗 🖓 😭 😹	p				<u>_8</u> ×
Somputer Management (Local)	Volume	Layout	Туре	File System	Status
Image: System Tools Image: System Too	System (C:) backup (D:)	Partition Partition :) Partition	Basic Basic Basic	NTFS NTFS CDFS	Healthy (System Healthy Healthy
🗐 🥮 Device Manager E 🏂 Storage	<				3
Removable Storage Disk Defragmenter Disk Management Services and Applications	CDisk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (System)		kup (D:) 7 GB NTFS thy	
	Cisk 1 Basic 1397.27 GB Online	1397.27 GB Unallocated		New Partiti Properties	on
	DVD 163 MB Online	NA1014008A (E:) 163 MB CDFS Healthy		Help	

• Click <u>Next></u> to create a partition on a basic disk.

New Partition Wizard	
	Welcome to the New Partition Wizard This wizard helps you create a partition on a basic disk. A basic disk is a physical disk that contains primary partitions, extended partitions, and logical drives. You can use any version of Windows or MS-DOS to gain access to partitions on basic disks. To continue, click Next.
	K Back Next > Cancel

• Select the partition type you want to create, than click **Next>**.



Specify the partition size you want to create, than click Next>.

Specify Partition Size Choose a partition size that is between th	e maximum and minimum sizes.
Maxium disk space in megabytes (MB): Minimum disk space in MB: Partition size in MB: <mark>1</mark>	1430805 8 1430805 💓
	Cancel

• Assign the drive letter or path you want to create, than click **Next>**.



• Click Format this partition with the following settings and Perform a quick format, setup the File system, Allocation unit size, Volume label, than click Next>.

Choo	ise whether you want to form	nat this partition, and if so	, what settings you v	vant to use.
) Do not format this partition) Format this partition with th			
ſ	File system:	NTFS	~	
3	Allocation unit size:	Default	~	
	Volume label:	New Volume		
2	Perform a quick form	at		
	Enable file and folde	r compression		

• When the **New Partition Wizard** has completed, click **Finish**.

You selected the following settings: Partition type: Primary partition Disk selected: Disk 1 Partition size: 1430805 MB Drive letter or path. F: File system: NTFS Allocation unit size: Default Volume label: New Volume Cuick format: Yee To close this wizard, click Finish.	n m Wizard.
To close this wizard, click Finish.	<

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

JFile Action View Window Help	citer and an annual citer				_8×
← → 🖻 💀 😰 🕻 🗙 🖆 (및 Computer Management (Local) ⊇ 🌇 System Tools	Volume	Layout	Type Basic	File System	Status Healthy (System)
Event Viewer Event Viewer Shared Folders Stared Folders Stared Folders Stared Folders Stare Formance Logs and Alerts Sevice Manager	backup (D:) New Volume (F: ANA1014008A (E)		Basic Basic Basic	NTFS NTFS CDFS	Healthy Healthy Healthy
Storage S	Contraction Contractico Contra	system (C:) 14.75 GB NTF5 Healthy (System)		cup (D:) 7 GB NTFS thy	-
	Cisk 1 Basic 1397.27 GB Online	New Volume (F:) 1397.27 GB NTF5 Healthy			
	DVD DVD 163 MB Online	NA1014008A (E:) 163 MB CDF5 Healthy			
	Primaru partition	Extended partition		in a	

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.



3.4.5 ALLOCATING PARTITIONS ON WINDOWS XP 64-BIT

Before creating any partitions, RAID groups must first be created using the SATARaid5Manager utility. Once the sets have been created, allow the system to load Windows.

• Right-click on **My Computer** icon and select **Manage** from the pop-up menu.

Recycle Bin			
Administrator Administrator Administrator Jutiok Express Windows Media Player Windows Messenger	Wy Documents My Pictures My Music		
 Tour Windows XP MWSnap Files and Settings Transfer W 	 My Computer Control Panel Set Program Access and Defaults Printers and Faxes Help and Support Search Run 	Open Explore Search Manage Map Network Drive Disconnect Network Drive Show on Desktop Rename Properties	Microsoft Windows*P Professional x64 Edition
	2 Log Off 0 Turn Off Comput	er	
背 start			🌒 🔩 🧶 🛄 🛄 10:49 AM

• Select **Disk Management** under **Storage** to view the disk drives.

y File Action View Window Help = -> 🔁 📧 😢 😹)				_8
 Computer Management (Local) System Tools Event Viewer Shared Folders Cocal Users and Groups Performance Logs and Alerts Device Manager Storage Storage Storage Disk Defragmenter Disk Defragmenter Disk Management Services and Applications 	Volume System (C:) backup (D:) NA1014008A (E	Layout Partition Partition :) Partition	Type Basic Basic Basic	File System NTFS NTFS CDFS	Status Healthy (System Healthy Healthy
	C Disk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (System))	backup (D: 59.77 GB NTF Healthy	
	DVD DVD 163 MB Online	NA1014008A (163 MB CDF5 Healthy Extended partiti			

• When Initialize and Convert Disk Wizard appears, click <u>Next></u>.



Select the new disk to initialize, than click <u>Next></u>.

Select Disks to Initialize You must initialize a disk befor	e Logical Disk Manag	er can access it.	
Select one or more disks to initi	alize.		
Disks:			

Do not click any disk to convert, than click Next>.

Select Disks to Convert The disks you select will be c	onverted to dy	vnamic disks.	
Select one or more disks to co	nvert:		
Disks:			

• When the Initialize and Convert Disk Wizard has completed, click Finish.

mpleting the Initialize and nvert Disk Wizard have successfully completed the Initialize and Convert Wizard.
selected the following settings: alize to MBR: Disk 1 nvert: None
close this wizard, click Finish.

• Windows 64-bit system supports **GPT disk** which supports disk volume greater than 2TB.

] File Action View Window He = → 🗈 📧 😤 😡					
Computer Management (Local) System Tools Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Storage Stora	Volume System (C:) backup (D:) NA1014008A (E:)	Layout Partition Partition Partition	Type Basic Basic Basic	File System NTFS NTFS CDF5	Status Healthy (System) Healthy Healthy
	Disk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (System)	59.	:kup (D:) 77 GB NTFS Jithy	
	CPDisk 1 Basic 2794.53 GB Online	2048,00 GB Unallocated	- 11	746.54 G Unallocat	
	DVD 163 MB Online	NA1014008A (E 163 MB CDFS Healthy	:)		

• Right-click on the **Basic disk** and select **Convert to GPT disk** from the pop-up menu.

B File Action View Window Help					_ 8
🚽 Computer Management (Local)	Volume	Layout	Туре	File System	Status
 	⇒system (C:) ⇒backup (D:) ⊗NA1014008A (E	Partition Partition :) Partition	Basic Basic Basic	NTFS NTFS CDFS	Healthy (System) Healthy Healthy
Performance Logs and Alerts Device Manager	<				
 → Storage → Premovable Storage → Disk Defragmenter → Disk Management → Services and Applications 	Contraction Contractico Contra	system (C:) 14.75 GB NTF5 Healthy (System)	59.	ckup (D:) 77 GB NTFS althy	
	Contraction Contractic Con	2048.00 GB Convert to Dynar	nic Disk	746.54 G Unallocat	
	CD-ROM 0 DVD	Convert to GPT D	iisk 🔪		
	163 MB Online	Help		-	
	Unallocated	Primary partition	Extended pa	artition 🗖 Logical	drive

 Right-click on the Unallocated partition and select New Partition... from the pop-up menu.



Click <u>Next></u> to create a partition on a basic disk.



• Select the partition to create, than click **Next>**.

New Partition Wizard	
Select Partition Type There are three types of partitions: primary, extended, and logical.	
Select the partition you want to create:	
Description A primary partition is a volume you create using free space on a basic disk. Windows and other operating systems can start from a primary partition. You create up to 128 primary partitions on a GPT basic disk. On a Master Boot Record (MBR) basic disk, you can create up to four primary partitions or three primary partitions and an extended partition.	
	Cancel

• Specify the partition size you want to create, than click **Next>**.

New Pa	rtition Wizard		
	s ify Partition Size Choose a partition size that is between I	he maximum and minimum sizes.	
M	faxium disk space in megabytes (MB): finimum disk space in MB: Partition size in MB:	2861487 8 2861487 💓	
1 2 1		< Back Next > 2	Cancel

• Assign the drive letter or path you want to create, than click **Next>**.

