# AMD SP5100 + Promise SATA RAID Guide

**Tyan Computer Corporation** 

v1.00

#### Index:

#### Section 1: Promise Firmware

- Overview (Page 2) ٠
- Option ROM version Location (Page 3) •
- Firmware menus •
  - Main Menu (Page 4) 0
  - Drive Assignments (Page 5) 0
  - Logical Drive (Page 6) Delete Logical Disk (Page 8) 0
  - 0 Adapter Configuration (Page 9) 0

#### Section 2: Promise RAID Creation

- Using the Option ROM (Page 10) •
- Using the WebPAM interface (Page 12) •
- Supported RAID Levels (Page 15) •
- RAID Settings (Page 16) ٠
- ٠ Hot Spare Assignment (Page 17)

#### Section 3: Promise WebPAM Software

- Login (Page 18)
- User Management (Page 19) •
- Logical Disk Management (Page 22) •
- Host Management (Page 23) ٠
- Email setup (Pages 18 and 20) ٠

Section 4: Promise RAID Rebuild Process (Page 24)

# **Section 1: Promise Firmware Overview**

The RAID controller must be enabled in the BIOS before it can be used. The RAID controller setting is located in the BIOS under the Chipset tab > Southbridge Chipset Configuration. The following options must be set:

OnChip SATA Channel: Enabled OnChip SATA Type: RAID

	BIOS SETUP UTILITY	Chipset
SouthBridge Chipset Configurat	tion	Native IDE: Use IO address asigned by PCI base
OHCI HC (Bus 0 Dev 18 Fn 0) OHCI HC (Bus0 Dev 18 Fn 1) EHCI HC (Bus0 Dev 18 Fn 2) OHCI HC (Bus0 Dev 18 Fn 2) OHCI HC (Bus0 Dev 19 Func 0) OHCI HC (Bus 0 Dev 19 Fn 2) OHCI HC (Bus 0 Dev 19 Fn 2) OHCI HC (Bus 0 Dev 20 Fn 5)	[Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	- register as IDE port RAID: AHCI: Legacy IDE: Use legacy IDE control port
OnChip SATA Channel OnChip SATA Type SATA IDE Combined Mode PATA Channel Config Power Saving Features	[Enabled] [RAID] [Enabled] [SATA as primary] [Disabled]	<ul> <li>← Select Screen</li> <li>↑↓ Select Item</li> <li>+- Change Option</li> <li>F1 General Help</li> <li>F10 Save and Exit</li> <li>ESC Exit</li> </ul>

The RAID firmware will load during post once these settings have been changed.

### Firmware and Option ROM Information

The Firmware will eventually require an update as Promise makes improvements to the solution. This update process is done by TYAN directly and would not require any interaction on your part. However, there will be times that a support agent will ask you what specific firmware version is present on your motherboard. It is not a given that every motherboard released will all have the same exact version over its life cycle. You can find the particular version of the Promise firmware, called the Option ROM, during the POST process.

Mode	LD Name	LD Size	Status
L RAID 1	RAID	62.99G	Functional
ess (tri-r)	to enter RAID Option ROM Utility	· _	

# **Firmware Menus**

The main screen of the firmware is entered by pressing Ctrl + F as firmware is loaded and displayed during POST. The main screen allows you to:

- View drive assignments
- View and create Logical Disks
- Delete Logical Disks
- Configure the RAID controller

Press the number on your keyboard that corresponds to the menu item that you wish to select.