5		
Assign the following drive letter: Mount in the following empty NTFS fold Do not assign a drive letter or drive path	Browse	
O D'unici assigni a drive rekter or drive pak		

• Click Format this partition with the following settings and Perform a quick format, setup the File system, Allocation unit size, Volume label, than click Next>.

Choo	se whether you want to forr		o, what settings:	you want to use.
10) Do not format this partition) Format this partition with th			
ſ	File system:	NTFS	~	
3	Allocation unit size:	Default	~	
	Volume label:	New Volume		
2	Perform a quick form	nat		
	Enable file and folde	r compression		

• When the **New Partition Wizard** has completed, click **Finish**.

Completing the New Partition Wizard You have successfully completed the New Partition Wizard.
You selected the following settings: Partition type: Primary partition Disk selected: Disk 1 Partition size: 2861487 MB Drive letter or path: F: File system: NTFS Allocation unit size: Default Volume label: New Volume Duick format: Yes To close this wizard, click Finish.
K Back Finish Cance

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

IJ File Action View Window Help ← → 🖻 💽 🔗 🕼 🗙 😭) 🖻 🔍 👪				_8
📃 Computer Management (Local)	Volume	Layout	Туре	File System	Status
 System Tools System Tools Shared Folders Local Users and Groups Performance Logs and Alerts Storage Storage Removable Storage Disk Defragmenter Disk Management Services and Applications 	System (C:) backup (D:)	Partition Partition	Basic Basic	NTFS NTFS	Healthy (System) Healthy
	New Volume (F:)	Partition Partition	Basic Basic	NTFS CDFS	Healthy Healthy
	<	III.			
	Contemporary Conte	system (C:) 14.75 GB NTFS Healthy (System)	59.	ckup (D:) .77 GB NTFS althy	
	CDISK 1 Basic 2794.42 GB Online	New Volume (F 2794.42 GB NTFS Healthy	:)		
	DVD 163 MB Online	NA1014008A (I 163 MB CDFS Healthy	E:)		

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.

My Computer		
File Edit View Favorites Tools	Help	A.
🕝 Back - 🕥 - 🍺 🔎 Se	earch 😥 Folders 🛄 🔹	
ddress 😼 My Computer		🔽 🔁 Go
System Tasks	Files Stored on This Computer	
Wiew system information Add or remove programs	Shared Documents	Administrator's Documents
Other Places 🏾 🏝	system (C:)	backup (D:)
My Network Places		
My Documents		
Control Panel	New Volume (F:)	
5		
Details 🛞	Devices with Removable Storage	
New Volume (F:) Local Disk File System: NTFS	31/2 Floppy (A:)	NA1014008A (E:)
Free Space: 2.72 TB		
Total Size: 2.72 TB		

3.5 INSTALLING ON WINDOWS SERVER 2003 (32/64-BIT)

3.5.1 INSTALLING SATA RAID HOST BUS ADAPTER

Follow the descriptions below, and step by step to complete the setup.

- Insert the Setup and Installation Repository CD in the CD-ROM drive.
- When start the Windows O/S, new hardware will be found; Select No, not this time, than click Next>.

Found New Hardware Wizard	
	Welcome to the Found New Hardware Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Online privacy information
E	Can Windows connect to Windows Update to search for software? C Yes, this time only C Yes, now and every time I connect a device 1 © No, not this time
	Click Next to continue.
	K Back Next > Cancel

Select Install from a list or specific location (Advanced), than click Next>.

Found New Hardware Wizard	
	This wizard helps you install software for: RAID Controller If your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? Install the software automatically (Recommended) Install the software automatically (Recommended) I Install from a list or specific location (Advanced)
	Click Next to continue.
	<back next=""> Cancel</back>

 Select Search for the best driver in there location, Include this location in the search, and click Browse to select the driver path, than click Next>.

Driver Path for Windows 32-bit:



Driver path for Windows 64-bit:

nd New	Hardware Wizard
Please	choose your search and installation options.
1 💽	earch for the best driver in these locations.
	se the check boxes below to limit or expand the default search, which includes local aths and removable media. The best driver found will be installed.
	Search removable media (floppy, CD-ROM)
_	✓ Include this location in the search:
2	E:\Driver\Sil3132R5\Windows\64bits
СĽ	2on't search. I will choose the driver to install.
	hoose this option to select the device driver from a list. Windows does not guarantee t e driver you choose will be the best match for your hardware.
u	e an er yea eneede nin de nie eest indeerner year naternale.
	< Back Next > 3 Cancel

When the installation has completed, click Finish.

Found New Hardware Wizard	
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: Silicon Image Sil 3132 SoftRaid 5 Controller
	Click Finish to close the wizard.
	Kack Finish Cancel

3.5.2 INSTALLING SATARAID5 UTILITY

Follow the descriptions below, and step by step to complete the installation.

- Open the Setup and Installation Repository CD and select the SATARAID5 Array Manager software from the Utility folder.
- Double-click the utility file.



Utility for Windows 64-bit: E:\CFI-B4043ER\Utility\Windows\64bits Eile Edit View Favorites Iools Help Back • O • O O Search Proders Proders Address E:\Utility\SiI3132R5\Windows\64bits I O O S132-W-A64-R.msi Windows Installer Package I6.548 KB Feleasenote.txt Text Document I KB

• Click <u>Next></u> to begin setup.

3132-W-I32-R 5ATARAID5			
Welcome to the 3132-W-I3: Wizard	2-R SATA	RAID5 Setup	R.
The installer will guide you through the steps re computer. To continue, click Next.	equired to install	3132-W-132-R SATARA	ID5 on your
	Cancel	< <u>B</u> ack	Next >

• Select I <u>Agree</u>, than click <u>Next></u>.

🙀 3132-₩-I32-R SATARAI	D5	
License Agreeme	nt	(
Please take a moment to read Agree", then "Next". Otherwis	the license agreement now. If you ac e click "Cancel".	cept the terms below, click ''I
	Silicon Image, Inc.	_
SOFT	WARE LICENSE AGREE	MENT
CAREFULLY BEF USING THE SOFT	IE FOLLOWING TERMS . ORE DOWNLOADING, IN WARE OR ANY ACCOMF DN (COLLECTIVELY, TH)	STALLING OR PANYING
THE TERMS AND	CONDITIONS OF THIS S	OFTWARE
C I Do Not Agree		
	Cancel	< Back Next > 2

• Select **Place shortcut on Desktop**, than click **<u>N</u>ext> to create a shortcut on the desktop.**



Click <u>Next></u> to use the default installation folder.



• Click <u>Next></u> to begin the installation.

		<u>- 🗆 ×</u>
-R SATARAID5	on your computer.	
Cancel	< <u>B</u> ack	Next >
		R SATARAID5 on your computer.

• When SATARAID5 installation has completed, click **<u>C</u>lose** to exit.



Select I <u>accept the terms in the license agreement</u>, than click <u>Next></u> to begin the Java platform installation.



Select <u>Typical</u>, than click <u>Next></u>.

Choose the s	setup type that best suits your needs.
	a setup type. You can change your choice of features after installation by d/Remove Programs utility in the Control Panel.
• Typical	All recommended features will be installed.
C Cu <u>s</u> tom	Specify the installation directory and choose which program features to install. Recommended for advanced users.
tallShield ——	

• When Java platform installation has completed, click **<u>Finish</u>** to exit.

🕞 J25E Runtime Environmen	t 5.0 Update 5 - Complete	×
	Installation Completed	
	The Install Wizard has successfully installed J2SE Runtime Environment 5.0 Update 5. Click Finish to exit the wizard.	
<u>الله المعامة الم</u>		_
	< Back Finish Cancel	

 Select Start > All Programs > Silicon Image > SATARaid5Manager to start the Array Manager software.

3.5.3 DISK DRIVE MODE SETUP

Please refer to the chapter 4.

3.5.4 ALLOCATING PARTITIONS

Before creating any partitions, RAID groups must first be created using the SATARaid5Manager utility. Once the sets have been created, allow the system to load Windows.

• Right-click on **My Computer** icon and select **Manage** from the pop-up menu.