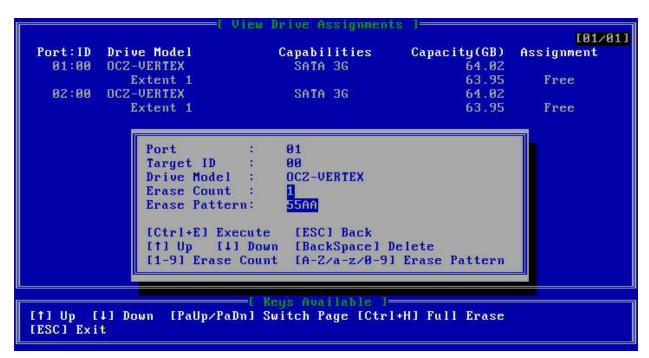
- [ Hain Menu ]	
View Drive Assignments[ 1 ] LD View / LD Define Menu[ 2 ] Delete LD Menu[ 3 ] Controller Configuration[ 4 ]	
E Keys Available 1	
Press 14 to Select Option	[ESC]Exit

### **Drive Assignments Menu**

		View Drive Assignments		[01/01]
Port:ID	Drive Model	Capabilities	Capacity(GB)	Assignment
01:00	OCZ-VERTEX	SATA 3G	64.02	
02:00	Extent 1 OCZ-VERTEX	SATA 3G	63.95 64.02	Free
	Extent 1		63.95	Free
12				
[†]Up [ [ESC]Exi		aDn] Switch Page [Ctrl+	H] Full Erase	

Pressing 1 on the main menu opens the Drive Assignments page.

Pressing Ctrl + H on the Drive Assignments page allows you to erase selected hard drives. Both the amount of times to erase and the pattern that the controller erases the drives with can be modified.



## Logical Drive Menu

Pressing 2 on the main menu opens the Logical Drive Menu. This screen lists all of the RAID arrays that are currently defined and present on the controller. JBOD disks are viewed by pressing Ctrl + V. RAID Arrays are created from this menu by pressing Ctrl + C.

	101	D View Men	a) J	
LD No	RAID Mode	Drv	Capacity(GB)	Status
LD 1	RAID 1	2	62.99	Functional
[1] In [1] Dow		iys Availab Litch Page	le ] [Ctrl+C] Define	LD
[Enter] View LD	[Ctrl+V] View J	BOD Disk	[ESC] Exit	

Selecting an existing array by pressing the Enter key allows you to view details about the selected array.

	LD Name Logical Drive 1		mu J D Mode Drv AID 1 Z	Capacity(GB) 62.99
Stripe Read Po		Wri	te Policy I	<b>l</b> riteThru
		Drives Assignments	]	
Port:ID	Drive Model OCZ-VERTEX	Capabilities SATA 3G	Capacity(GB) 64.02	
	OCZ-VERTEX	SATA 3G	64.02	
	Αı	ny Key To Continue		

Pressing Ctrl + C in the Logical Drive menu allows you to create a RAID array.

Stripe Gigabyt Read Po	e Boundary	128 KB On Na		nitialization Fa vite Policy Wr	st iteThru
Port:ID 01:00 02:00	Drive Model OCZ-VERTEX OCZ-VERTEX		ives Assignments Capabilities SATA 3G SATA 3G	Capacity(GB) 64.02 64.02	Assignment N N

## Delete Logical Disk Menu

Pressing 3 on the main menu opens the Logical Disk deletion menu. JBOD disks can be viewed by pressing Ctrl + V. Press Ctrl + Alt + D to delete any Logical Disk listed.

	t De	elete LD Me	nu ()	
LD No	RAID Mode	Drv	Capacity(GB)	Status
LD 1	RAID 1	2	62.99	Functional
		us Availab	16.1	
[†] Up [4] Do [Ctrl+V] View	wn [PgUp∕PgDn] Su JBOD Disk [ESC] F	uitch Page		ete LD

Pressing Ctrl + Alt + D will bring up the drive deletion menu. It will give you a warning instructing you that you are about to delete all of the data on the selected array.

LD No LD Name LD 1 Logical	Drive 1		Mode Drv ID 1 2	Capacity(GB) 62.99
Stripe Block Read Policy	NA NA	Writ	e Policy	WriteThru
		ives Assignments 1		
Port:ID Drive M 01:00 OCZ-VE		Capabilities SATA 3G	Capacity(GB 64.0	
02:00 OCZ-VE		SATA 3G	64.0	
	Press Ctrl-Y	to delete the data	in the disk	+ 1

## Adapter Configuration

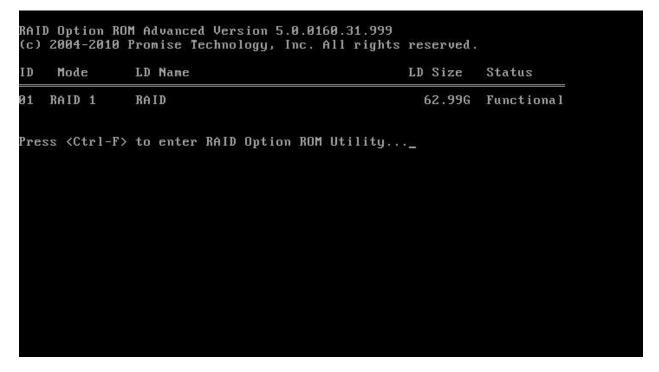
Pressing 4 on the main menu opens the Adapter Configuration menu. This menu lists the IRQ currently assigned to the controller as well as the ACHI Base Address.

I Adapter Configuration - Options J
System Resources Configuration 1
Controller IRQ: 11 AHCI HBA MMIO Base Address: FDEFE400
C Keys Available 1
[ESC] Exit

# Section 2: Promise RAID Creation

### Creating an array using the Promise Option ROM during POST:

The RAID firmware can be used to create a RAID array. During POST the firmware displays this screen. Press Ctrl + F to enter the firmware.



Once you are in the firmware, press the 2 key to enter the LD View / Define menu.



Press Ctrl + C at the LD View menu to create a RAID array.

h	for MDe U fear a fearmant
	< There is no any LD >
	[ Keys Available ] [†] Up [4] Down [PaUp/PaDn] Switch Page [Ctrl+C] Define LD [Enter] View LD [Ctrl+V] View JBOD Disk [ESC] Exit

Create the RAID array by selecting the RAID mode and drives to use. Press Ctrl + Y to finalize the array.

Stripe Gigaby Read Po	te Boundary	NA ON NA		itialization Fa ite Policy Wr	st iteThru
	Drive Model 6V080E0 OC2-VERTEX ST380817AS		Drives Assignments Capabilities SATA 3G SATA 3G SATA 1.5G	Capacity(GB) 80.00 64.02 80.02	Assignment N N N

### Creating an array using the Promise WebPAM interface:

Log into the WebPAM interface using a web browser. After you have logged in, expand the IP address of the Promise RAID controller. Expand the controller in the navigation bar on the left side of the screen and select the Logical Drive View. This will list all of the logical drives on the controller. Click the button in the right half of the screen labeled 'Create'.

PROMISE* TECHNOLOGY, INC.	Language <mark>English ▼</mark>	Show Event   Contac	ct Us   Logout	Help	
Promise WebPAM Advanced Version	Logical Drive View Information Create Create Logical Drive Overview	Delete			Help
SP5100 Controller	Assigned Name	RAID Level	Status	Background Activity	Capacity
Controller 1      M Physical Drive View	Logical Drive 1	RAID 1	Functional	Idle	62.99 GB
Logical Drive View					

Once you have clicked the Create button you will be asked which RAID level you wish to select:

PROMISE* TECHNOLOGY, INC.	Language English 👻   Show Event	t   Contact Us   Logout   Help
Promise WebPAM Advanced Version Administrative Tools 0:0:0:0:0:0:0:1 SP5100 Controller Controller 1 Ontroller 1 Digical Drive View Logical Drive 1 Spare Drive View	Logical Drive View           Information         Create         Delete           >> Step 1. Select RAID Level         Step 2. Select Drives         Step 3. Select Drives           Step 3. Select Drives         Step 4. Assign a Name         Step 5. Final Settings	Belect RAID Level         Redundant Array of Independent Disks (RAID) combines multiple physical drives to form one logical drive.         RAID 0 - Data striped across one or more drives for increased performance but no data protection         RAID 1 - Mirrored pairs of drives for data protection with increased read performance         BADD - Just a Bunch Of Drives: independent connected drives with no RAID interconnection         SPAN - SPAN-Combines disk capacities into one large volume         ex Prev