• Select **Disk Management** under **Storage** to view the disk drives.

p				
Volume System (C:) Dackup (D:) NA1014008A (E:)	Layout Partition Partition Partition	Type Basic Basic Basic	File System NTFS NTFS CDFS	Status Healthy (System) Healthy Healthy
Disk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (Syster	n)		
CD-ROM 0 DVD 163 MB Online	NA1014008A 163 MB CDFS Healthy	(E:)		
	Volume System (C:) backup (D:) NA1014008A (E:) System System (C) Volume System (C) System (C:) (C:	Volume Layout System (C:) Partition Dackup (D:) Partition NA1014008A (E:) Partition NA1014008A (E:) Partition Image: System (C:) Pa	Volume Layout Type System (C:) Partition Basic Dackup (D:) Partition Basic NA1014008A (E:) Partition Basic NA1014008A (E:) Partition Basic Volume It.75 GB NTF5 It.75 GB NTF5 Healthy (System) It.33 MB NA1014008A (E:)	Volume Layout Type File System System (C:) Partition Basic NTFS Dackup (D:) Partition Basic NTFS NA1014008A (E:) Partition Basic CDFS Image: CD-ROM 0 DVD System (C:) Haalthy (System) Dackup (System) NA1014008A (E:) NA1014008A (E:) Healthy

When Initialize and Convert Disk Wizard appears, click <u>Next></u>.



Select the new disk to initialize, than click <u>Next></u>.



Do not click any disk to convert, than click Next>.

Select Disks to Conv		\sim
I he disks you selec	t will be converted to dynamic disks.	U
Select one or more d	isks to convert:	
Disks:		

• When the Initialize and Convert Disk Wizard has completed, click Finish.

Initialize and Convert Disk ₩	lizard	×
	Completing the Initialize and Convert Disk Wizard You have successfully completed the Initialize and Convert Disk Wizard. You selected the following settings: Initialize to MBR: Disk 1 Convert: None	
	< Back Finish Cance	

• Windows Server 2003 SP1 or later system supports **GPT disk** which supports disk volume greater than 2TB.

Computer Management Elle Action View Window Help the → 1					_D×
Computer Management (Local) System Tools Generation of the	Volume System (C:) backup (D:) NA1014008A (E	Layout Partition Partition :) Partition	Type Basic Basic Basic	File System NTFS NTFS CDFS	Status Healthy (System) Healthy Healthy
	CDisk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTF5 Healthy (System)	59.	ckup (D:) 77 GB NTFS althy	
	CPDisk 1 Basic 2794.53 GB Online	2048.00 GB Unallocated	-	746.54 GE Unallocate	
	CD-ROM 0 DVD 163 MB Online	NA1014008A (163 MB CDFS Healthy Primary partition		antition 🗖 Logica	a drive
		and particular			

• Right-click on the **Basic disk** and select **Convert to GPT disk** from the pop-up menu.

		1	1	-	1
Computer Management (Local) Computer Management (Local) Define Event Viewer Computer Viewer Computer Viewer Computer Viewer Computer Management (Local) C	Volume system (C:) backup (D:) NA1014008A (E	Layout Partition Partition :) Partition	Type Basic Basic Basic	File System NTFS NTFS CDFS	Status Healthy (System Healthy Healthy
Service Manager Storage Removable Storage Disk Defragmenter Disk Management Services and Applications	CPDisk 0 Basic 74.52 GB Online	system (C:) 14.75 GB NTFS Healthy (System	59.	r kup (D:) 77 GB NTFS althy	
	CPDisk 1 Basic 2794.53 GB Online	2048.00 GB	mic Disk.,,	746.54 Gi Unallocate	
	DVD 163 MB	Convert to GPT I	Disk 📐		

Right-click on the Unallocated partition and select New Partition... from the pop-up menu.

ÿ Eile Action View Window Hel ⊨ → 1 💽 💽 😭 🕼	P				
Computer Management (Local)	Volume	Layout	Туре	File System	Status
System Tools Generation of the system of the syst	System (C:) backup (D:) NA1014008A (E:	Partition Partition) Partition	Basic Basic Basic	NTFS NTFS CDFS	Healthy (System Healthy Healthy
	CDisk 0 Basic 74,52 GB Online	system (C:) 14.75 GB NTFS Healthy (System	59	ckup (D:) .77 GB NTFS althy	
	CPDisk 1 Basic 2794.42 GB Online	2794.42 GB Unallocated		New Par Properti	
	CD-ROM 0 DVD 163 MB Online	NA1014008A 163 MB CDFS Healthy	(E:)		

Click <u>Next></u> to create a partition on a basic disk.

New Partition Wizard		×
	Welcome to the New Partition Wizard	
	This wizard helps you create a partition on a basic disk.	
	A basic disk is a physical disk that contains primary partitions, extended partitions, and logical drives.	
	Partitions created on Master Boot Record (MBR) disks can be accessed from any version of Windows or MS-DOS.	
	Partitions created on GUID Partition Table (GPT) disks can only be accessed from Windows Server 2003 Service Pack 1 or later, or from any 64-bit version of Windows.	
	To continue, click Next.	
	K Back Next > Cance	

• Select the partition to create, than click **Next>**.

elect Partition Type There are three types of partitions: pri	mary, extended, and logical.
Select the partition you want to create	
1 • Primary partition	
C Extended partition	
C Logical drive	
C Description	1
Windows and other operating syste create up to 128 primary partitions	create using free space on a basic disk. ems can start from a primary partition. You can on a GPT basic disk. On a Master Boot create up to four primary partitions or three partition.
-	

• Specify the partition size you want to create, than click **Next>**.

Specify Partition Size Choose a partition size that is between the	e maximum and minimum sizes.
Maxium disk space in megabytes (MB): Minimum disk space in MB: <u>P</u> artition size in MB: <mark>1</mark>	2861487 8 28551487
	< Back Next > Cance

• Assign the drive letter or path you want to create, than click **Next>**.

1[Assign the following drive letter:	F	
	C Mount in the following empty NTFS folder:	Browse	
	© Do not assign a drive letter or drive path		

• Click Format this partition with the following settings and Perform a quick format, setup the File system, Allocation unit size, Volume label, than click Next>.

Cho	ose whether you want to formal	t this partition, and if so	, what settir	ngs you want to
(Do not format this partition			
1 🕻	Format this partition with the	following settings:		
ſ	<u>F</u> ile system:	NTFS	-	
3	Allocation unit size:	Default	•	
	<u>V</u> olume label:	New Volume		
2	Perform a quick format	1		
	Enable file and folder of	compression		

• When the **New Partition Wizard** has completed, click **Finish**.

Completing the New Partition Wizard	
You have successfully completed the New Partition Wizard. You selected the following settings:	
Partition type: Primary partition Disk selected: Disk 1 Partition size: 2861487 MB Drive letter or path. F: File system: NTFS Allocation unit size: Default Volume label: New Volume Duick format: Yes	
To close this wizard, click Finish.	
< Back Finish Cance	əl

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

	🖻 🔍 📓				
🖳 Computer Management (Local)	Volume	Layout	Туре	File System	Status
System Tools Event Viewer Shared Folders Local Users and Groups Performance Logs and Alerts Device Manager	System (C:) backup (D:) New Volume (F: NA1014008A (E		Basic Basic Basic Basic	NTFS NTFS NTFS CDFS	Healthy (System) Healthy Healthy Healthy
Storage Storage	Contraction Contractico Contra	system (C:) 14.75 GB NTFS Healthy (System	59	ckup (D:) .77 GB NTFS althy	
	CDisk 1 Basic 2794.42 GB Online	New Volume (2794.42 GB NTF Healthy			
	CD-ROM 0 DVD 163 MB Online	NA1014008A 163 MB CDFS Healthy	(E:)		

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.

😨 My Computer	
Eile Edit View Favorites Tools Help	27
🕓 Back 👻 🕑 👻 🍠 🔎 Search 🌔 Folders 🛛 🕸 🗙 🌱 🖽 🕇	
Address 😼 My Computer	💌 🔁 Go
Hard Disk Drives	
System (C:) Solution (D:)	
31/2 Floppy (A:) NA1014008A (E:)	

3.6 INSTALLING ON WINDOWS VISTA (32/64-BIT)

3.6.1 INSTALLING SATA RAID HOST BUS ADAPTER

Follow the descriptions below, and step by step to complete the setup.

- Insert the Setup and Installation Repository CD in the CD-ROM drive.
- When start the Windows O/S, new hardware will be found; Select Locat and install driver software (recommended).



Insert the disc that came with your RAID Controller, than click **Next**.



When the installation has completed, click Close.


3.6.2 INSTALLING SATARAID5 UTILITY

Follow the descriptions below, and step by step to complete the installation.

- Open the Setup and Installation Repository CD and select the SATARAID5 Array Manager software from the Utility folder.
- Double-click the utility file.

Utility for Windows 32-bit:





• Click <u>Next></u> to begin setup.