After selecting the RAID level you will be asked to choose the drive group that you wish to use:

PROMISE* TECHNOLOGY, INC.	Language English 👻   Show Event   Contact Us   Logout   Help	
Promise WebPAM Advanced Version Administrative Tools 0:0:0:0:0:0:0:1 SP5100 Controller Controller 1 Controller 1 Controller 1 Conjcal Drive View Logical Drive 1 Spare Drive View	Step 1. Select RAD Level         >> Step 2. Select Drive Group         Step 3. Select Drives         Step 4. Assign a Name         Step 5. Final Settings    Please select a free drive(s) or one logical drive that has free Select one of the following groups:	Help

After you have selected the drive group you will be asked to select which drives you wish to use. The border around the drive indicates the drive's status:

- A black border around a drive indicates that the drive is available
- A red border around a drive indicates that the drive has been selected for use in the array

- A blue border around a drive indicates that the drive has already been assigned to an array and cannot be used in a new array

- A yellow border around a drive indicates that the drive has been designated as a hot spare
- A grey border around a drive indicates that the drive is invalid

After selecting the drives that you wish to use, press the Next button to continue.

PROMISE° TECHINOLOGY, INC.	Language <mark>English 👻</mark>   Show Event   Contact Us   Logout   Help
Promise WebPAM Advanced Version     Administrative Tools     Goto:0:0:0:0:0     SP5100 Controller     Controller 1     One Physical Drive View     Logical Drive View     Spare Drive View	Logical Drive View       Help         Information       Create       Delete         Step 1. Select RAD Level       Step 2. Select Drive Group         >> Step 3. Select Drives       Step 4. Assign a Name         Step 5. Final Settings       RAD 1 Mirror: Data is mirrored over a pair of drives for redundancy and increased read performance.         Logical Drive Size       0.0       GB         Logical Drive Size       0.0       GB         Logical Drive Size       0.0       GB         D Use Maximum Capacity       Please select 2 drives for RAD 1.       Select All Physical Drives         © Drive on Port 1 - 80.0 GB       Free       T395 GB       Drive on Port 2 - 80 GB         Free       7393 GB       Selected       Available       Assigned       Spare       Invalid         Selected       Available       Assigned       Spare       Invalid

After selecting the drives to use you will be asked to provide a name for the array:

PROMISE <sup>®</sup> TECHNOLOGY, INC.	Language English 👻   Show Event	t   Contact Us   Logout	Help
Promise WebPAM Advanced Version	Logical Drive View           Information         Create         Delete           Step 1. Select RAD Level         Step 2. Select Drive Group         Step 3. Select Drives           >> Step 4. Assign a Name         Step 5. Final Settings	Assign a Name Assign a name to the logical of Assigned Name	trive. Logical Drive 2 (1-32 character(s)) << Prev Next >>

After naming the array you will then be asked to select some final settings, including:

- Stripe block size
- Read policy
- Write policy
- Gigabyte boundary
- Initialization speed

PROMISE* TECHNOLOGY, INC.	Language English 👻   Show Even	t   Contact Us   Logout	Help	
<ul> <li>Promise WebPAM Advanced Version</li> <li>Administrative Tools</li> <li>SP5100 Controller</li> <li>SP5100 Controller</li> <li>Controller 1</li> <li>Physical Drive View</li> <li>Logical Drive View</li> <li>Spare Drive View</li> </ul>	Logical Drive View           Information         Create         Delete           Step 1. Select RAID Level         Step 2. Select Drive Group         Step 3. Select Drives           Step 4. Assign a Name         >> Step 5. Final Settings	Final Settings Confirm your choices. Make any Name RAID Level Logical Drive Size Stripe Block Size Read Policy Write Policy Gigabyte Boundary Initialization	y changes here. Logical Drive 2 RAD 1 Maximum Capacity 128 KB • No Cache • Write Through • Gigabyte Boundary • Fast Initialization •	

After you have chosen your final settings, press the Finish button. Your RAID array has been created and is now online.