Welcome to the 3132- Wizard	W-132-R SATAR	AID5 Setup
he installer will guide you through th omputer. To continue, click Next.	e steps required to install 31	32-W-132-R SATARAID5 on your

• Select I <u>Agree</u>, than click <u>Next></u>.

늻 3132-W-I32-R SATARAII	D5	
License Agreeme	nt	()
Please take a moment to rea Agree", then "Next". Otherwi	d the license agreement now. If you se click "Cancel".	accept the terms below, click "I
SOF	Silicon Image, Inc. TWARE LICENSE AGRI	EEMENT
CAREFULLY BEI USING THE SOFT	HE FOLLOWING TERM FORE DOWNLOADING WARE OR ANY ACCO ON (COLLECTIVELY, 1	, INSTALLING OR MPANYING
Transferration of the second second	CONDITIONS OF THI	S SOFTWARE -
🔘 I Do Not Agree	1 I Agree	< Back Next > 2

• Select **Place shortcut on Desktop**, than click <u>**Next>**</u> to create a shortcut on the desktop.

3132-W-132-R SATARAID5	borteut to your Doc	ktop?
Do you want to add a s	hortcut to your Des	ktop?
Place shortcut on Desktop		
	Cancel < Ba	ack Next > 🔪

• Click **Next>** to use the default installation folder.



• Click <u>Next></u> to begin the installation.

3132-W-I32-R SATARAID5	
The installer is ready to install 3132-W-I32-R SATARAID5 on your computer.	
Click "Next" to start the installation.	
	10.00
Cancel < Back	Next > 🔪

• When SATARAID5 installation has completed, click **<u>C</u>lose** to exit.



Select I <u>accept the terms in the license agreement</u>, than click <u>Next></u> to begin the Java platform installation.



Select <u>Typical</u>, than click <u>Next></u>.



• When Java platform installation has completed, click **<u>Finish</u>** to exit.



 Select Start > All Programs > Silicon Image > SATARaid5Manager to start the Array Manager software.

3.6.3 DISK DRIVE MODE SETUP

Please refer to the chapter 4.

3.6.4 ALLOCATING PARTITIONS

Before creating any partitions, RAID groups must first be created using the SATARaid5Manager utility. Once the sets have been created, allow the system to load Windows.

- Internet Internet Explorer 3 E-mail Windows Mail View headlines Welcome Center Pictures 🚱 Windows Media Center Music Windows Ultimate Extras 2 Games O Windows Media Player Search Windows Photo Gallery Recent Items 2 Windows Live Messenger Download Computer Open Explore Windows DVD Maker Network Search... Windows Meeting Space Manage Connect To Map Network Drive... Control Panel Disconnect Network Drive... Default Programs Show on Desktop Rename Help and Support All Programs Properties 9 art Search 📑 📑 🕩 11:22 AM
- Right-click on **My Computer** icon and select **Manage** from the pop-up menu.

• Select **Disk Management** under **Storage** to view the disk drives.

掛 Computer Management (Local)	Volume	Layout Type	File System	Status		Actions
 System Tools Task Scheduler Task Scheduler Shared Folders Local Users and Groups Feliability and Performance Device Manager Disk Management Services and Applications 	 system (C:) backup (D:) NA1014008A (E:) 	Simple Basic Simple Basic Simple Basic	NTFS	Healthy (System, Boot, Page File Healthy (Logical Drive) Healthy (Primary Partition)	e, Active, Crash Dump, Primary Partition) Disk Management More Actions
		system (C:) 14.75 GB NTFS Healthy (System,	<mark>Boot</mark> , Page Fi	backup (D:) 59.77 GB NTFS Healthy (Logical Drive)	9 MB Unall	
		NA1014008A (E 95 MB CDFS Healthy (Primary	1 10000380-1-00			

 When Initialize Disk Wizard appears, select Disk 1 and GPT (GUID Partition Table), than click OK.

nitialize Disk	
You must initialize a disk before Log	jical Disk Manager can access it.
Select disks:	
☑ Disk 1	
Use the following partition style for t	he selected disks:
Use the following partition style for t MBR (Master Boot Record)	he selected disks:
	he selected disks:
MBR (Master Boot Record) GPT (GUID Partition Table)	
MBR (Master Boot Record) GPT (GUID Partition Table) Note: The GPT partition style is not	recognized by all previous versions of
MBR (Master Boot Record) GPT (GUID Partition Table) Note: The GPT partition style is not Windows. It is recommended for dis	
MBR (Master Boot Record) GPT (GUID Partition Table) Note: The GPT partition style is not	recognized by all previous versions of

• Windows Vista system supports **GPT disk** which supports disk volume greater than 2TB.

🔠 Computer Management					
File Action View Help					
(~ +) 2 🗊 🛛 🗊 🖸 📽 🖻	1				
Computer Management (Local)	Volume	Layout Type File System Status		Actions	
System Tools Task Scheduler	system (C:) backup (D:)		Healthy (System, Boot, Page File, A Healthy (Logical Drive)	ctive, Crash Dump, Primary Partition)	Disk Management 🔺
Event Viewer	A1014008A (E		Healthy (Primary Partition)		More Actions >
> 👸 Shared Folders	11.11				
 A Local Users and Groups Reliability and Performance 	•			•	
🛃 Device Manager	Disk 0				
Storage Storage	Basic	system (C:)	backup (D:)		
 Disk Management Services and Applications 	74.53 GB Online	14.75 GB NTFS Healthy (System, Boot, Page Fi	59.77 GB NTFS Healthy (Logical Drive)	9 MB Unall	
	Disk 1 Basic 2794.42 GB Online	2794.42 GB Unallocated			
	CD-ROM 0 DVD 95 MB Online	NA1014008A (E:) 95 MB CDFS Healthy (Primary Partition)			
	Unallocated	Primary partition 📕 Extended partition	Free space 📕 Logical drive		

 Right-click on the Unallocated partition and select New Single Volume... from the popup menu.

🗢 🔿 📶 🔲 🖬 📓	3			
Computer Management (Local)	Volume		tatus	Actions
 System Tools Task Scheduler Event Viewer Shared Folders 	system (C:) backup (D:)	Simple Basic NTFS I	lealthy (System, Boot, Page File, Active, Crash Dump, Primary Par lealthy (Logical Drive) lealthy (Primary Partition)	ition) Disk Management · More Actions
 Local Users and Groups Reliability and Performance 	•	ш		•
 Device Manager Storage Disk Management Services and Applications 	Disk 0 Basic 74.53 GB Online	system (C) 14.75 GB NTF5 Healthy (System, Boot, Page Fi Healthy (Logical Drive) 9 MB Unall		
	Disk 1 Basic 2794.42 GB Online	2794.42 GB Unallocated	New Simple Volume New Spanned Volume	
	CD-ROM 0 DVD 95 MB Online	NA1014008A (E:) 95 MB CDFS Healthy (Primary Partition)	New Striped Volume Properties	

• Click <u>Next></u> to create the partition.

New Simple Volume	/izard
	Welcome to the New Simple Volume Wizard This wizard helps you create a simple volume on a disk. A simple volume can only be on a single disk. To continue, click Next.
	< Back Next > Cancel

• Specify the partition size you want to create, than click **Next>**.

lew Simple Volume Wizard Specify Volume Size Choose a volume size that is betwe	een the maximum and minimum sizes	K.
Maximum disk space in MB: Minimum disk space in MB: Simple volume size in MB:	2861486 8 1 2861486 📺	
	< Back Next	> Cancel

• Assign the drive letter or path you want to create, than click **Next>**.



 Click Format this partition with the following settings and Perform a quick format, setup the File system, Allocation unit size, Volume label, than click Next>.



• When the **New Partition Wizard** has completed, click **Finish**.

You have successfully completed the New Simple Vol Wizard. You selected the following settings: Volume type: Simple Volume Disk selected: Disk 1	ume
Volume type: Simple Volume Disk selected: Disk 1	
Disk selected: Disk 1	
Volume size: 2261486 MB Drive letter or path: F: File system: NTFS Allocation unit size: Default Volume label: New Volume Quick format: Yes	E T
To close this wizard, click Finish.	
	Allocation unit size: Default Volume label: New Volume Duick format: Yes

The status of the newly created partition in the Disk Management window should change to Formatting and the percentage complete will be displayed. Depending upon the size of the partition, the format process may take several minutes. When complete, the status will change to "Healthy" and the name and drive letter will be updated. Once the disk reports Healthy, it appears in the listing in System Listing section with all of its pertinent information as well.

⊨ 🔿 😰 🗊 🛛 🖬 🕸	1					
	Volume	Layout Type File System	Status		Actions	_
System Tools	📾 system (C:)	Simple Basic NTFS		le, Active, Crash Dump, Primary Partition)	Disk Management	
Event Viewer	backup (D:) New Volume (F:)	Simple Basic NTFS Simple Basic NTFS	Healthy (Logical Drive) Healthy (Primary Partition)		More Actions	
	ANA1014008A (E:)		Healthy (Primary Partition)			
Kernel Users and Groups						
Reliability and Performance		III		4		
🚔 Device Manager	Disk 0					
▲ Storage ■ Disk Management □ □		system (C:)	backup (D:)			
		14.75 GB NTFS Healthy (System, Boot, Page F	59.77 GB NTFS	9 MB Unall		
	Onnine	Healthy (System, Boot, Page P	i Healthy (Logical Drive)	Onan		
	Disk 1					
	Basic 2794.42 GB	New Volume (F:)				
	Online	2794.42 GB NTFS Healthy (Primary Partition)				
			-			
	CD-ROM 0					
	DVD 95 MB	NA1014008A (E:) 95 MB CDFS				
	Online	Healthy (Primary Partition)				
	I Unalla enteri P. De	imme and time 🔳 Extended and th	on 📕 Free space 📕 Logical drive			

Repeat the above procedure as needed for any other partitions. Close the Data Management window by clicking on the small boxed "X" in the top right corner of the window. Click on the "My Computer" icon on the Desktop. The new drives will be visible and properly named. The new disks are available for use.

🔘 🕘 – 🃭 🕨 Compute	er 🕨	→ ↓ Search	× P
🕒 Organize 👻 🚆 Views	👻 🕞 AutoPlay 😽 Prop	verties 🖉 System properties 👼 Uninstall or change a program ᠉	•
Favorite Links	Name Type	Total Size 🔻 Free Space	
Documents	Hard Disk Drives (3)		^
Pictures	system (C:)	backup (D:)	
Music	4.42 GB free of 14.7	7 GB 30.3 GB free of 59.7 GB	
Recently Changed	New Volume (F:)		
R Searches			
Public	2.72 TB free of 2.72		
	Devices with Removable Sto	DVD RW Drive (E:)	^
Folders ^			_
New Volume	(F:) Space used: Space free: 2.72 TB Total size: 2.72 TB	File system: NTFS	

4 SATA RAID5 ARRAY MANAGER

4.1 OVERVIEW

The SATARAID5 Array Manager is the Graphical User Interfaces (GUI) which allows you to create and manage RAID volumes. The Manager initially shows two windows as seen below.



The RAID Groups window identifies SATA host adapters and configured RAID groups. For systems with more than one Silicon Image Host Bus Adapter installed, you can switch between cards by selecting the desired card in the RAID Groups Window.

When a controller is selected, the RAID Groups currently defined on that controller are also shown in the RAID Groups Window. Selecting a specific RAID Group will highlight the segments associated with that volume in the Device Configuration Window.

The Device Configuration window identifies all physical drives and their partitions.

Throughout the Manager, different colors are used to indicate the status of the components. The meanings of the colors are:

COLOR	STATUS
Green	Good. The component and all subcomponents are okay.
Yellow	Warning. This component or at least one subcomponent has become degraded and requires service.
Red	Failed. This component or at least one subcomponent has failed.
Grey	Unused.

4.2 CREATING RAID GROUPS

To begin creating a new RAID Group, select "Create RAID Group" from the RAID Group menu or right click on a controller in the RAID Groups window and select "Create RAID Group" from the pop-up menu. This will cause the Create RAID Group dialog to appear.

Note: The term "right-click" refers to using the secondary button on your mouse to perform the indicated operation. On a Windows system, use the mouse button that you have defined to be the secondary button (by default, that button is on the right side of the mouse, unless you have reconfigured the primary and secondary mouse buttons using Control Panel > Mouse). On a Macintosh system, press and hold the Command (Apple) key and click the mouse.

4.2.1 CONTIGUOUS RAID GROUPS

Contiguous RAID Groups allow the user to select a segment of disk drive or a disk drive. Select the disk and enter the desired values and press Create to create the RAID Group (Example below).

Paramet	ters		1	⊢Param	eters			
RAID G	roup Label:	Single		RAID	Group Label:	Single	5	
RAID G	AID Group: 0		*	RAID	RAID Group:		•	
Configu	Configuration: Contiguous 💌		ious 💌	Confi	Configuration:		Contiguous	
Capacity: MAX		~	Capa	Capacity:				
Chunk Size: 8 KB		~	Chun	Chunk Size:		8		
Rebuild	l Priority:	10	×	Rebu	ild Priority:	10	8	
Path ID	Target ID	Capacity	Starting LBN	Path ID	Target ID	Capacity	Starting LE	
0	0	76.69 GB	00000000	0	0	76.69 GB	00000000	
1	1	76.69 GB	00000000	0	1	76.69 GB	00000000	
)	2	76.69 GB	00000000	0	2	76.69 GB	00000000	
3	3	76.69 GB	00000000	0	3	76.69 GB	00000000	

4.2.2 CONCATENATED RAID GROUPS

Concatenated RAID Groups allow the user to select different sized segments for each member of the volume. For Concatenated volumes only, a dialog box will appear allowing the user to select the individual segment sizes from each disk. Enter the desired values and press Create to create the RAID Group (Example below).

Create R/	AID Group			×	Create R	AID Group			$\mathbf{\mathbf{x}}$				
Param	eters			t,	Param	ieters			7				
RAID	Group Label:	Combi	ne		RAID	Group Label:	Combi	ne					
RAID	Group:	0	~		RAID	Group:	0	~		Specify RAIL) Group Ca	pacity	X
Config	guration:	Concat	enated 💌		Confi	guration:	Concate	enated 🔽		⊂Segment		house of the	
Сара	city:	1 GB	~		Capa	city:	1 GB	~		Path ID	Target ID	Capacity	
Chun	k Size:	8 KB	×		Chun	k Size:	8 KB	×		0	0	76.69 GB	~
Rebui	ild Priority:	10	~		Rebu	ild Priority:	10	~		0	1	76.69 GB	~
				÷					100	0	2	76.69 GB	~
Path ID 0	Target ID	Capacity 76.69 GB	Starting LBN 00000000		Path ID) Target ID 0	Capacity 76.69 GB	Starting LBN 00000000		0	3	76.69 GB	~
0	1	76.69 GB 76.69 GB	00000000		0		76.69 GB 76.69 GB	00000000		RAID Grou	un -		
0	3	76.69 GB	00000000		0	3	76.69 GB	00000000					
										1	otal Capacit	y: 306.7 GB	
	Next	Close	•	1		Next	Close			15	Create	Cancel	

4.2.3 STRIPED RAID GROUPS

Striped RAID Groups allow the user to select minimum of 2 or more disks for each member of the volume. Enter the desired values and press Create to create the RAID Group (Example below).

Paramet	ers			Parameters		
RAID G	roup Label:	RAID_)	RAID Group Label:	RAID_0)
RAID G	ðroup: 0 💌		~	RAID Group:	0	~
Configu	iration:	Striped	~	Configuration:	Striped	~
Capacit	y:	MAX	~	Capacity:	MAX	~
Chunk	Chunk Size: 32		~	Chunk Size:	32 KB	~
Rebuild	ebuild Priority: 10		~	Rebuild Priority:	10	~
Path ID	Target ID	Capacity	Starting LBN	Path ID Target ID	Capacity	Starting LBN
0	0	76.69 GB	00000000	0 0	76.69 GB	00000000
0	1	76.69 GB	00000000	0 1	76.69 GB	0000000
0	2	76.69 GB	00000000	0 2	76.69 GB	0000000
0	3	76.69 GB	00000000	0 3	76.69 GB	00000000

4.2.4 MIRRORED RAID GROUPS

Mirrored RAID Groups allow the user to select 2 disks for each member of the volume. Enter the desired values and press Create to create the RAID Group (Example below).