**Note:** RAID Arrays are not a substitution for proper data backup. Certain RAID arrays are designed to add redundancy but no RAID controller or array can eliminate the possibility of failure. RAID arrays work best when complimenting a well implemented backup routine. TYAN Computer Corporation is not responsible for any data loss.

#### Supported RAID Levels:

**Raid 0** – Raid 0 is a striped array with no data redundancy. This type of Raid array can increase read and write speeds as data is split evenly across the total amount of drives present. Raid 0 arrays are not fault tolerant and can not be rebuilt in the case of a drive failure.

The maximum size of a Raid 0 array = N \*  $S_{min}$ , where N is the total number of drives and  $S_{min}$  is the capacity of the smallest drive in the array.

Minimum amount of drives for a Raid 0: 2 drives

**Raid 1** – Raid 1 is a mirrored array set. Data on each drive is identical. Raid 1 arrays lack the performance advantage of Raid 0 but since it is a mirrored array it is redundant. A Raid 1 array is rebuildable as long as at least a single drive in the array remains.

The maximum size of a Raid 1 array =  $S_{min}$ , where  $S_{min}$  is the capacity of the smallest drive in the array.

Minimum amount of drives for a Raid 1: 2 drives

**Raid 5** – Raid 5 combines both data striping and parity information. Parity information is distributed across all member drives and is fault tolerant. Parity information is only calculated on write operations. Due to this write performance can be poor; however since parity information is not read during read operations, read performance on a Raid 5 can be close to the speed of Raid 0. A Raid 5 array can survive a single disk failure.

The maximum size of a Raid 5 array is equal to  $(N-1) * S_{min}$ , where N is the total number of drives and  $S_{min}$  is the capacity of the smallest drive in the array.

Minimum amount of drives for a Raid 5: 3 drives

**Raid 10** – Raid 10 is also known as Raid 1+0. It is a stripe of mirror arrays. In some cases it can yield disk performance close to Raid 0. It is fault tolerant, up to one driver per mirror set. In an array of 4 drives it can be fault tolerant up to 2 drive failures, depending on which drives fail. If both drives in the same mirror set within the Raid 10 fail the array itself will be failed and not recoverable.

The maximum size of a Raid 5 array is equal to  $(N/2) * S_{min}$ , where N is the total number of drives and  $S_{min}$  is the capacity of the smallest drive in the array.

Minimum amount of drives for a Raid 10: 4 drives

**SPAN** – A Span array offers no performance or redundancy benefits. It does not include any striping or mirroring. The only benefit to a Span array is that it increases the total capacity beyond that of any single drive.

The maximum size of a Span array is equal to the combined capacity of all the included drives in the array.

Minimum amount of drives for a Span array: 2 drives

**JBOD** – JBOD drives are single connected disks that are not part of any array.

#### **RAID Settings:**

**Stripe Block Size** – The stripe block setting changes the amount of data to stripe across each drive. Depending on the size and types of data being stored on the hard drive, smaller or larger stripe sizes may yield higher performance. The default stripe size generally yields the best performance however. This setting can not be changed after an array has been created.

**Read Policy** – Available settings are N/A, Read Cache, and Read Ahead.

**Read Cache** caches the most recently used data read from the hard drives. If the data access repeats, it will read from the cache in memory rather than repeating the read operation from the hard disk. Since cache memory is faster than a read operation from the hard drives, this will increase performance if data reads are frequently repeated.

**Read Ahead** – This read policy is best used for sequential disk access. If sequential read commands are detected, the cache manager will do an additional read and put data in the cache without waiting for host issue the next read command. This overlaps the disk access and host read access, therefore access latency is reduced. Enabling read ahead will boost sequential access, but incorrect read predictions would cause unnecessary disk activity. Therefore, using Read Ahead on an array expected to have mainly random read commands will result in poor performance.

Write policy – There are two write policies, WriteThru and Writeback.