Parameters-				-Pa	rameters			
RAID Group	Label:	RAID_1			AID Group Lab	el:	RAID_1	
RAID Group	c.	0	~	R	AID Group:		0	~
Configuratio	on:	Mirrored	~	C	onfiguration:		Mirrored	~
Capacity:		MAX	~	C	apacity:		MAX	~
Chunk Size		8 KB	~	С	hunk Size:		8 KB	~
Rebuild Pric	ority:	10	~	R	ebuild Priority:		10	~
 On (Qui Off (Bes 	ick Restore) st I/O Perf)		urn Dirty Data ine Raid Grp		On (Quick R Off (Best I/O)			rn Dirty Data e Raid Grp
Path ID 🕴 Ta		Capacity	Starting LBN		th ID Target			Starting LBN
		6.69 GB	00000000	0				0000000
0		6.69 GB	00000000	0	2			0000000
) 0) 1		6.69 GB	00000000	0	3			0000000
) 0	dus.							

4.2.5 MIRRORED STRIPED RAID GROUPS

Mirrored Striped RAID Groups allow the user to select minimum of 4 disks for each member of the volume. Enter the desired values and press Create to create the RAID Group (Example below).

				Paramet	ers			
RAID Group Label: RAID Group: Configuration:		10		RAID GI	roup Label:	RAID_10		
		~		RAID Group:		0		
		d Striped 🛛 💌		Configu	ration:	Mirrore	d Striped 🏻	
ý.	MAX	~		Capacit	y:	MAX		
Size:	32 KB	*		Chunk 9	Bize:	32 KB	1	
Priority:	10	~		Rebuild	Priority:	10		
Quick Resto	re) 💿 Re	eturn Dirty Data		💿 On	(Quick Resto		eturn Dirty Da	
	re) 💿 Re	eturn Dirty Data Nine Raid Grp		💿 On		ire) 💿 Re	eturn Dirty Da Mine Raid Gr	
Quick Resto	re) 💿 Re) Off Capacity	Nine Raid Grp		⊙ On ○ Off	(Quick Resto (Best I/O Per Target ID	nre)	fline Raid Gr	
(Quick Resto (Best I/O Perf Target ID	re) Capacity 76.69 GB	fline Raid Grp Starting LBN		On Off	(Quick Resto (Best I/O Per Target ID 0	() () Capacity 76.69 GB	fline Raid Gr	
(Quick Resto (Best I/O Perf Target ID	re) 💿 Re) Off Capacity	Nine Raid Grp		⊙ On ○ Off	(Quick Resto (Best I/O Per Target ID	nre)	fline Raid Gr	
- -	oup: ration: r: lize: Priority:	oup: 0 ration: Mirrore r. MAX lize: 32 KB Priority: 10 Shutdown Policy	oup: 0 ration: Mirrored Striped r. MAX Hize: 32 KB Priority: 10 Shutdown Policy	oup: 0 vation: Mirrored Striped vation: MAX vatication: 32 KB vatication: 10 vatication:	oup: 0 Inproperties and the second se	oup: 0 Improve a striped RAID Group: ration: Mirrored Striped Configuration: r: MAX Improve a striped r: Shutdown Policy Improve a striped	oup: 0 Image: Configuration: 0 ration: Mirrored Striped Configuration: Mirrore r: MAX Image: Configuration: MAX rize: 32 KB Chunk Size: 32 KB Priority: 10 Rebuild Priority: 10 Shutdown Policy Improper Shutdown Policy Improper Shutdown Policy	

4.2.6 PARITY RAID GROUPS

Parity RAID Groups allow the user to select minimum of 3 or more disks for each member of the volume. Enter the desired values and press Create to create the RAID Group (Example below).

*

~

> Starting LBN 00000000

Parame	ters				⊂Paramet	ers		
RAID G	roup Label:	RAID_	5			roup Label:	RAID_	5
RAID G	roup:	0	~		RAID G	oup:	0	
Configu	uration:	Parity R	AID 💌		Configu	ration:	Parity F	
Capaci	ty:	MAX	~		Capacit	y:	MAX	
Chunk	Size:	32 KB	*		Chunk	Size:	32 KB	
Rebuild	d Priority:	10	~		Rebuild	Priority:	10	
€ Off	(Best I/O Perf)	0 Of	fline Raid Grp		Off	(Best I/O Per	001	fline Raid Gr
Path ID	Target ID	Capacity	Starting LBN		Path ID	Target ID	Capacity	Starting LE
	0	76.69 GB	00000000		0	0	76.69 GB	00000000
	1	76.69 GB	00000000	_	0		76.69 GB	00000000
)	2	76.69 GB	00000000	_	0	2	76.69 GB	00000000
0		76.69 GB	00000000	_	0	3	76.69 GB	00000000
)	3	1.0.00.00						

4.2.7 RAID GROUPS OVERVIEW

RAID Groups allow Enter values in all fields and click **Create** to create the RAID Group.

FIELD	DEFINITION
RAID Group	Enter an identifiable name for the RAID group. This value can be any string (up to 8
Label	characters including blank spaces) to help users identify this volume.
	Select a Group ID from the available ID list. The maximum number of RAID Groups
RAID Group	per controller is 8, so Group ID can be any number between 0 and 7, inclusive.
	Select which RAID level is to be used to configure these members:
	Contiguous (for virtual disk).
	 Concatenated (for multiple concatenated segments).
Configuration	• Striped (for RAID 0)
	• Mirrored (for RAID 1)
	Mirrored Striped (for RAID 10)
	Parity RAID (for RAID 5)
	Select a value to define the total usable capacity of the RAID Group or manually
Capacity	enter the volume size in gigabytes (GB). Selecting MAX will create the largest RAID
	set possible with the drive(s) selected.
	Select a value to define the chunk size (stripe size) for performance tuning. In
	general, large stripe sizes are best for large files that are accessed sequentially (for
Chunk Size	example, media streaming files) and smaller sizes are better for randomly accessed
	data like databases. This parameter is not used for Contiguous (JBOD),
	Concatenated, and Mirrored configurations.
	Select a value to identify how quickly the controller should rebuild data on a disk
	after a hardware failure. A value of 1 is the lowest priority and will take the longest
Rebuild	to rebuild. A value of 10 is the highest priority and will rebuild the fastest, but may
Priority	require more CPU resources, which might affect the computer's performance. This
	parameter is not used for Contiguous (JBOD), Concatenated, and Striped
	configurations.

	Click the On or Off button to enable or disable the Check Pointing feature. When
	Check Pointing is enabled, restoring data is very fast after an unexpected power
Check	loss, although normal performance may be slightly reduced. When Check Pointing
	is disabled, normal performance is improved, but restores can take a long time to
Pointing	complete. This selection is only available when the selected RAID configuration is
	Mirrored, Mirrored Striped or Parity RAID, and the "Advanced RAID Features"
	checkbox in the Configuration/Advanced Options dialog is checked.
	Click the On or Off button to enable or disable the ability to return "dirty" data after
	an unexpected power loss and all of the data could not be written to disk, rather
Parity	than taking the volume off-line. This selection is only available when the selected
	RAID configuration is Parity RAID and the "Advanced RAID Features" checkbox in
	the Configuration/Advanced Options dialog is checked.
	Select the RAID member devices from the available device segment grid. Up to five
Devices	members can be selected for Contiguous, Concatenated, Mirrored, Striped or
Devices	Parity RAID modes (although Mirrored RAID Groups will typically contain only two
	members). Exactly four members must be selected for Mirrored Striped mode.

RAID Level	Min # of Disks
0	2
1	2
5	3.
10	4 [*]
Contiguous	1
Concatenated	1

Once all parameters have been selected, select "Create" to create the RAID Group. When finished, press Cancel to exit the Create RAID Group Dialog.

^{*} For 3132, this requires the use of a Port Multiplier device to access more than one disk per SATA channel.

4.3 ADDITIONAL MENU COMMANDS



The Main menu commands are shown below

File	Device	RAID Group	Window	Legacy Support	Help
Configuratio n	Create Spare	Create RAID Group	Task Manager	Create Legacy RAID Group	Help Topics
Exit	Delete Spare	Rebuild RAID Group	Event Log	Rebuild Legacy RAID Group	About
	Delete Member	Delete RAID Group	Resources	Delete Legacy RAID Group	
	Delete Orphan	Bring RAID Group Online		Convert Legacy RAID Group	
	Make Pass- Thru	RAID Group Summary		Bring Legacy RAID Group Online	
	Device Summary			Create Legacy Spare	
				Delete Legacy Spare	
				Convert Legacy Spare	

The commands are documented on the pages that follow.