**WriteThru** – This write policy skips the write cache and immediately writes data to the hard drives. The write command is not flagged complete until the data has been completely transferred to the drives. This does not give any performance advantage. However, since the write operation stays open until the data has completely been transferred, there is less risk of data loss.

**WriteBack** – Data is transferred directly to the write cache and the write operation is marked complete. The controller will write the data from the cache to the hard drives at the earliest opportunity. This increases write performance for files small enough to fit in the cache because writing to cache is much faster than writing directly to the hard drive. WriteBack write caching does increase the risk of data loss however because the cache memory is volatile and loses its contents when power is lost. It is highly recommended to use an uninterruptible power supply unit when WriteBack is used in order to safeguard against data loss due to power outage.

**Note:** WriteBack write caching can only be enabled if read caching is enabled first. Read caching must be enabled for this option to be available.

**Gigabyte Boundary** – Actual storage space on hard drives usually do not exactly match their advertised capacities. For example, an 80GB hard drive may actually have a capacity of 80.02GB. Since a failed hard drive in a RAID array can only be replaced with a hard drive with one of equal or greater capacity, there is a situation that can exist where all the hard drives in a particular RAID array may be slightly larger than their advertised size. If one of the drives in this array failed it would be difficult to find a replacement drive since other drives of the same advertised size may have slightly less actual capacity than the ones originally used to create the array.

Since hard drives can vary so much in their actual capacities the Gigabyte Boundary option rounds down to the nearest gigabyte so that more hard drives can be used to rebuild with. In this example, the 80.02GB hard drive would be rounded off to 80.0GB at array creation. This increases the probability of finding a suitable replacement drive should the original ever fail.

**Initialization Speed** – Available settings are Full, Fast, and None. Select Fast Initialization for a quick RAID array initialization.

## Hot spare assignment

Hot spare drives can only be added using the WebPAM web interface. They can not be assigned in the firmware during POST.

To assign a hot spare, log in to the web interface and enter Spare Drive View. Select the Create tab, select a hard drive, and click the Create button.

There are two types of Hot Spares: Global and Local hot spares. You can choose to designate a spare drive as a global spare which will automatically replace a failed drive in any array or you can assign a spare drive as a local spare which will belong only to a single specific array. You can select which array owns the spare by using the Spare Drive Type dropdown menu.

PROMISE <sup>®</sup> TECHNOLOGY, INC.	Language English 👻   Show Even	t   Contact Us   Logout   Help
Promise WebPAM Advanced Version	Spare Drive View	Help
Administrative Tools User Management Host Management User Management	Information Create Delete Spare Drive Parameters Spare Drive Type	Global Spare 👻
Image configuration       Image configu	Drive on Port 1 - 80 GB Free	
Controller 1     Physical Drive View     Logical Drive View     Logical Drive 1	79.93 GB	ed Spare Invalid
Spare Drive View		

**Note:** Hot spare drives can not be part of any logical drive (RAID or JBOD). If there are no drives listed as available, enter the Logical Drive View and make sure the intended drive is not part of an array. Single hard drives are often automatically assigned as JBOD disks, so if this is the case simply delete the JBOD array in order to free the intended hot spare drive.

# Section 3: Promise WebPAM Software

In order to check the status of your RAID arrays, log into the Promise WebPAM software using your web browser. The computer with the RAID array must have the Promise WebPAM software installed. The address will be the IP address of the computer, port 8443/promise. In this example, the address used was <a href="https://192.168.0.20:8443/promise">https://192.168.0.20:8443/promise</a>. This address will be different on your local machine, depending on the IP address assigned to your local computer. In order to access the controller across the network the software must be installed and the network functionality must be enabled during installation. It can



not be enabled at a later time.

The default login information for both LoginID and Password are: admin

TYAN Computer Corporation strongly suggests for your own safety and security that you update these default settings to your own information as soon as the system has been configured.