4.3.1 CONFIGURATION

SATARAID5 configuration options include customization of the settings for **Log File**, **Popup**, and **Advanced Options**. This command displays a dialog box to let user set different configurations for SATARAID5 with the following three tabs:

Log File Tab

The Log File tab allows you to define the location and name of the log file. The log file is used to store event information received from all Silicon Image RAID drivers. The log file is a text file and can be viewed with any text viewer (such as "Notepad" on Windows platforms) or with the Event Log window of the SATARAID5 Manager. Use the Log File tab to set the location and the desired filename for the log file.

Configuration Screen	×
Log File Popup Advanced Options	
Log File Information The log file is used to preserve events received from the RAID driver. Contents of the log file can be viewed via the 'Event Log' option of the 'Window' menu. The log file generation can be controlled via the radio buttons in the 'Log File Generation' section of this screen. The file name and location can be set in the 'Log File Specification' section of this screen. Contents of the log file can be purged into apother file, or permapently deleted via the 'Burga' button is the	
another file or permanently deleted via the 'Purge' button in the 'Log File Specification' section of this screen. Log File Generation O Disabled	
Log File Specification	
Name: eventlog.evi Browse	
Location: Program Files\Silicon Image\SATARAID5 Purge	
<u>O</u> K <u>C</u> ancel	

To specify whether the Log File is generated, click on either the **Disabled** or **Enabled** radio button. If Log File generation is enabled, you can click the **Browse** button to specify the file

name and location of the Log File. You can also use the **Purge** button to delete the contents of the Log File.

Popup Tab

SATARAID5 can be configured to notify the user of events using messages in popup windows. Use the slider control to set the event level for popups to occur:

- Information Level The following events will trigger a popup window:
 - Informational
 - Warnings
 - Errors
- Warning Level The following events will trigger a popup window:
 - Warnings
 - Errors
- Error Level The following events will trigger a popup window:
 - Errors
- Disable All No events will trigger a popup window.

Configuration Screen
Log File Popup Advanced Options
Popup Window Information
Popup window is a visual notification that an event has occurred. The popup window can be disabled or set to pop up for only certain event levels.
Event Level Control
Informational Move the slider to set notification level
- Warning
Error The popup window will be displayed when an ERROR event is generated.
- Disabled
<u>O</u> K <u>C</u> ancel

Advanced Options

The Advanced Options tab is used to control advanced features of the RAID driver. By default, all these advanced options are disabled.

Configuration Screen
Log File Popup Advanced Options Advanced Options Information This configuration panel allows users to control advanced features of the RAID driver. Please consult manual for information about each option. WARNING: Incorrect usage of some options could result in data loss.
Advanced Options Specification Legacy (Bootable) Support Delete Member Support Advanced RAID Features Resources Info Support
<u>O</u> K <u>C</u> ancel

The Advanced Options tab allows you to enable the following advanced features.

FEATURE	EXPLANATION
Legacy (Bootable) Support	When this feature is selected, Legacy Support menu will be available in the menu bar. Enables the Legacy Support menu to support RAID functions for legacy RAID groups (available on Windows platforms only). See Legacy Support menu options.
Delete Member Support	When this feature is selected, Delete Member menu item will be available under the Device menu. Enables the Delete Member option on the Device menu to delete a member from RAID 1 (Mirrored), RAID 5 (Parity RAID), and RAID 10 (Striped and Mirrored) groups. See Delete Member menu option.

	When this feature is selected and user selects to create RAID group, if
	the RAID group to be created is fault tolerance group (RAID 1, RAID 5,
	or RAID 10), user will be able to select Improper Shutdown Policy in
	the Create RAID Group dialog box. Enables the selection of an
Advanced RAID	Improper Shutdown Policy (including Check-Pointing and Dirty Parity
Features	handling) in the Create RAID Group dialog box when the selected RAID
	Group type is a fault-tolerant configuration (Mirrored, Mirrored/Striped
	and Parity RAID). This feature is not supported for Legacy RAID
	groups.
	When this feature is selected, Resources menu item will be available
Resources Info	under the Window menu. Enables the Resources option on the
Support	Window menu for debugging purposes. See Resources menu option.

4.3.2 EXIT

This command terminates the SATARAID5 program.

4.3.3 CREATE SPARE

This command displays a dialog box to let user create spare drive, user needs to select the following parameters:

PARAMETER	DESCRIPTION
Spare Type	 Choose one of: Global - If the spare drive is for all RAID groups in the system. Dedicated - If the spare drive is dedicated to the specified RAID group.
Capacity	If you select Global for the Spare Type, current options from a list of capacity are from 128 MB to 100 GB, HALF and MAX.
RAID Group	If you select Dedicated for the Spare Type, please selected RAID group to which this spare drive is dedicated.
Device Segment	Select one device segment from the available spare type only.

: Globa	al.	*
MAX		~
arget ID	Capacity	Starting LBN
	76.69 GB	00000000
	76.69 GB	00000000
	MAX arget ID	arget ID Capacity 76.69 GB

Spare Type:		Dedi	cated	~
RAID	oroup:	0		~
Path ID	Targ	et ID	Capacity	Starting LBN
0	2		76.69 GB	00000000
0	3		76.69 GB	00000000

4.3.4 DELETE SPARE

This menu option displays a dialog box to select (highlight) one or more spare drives to delete.

8	Gelect Spare(s):			
Device	Туре	RAID Group	Starting LBN	Capacity
2	Dedicated Spare	0	00000000	76.69 GB

4.3.5 DELETE MEMBER

This menu option displays a dialog box to select (highlight) RAID group members to delete. Because RAID 0 is not fault tolerant, RAID 0 members are not shown in the list.

Note: Deleting members will demote the RAID group to a non-fault-tolerant RAID group.

elete RAID	Group Member			
Select	Member(s) to Del	lete:		
Device	RAID Group	Member	Capacity	Starting LBN
0	0	0	76.69 GB	00000000
1	0	1	76.69 GB	00000000

4.3.6 DELETE ORPHAN

This menu option displays a dialog box to select (highlight) orphan segments to delete. An orphan segment is part of a RAID group that cannot access other segments within the same

RAID group. When a member of a RAID group fails in a severe manner (such as a loss of power or a complete hard disk failure), it becomes an orphan.

This command displays the Delete Orphan Segment window to show all orphan segments and allow user to delete selected orphan segments.

Path ID Ta	rget ID	Capacity	Starting LBN
		6.69 GB	00000000

4.3.7 MAKE PASS-THRU

This menu option is not available in this product.

4.3.8 DEVICE SUMMARY

This command displays the Segment Summary window to show all physical devices' segments.

File Options						
Path ID	Target ID	Status	Capacity	Model	Version	
0	0	Healthy	160834432	HDS728080PLA380	PF2OA60A	
0	1	Healthy	160834432	HDS728080PLA380	PF2OA60A	
0	2	Healthy	160834432	HDS728080PLA380	PF2OA60A	
0	3	Healthy	160834432	HDS728080PLA380	PF2OA60A	
0	4	Empty	Unknown	Unknown	Unknown	
1	0	Empty	Unknown	Unknown	Unknown	
1	1	Empty	Unknown	Unknown	Unknown	
1	2	Empty	Unknown	Unknown	Unknown	
1	3	Empty	Unknown	Unknown	Unknown	
1	4	Empty	Unknown	Unknown	Unknown	

The Segment Summary window has its own menu bar. All options available via the menu bar are shown below

File	Options
Exit	Sorting
	Fields

Exit

This command closes the Task Summary window.

Sorting

This command sorts the rows based on the selected field.

So	ort	
ſ	Sort items by	
	Device	Ascending O Descending
L		<u>O</u> K <u>C</u> ancel

Fields

This command displays a dialog box to let user choose which fields will be shown in the Segment Summary window.

Fields		X
Available Fields: Device Serial Number	Add Remove	Displayed Fields: Path ID Target ID Status Capacity Model Version
Ōĸ	Apply	<u>C</u> ancel

4.3.9 CREATE RAID GROUP

This command displays a dialog box to let user verify a raid type than display Create RAID Group dialog box.

RAID G	oup Creation Verification 🛛 🔀
?	Creation of RAID Group(s) now may prevent you from creating Bootable RAID Group(s) at a later time. Operating System can only be stored on and started from a Bootable RAID Group. To create Bootable RAID Group(s), use the Create Legacy RAID Group option under the Legacy Support. Are you sure you want to continue?
	Yes No

eate RAI	D Group			
Paramet	ters			
RAID G	roup Label:	Volum	e Al	
RAID G	roup:	0	~	
Configu	iration:	Contiguous 💽		
Capacit	ty:	1 GB	~	
Chunk	Size:	8 KB		
Rebuild Priority:		10		
Path ID	Path ID Target ID		Starting LBN	
0	0	Capacity 76.69 GB	00000000	
0	1	76.69 GB	00000000	
0	2	76.69 GB	00000000	
0	3	76.69 GB	00000000	

4.3.10 REBUILD RAID GROUP

This command displays a dialog box to let user choose a replacement segment to rebuild a non-fault tolerant RAID group.