**Note:** The WebPAM software requires secure http protocol. You will use https: to gain access to the WebPAM software

### **Email Alert Configuration**

The RAID controller can be configured to send email alerts when an array goes critical. This can be configured through the WebPAM interface by logging in and accessing the Utility Configuration tab under Administrative Tools in the navigation bar on the left side of the screen. For settings on which alerts will have email alerts sent, see the user account events tab on Page 18.

PROMISE® TECHNOLOGY, INC.	Language <mark>English ▼</mark>	Show Event   Contact Us   Log	gout   Help	
Promise WebPAM Advanced Versio	D Utility Configuration		Help	
Host Management	O Configuration		AU.	
Generation Utility Configuration	Email Sender		Email Sender Desc.	
🌐 🛃 192.168.0.15 📢	Email Server	Port: 25	Email Server Desc.	
	ESMTP Username		ESMTP Username Setting	
	ESMTP Pasaword		ESMTP Password Setting	
	Email Subject	Promise Controller Error	Email Subject Desc.	
	Event Frame Refresh Time	30 ▼ secs	Event Frame Refresh Time Desc.	
	System Event Notification	Enable O Disable	System Event Notification	

#### **User Management**

The Promise WebPAM interface allows the user to create and modify multiple user accounts on the controller. Each user account can have its own email address to send alerts and can have separate permissions.

To view, modify, or delete user accounts, select User Management under the Administrative Tools section of the navigation bar on the left side of the screen.



To view the current settings of an existing user account, click on the user account's name. The information tab of the user account shows the current settings.

Promise WebPAM Advanced Version	User Managem	ent					Help
2 User Management	Information	Settings	Events				
- 🛃 Host Management	Information	O Information					
Utility Configuration	User ID			admin			
🗄 🖪 0:0:0:0:0:0:0:1 🕥	Display Name			Super user			
😑 🌉 SP5100 Controller	Email						
Controller 1	NETSEND IP						
Physical Drive View	🗢 Host User F	Rights					
🕀 🧱 Logical Drive View	Host Name Creation Right		hts	Deletion Rights	Maintenance Rights	Notification Rights	
Logical Drive 1	pwnt-PC			1	$\checkmark$	$\checkmark$	$\checkmark$
- 🔂 Spare Drive View							

In order to change the settings, click on the Settings tab. You can change the password, email address, Netsend IP, and user permissions.

Promise WebPAM Advanced Version	User Management					Help
Administrative Tools	Information Setting	s Events				
- 🖪 Host Management	User Settings		-			
Configuration	User ID		admin			
🖨 🖪 0:0:0:0:0:0:1 🕥	Display Name		Super user			
🕀 🦉 SP5100 Controller	biopia y runio		(0-20 charact	ter(s))		
🚍 🏠 Controller 1	*Password					
Directory     Directory     Directory     Directory     Directory     Directory	New Password		(4-8 characte	r(s))		
Logical Drive 1	Retype Password					
	Email					
	NETSEND IP					
	Host User Rights					
	Host Name	Creation Rig	hts	Deletion Rights	Maintenance Rights	Notification Rights
	pwnt-PC	[	<b>v</b>			
				Submit Reset		

The email alerts are also configurable. In order to modify which alerts the Promise controller will email the user about, click on the Events tab.

Promise WebPAM Advanced Version	Select Events			Help
Ser Management	Information Settings	Events		
- 🖪 Host Management	pwnt-PC(0:0:0:0:0:0:1)			
Utility Configuration	Email Notification			
🚔 🖪 0:0:0:0:0:0:1 🗯	Select All Events			
E SP5100 Controller	Select All Information Event	s	Select All Warning Events	Select All Error Events
Controller 1	Disk Events			
🕀 🚺 Physical Drive View 🕀 😂 Logical Drive View	Disk Plugged In		Disk BSL Update	Disk BSL Cleared
Logical Drive 1	Disk BSL Accessed		Disk Error Fixed	Disk Patrol Progress
🔄 🛃 Spare Drive View	Disk Media Patrol Started		Disk Media Patrol Completed	Disk Media Patrol Paused
	Disk Media Patrol Resumed		Disk Media Patrol Aborted	Disk Unplugged
	Disk Timeout		Disk speed is downgrade	Task Error
	Disk Media Patrol Aborted v	vith Error	Bad Block Remapped	Disk Pre Fail
	Disk Setdown		Disk NON ECC Error	Disk S.M.A.R.T. Error
	Array Events			
	Array Online		Array Created	Array Deleted
	Array Cache Mode Change	d	Array Auto Cache Mode Change	Synchronization Started
	Synchronization Completed		Synchronization Paused	Synchronization Resumed
	Synchronization Aborted		Synchronization Progress	Synchronization Inconsistency Fixed