Delect a Me	mber to Re	pulla:		Select	a Replacem	ent Segment:		
RAID Group	Member	Status	Capacity	Path ID	Target ID	Status	Capacity	Starting LBN
)	0	Failed	76.69 GB	0	0	Available	76.69 GB	00000000
	100 C			0	2	Available	76.69 GB	00000000
				0	3	Available	76.69 GB	00000000
				(-			

4.3.11 DELETE RAID GROUP

This command displays a dialog box to let user choose RAID groups to delete.

RAID Group	Configuration	Status
)	Mirrored	Online
1	Mirrored Striped	Online
2	Parity RAID	Online
2	Parity RAID	Online

4.3.12 BRING RAID GROUP ONLINE

This menu option is not available in this product.

4.3.13 RAID GROUP SUMMARY

This command displays a dialog box to show all RAID groups' group ID, configuration, and status.

File Options				
RAID Group	Label	Configuration	Status	Сара
0	RAID_1	Mirrored	Online	20.0 GE
1	RAID_10	Mirrored Striped	Online	40.0 GE
2	RAID_5	Parity RAID	Online	40.0 GE

The RAID Group Summary window has its own menu bar. All options available via the menu bar are shown below.

File Options Exit Sorting ... Fields...

Exit

This command closes the RAID Group Summary window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort RAID group items in the RAID Group list.

So	ort	
	Sort items by	
	RAID Group	O Ascending O Descending
		<u>O</u> K <u>C</u> ancel

Fields

This command displays a dialog box to let user choose which fields will be shown in the RAID Group Summary window.

Fields Available Fields: ChunkSize Member Count Metadata Format Rebuild Priority	Add Remove	Displayed Fields: RAID Group Label Configuration Status Capacity
<u>ο</u> κ	Apply	<u>C</u> ancel

4.3.14 TASK MANAGER

This command displays the Task Manager window. The Task Manager window lists all RAID and disk management tasks that have been started and/or done. This window provides user the ability to schedule any RAID and disk management operations including RAID group creation, rebuild, and test.

File Op	otions Task							
Task	Operation	Parameters	Status	Priority	Progress	Start Time	End Time	Remaining
6	Rebuild RAID Group	Raid Group 0	Active	10	1 %	12/21/05 10:16:43 AM		02:01:54
7	Rebuild RAID Group	Raid Group 1	Active	10	2 %	12/21/05 10:16:46 AM		01:34:46
3	Rebuild RAID Group	Raid Group 2	Active	10	1 %	12/21/05 10:16:48 AM		02:09:20
1	Create RAID Group	Raid Group 2	Canceled	10	1	12/21/05 9:18:50 AM	12/21/05 9:19:41 AM	
3	Create RAID Group	Raid Group 1	Completed	10		12/21/05 9:17:56 AM	12/21/05 9:17:56 AM	
2	Create RAID Group	Raid Group 0	Completed	10		12/21/05 9:17:33 AM	12/21/05 9:17:34 AM	
1	Delete RAID Group	Raid Group 0	Completed	0	1	12/21/05 9:16:26 AM	12/21/05 9:16:26 AM	
)	Create RAID Group	Raid Group 0	Completed	10	1	12/21/05 9:10:21 AM	12/21/05 9:10:21 AM	
5	Create RAID Group	Raid Group 2	Completed	10		12/21/05 9:20:07 AM	12/21/05 10:02:59 AM	

The Task Manager window has it's own menu bar. All options available via the menu bar are shown below

File	Options	Task	
Open	Sorting	Modify	
Save	Fields	Suspend	

Print	Resume
Exit	Cancel
	Delete

Open

This option will be available in future revisions.

Save

This option will be available in future revisions.

Print

This option will be available in future revisions.

Exit

This command closes the Task Summary window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort task items in the task list.

Sort	
Sort items by	
End Time	 Ascending Descending
	<u>O</u> K <u>C</u> ancel

Fields

This command displays a dialog box to let user choose which fields will be shown in the task list.

Fields			×
Available Fields: Priority Remaining Status Task	Add Remove	Displayed Fields: Operation Progress Parameters Start Time End Time	
<u>o</u> k	Apply	<u>C</u> ancel	

Modify

This command allows user to modify parameters of the selected task items. The following is an example of changing rebuild priority for a rebuild task.

M	Modify Task Parameters 🛛 🛛 🗙				
	_Task Parameters—				
	Dynamic Priority:	10	~		
			Cancel		

Suspend

This command allows user to suspend the selected task items.

Resume

This command allows user to resume the suspended task items.

Cancel

This command allows user to cancel the selected task items.

Cancel Task Verification 🛛 🛛 🔀					
?	Are you sure you want to cancel this task?				
	Yes No				

Delete

This command displays a dialog box to let user delete the selected task items from the task list in Task Summary window. The following dialog box will pop up to get confirmation from the user.

Delete 1	ask Verification
?	Are you sure you want to delete specified task(s)?
	Ves No

4.3.15 EVENT LOG

This command displays the Event Log window. The Event Log window displays SATA device-related events that occur while SATARAID5 is running.

File Options	;				
EventDate	EventTime	EventSource	EventType	EventLevel	EventMessage
12/21/05	08:53.22 AM	Controller 0 - Sil3132r5	Controller	Informational	Begin group discovery
12/21/05	08:53.22 AM	Controller 0 - Sil3132r5	Controller	Informational	Initialization Complete
12/21/05	08:53.53 AM	Controller 0 - Sil3132r5	Application	Informational	Database initialized
12/21/05	09:10.21 AM	Controller 0 - Sil3132r5	Device	Informational	Segment created, Pathld 0, TargetId 0, PBN 00000000, Capacity 09962380, Segment Count 1
12/21/05	09:10.21 AM	Controller 0 - Sil3132r5	Device	Informational	Segment created, Pathld 0, TargetId 1, PBN 00000000, Capacity 09962380, Segment Count 1
12/21/05	09:10.21 AM	Controller 0 - Sil3132r5	RAID	Informational	Start Create, Group 0
12/21/05	09:10.21 AM	Controller 0 - Sil3132r5	RAID	Informational	Configure RAID Group task
12/21/05	09:14.04 AM	Controller 0 - Sil3132r5	Device	Error	Device Removed at Pathld 0, TargetId 0
12/21/05	09:20.07 AM	Controller 0 - Sil3132r5	Device	Informational	Segment created, Pathld 0, TargetId 1, PBN 05000000, Capacity 02800000, Segment Count 3
12/21/05	09:20.07 AM	Controller 0 - Sil3132r5	Device	Informational	Segment created, Pathld 0, TargetId 2, PBN 02800000, Capacity 02800000, Segment Count 2

Event Count:11

The Event Log window has it's own menu bar. All options available via the menu bar are shown below

File	Options	
Exit	Sorting	

Fields...

Exit

This command closes the Event Log window.

Sorting

This command displays a dialog box to let user choose up to 3 items to sort event items in the event log.



Fields

This command displays a dialog box to let user choose which fields will be shown in the event log.

ields	
Available Fields:	Add EventDate Remove EventSource EventType EventLevel EventMessage
	Cancel

4.3.16 RESOURCES

This command displays the Resource Information window. This feature is for debugging purpose only.

🙀 Resourc	e Informati	on 💶 🗖 🔀			
File Display					
Resource	Current	Maximum			
DSRB	2	32			
QSRB	12	42			
TDB	0	64			
DSD	13	50			
DBD	1	17			
		Active			

The Event Log window has it's own menu bar. All options available via the menu bar are shown below

Exit Suspend

Alt+S

Resume Alt+R

Exit

This command closes the Resources window.

Suspend

This command is to suspend the resources informantion.

Fields

This command is to resume the resources informantion.

4.3.17 CREATE LEGACY RAID GROUP

This menu option is not available in this product.

4.3.18 HELP TOPICS

This command opens an interactive help dialog using the standard Windows help interface.

This option will be available in future revisions.

4.3.19 ABOUT

This command displays a dialog box with more information about the SATARAID5 program, including the revision level.



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