### **New User Creation**

In order to create a new user account, click on the Create tab of User Management. Enter the desired User ID, password, email address, and permissions and click the Submit button. Once the account has been created, email alerts can be modified using the Events tab shown above.

Promise WebPAM Advanced Version	User Managem	ent					Help
Administrative Tools	Information	Create	Delete				
- B Host Management	🗢 User Creati	on					
Utility Configuration	* User ID			(4-20 charact	er(s))		
SP5100 Controller	Display Name			(0-20 charact	er(s))		
Physical Drive View	* Password			(4-8 characte	r(s))		
Logical Drive 1	* Retype Passwo	rd					
	Email						
	🗢 Host User R	tights					
	Host Name Creation Rig		ights	Deletion Rights	Maintenance Rights	Notification Rights	
	localhost						
					Submit Reset		

In order to delete a user account, click on the Delete tab under User Management. Select the accounts that you wish to delete and click the Submit button.

Promise WebPAM Advanced Version	User Manage	ement			Help
🚔 🥵 Administrative Tools	-				 
🛛 👤 User Management	Information	n Create Dele	ete		
- 🖪 Host Management	OUser List				
Utility Configuration		User ID	Display Name	Email	
⋵ 🖪 0:0:0:0:0:0:1 🕥		admin	Super user		
🖨 🦉 SP5100 Controller					 
🗇 🏠 Controller 1				Submit Reset	
Physical Drive View					
🕀 😫 Logical Drive View					
🗆 🔀 Logical Drive 1					
🖓 🛃 Spare Drive View					

## Logical Disk Management

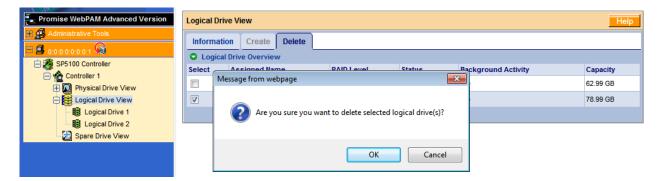
To delete a logical disk from the WebPAM interface, select the Logical Drive View tab of the controller on the navigation bar on the left side of the screen.

Fromise WebPAM Advanced Version	Logical Drive View					Help
Administrative Tools	Information Creat		te			
SP5100 Controller	Logical Drive Over	view				
	Assigned Name		RAID Level	Status	Background Activity	Capacity
Controller 1	Logical Drive 1		RAID 1	Functional	ldle	62.99 GB
Physical Drive View	Logical Drive 2		RAID 1	Functional	Idle	78.99 GB
Logical Drive 1						
Logical Drive 2						
Spare Drive View						

Click on the Delete tab.

Promise WebPAM Advanced Version	Logical Driv	ve View				Help
Administrative Tools	Informatio	on Create Delete				
		Drive Overview				a
Controller 1	Select	Assigned Name	RAID Level	Status	Background Activity	Capacity
Physical Drive View		Logical Drive 1	RAID 1	Functional	ldle	62.99 GB
🕀 🧱 Logical Drive View		Logical Drive 2	RAID 1	Functional	ldle	78.99 GB
Logical Drive 1	Submit Reset					
Logical Drive 2						

Select the drive which you wish to delete and click the Submit button. Confirm your choice to delete the Logical Disk.



### **Host Management**

The Promise WebPAM network configuration information can be viewed under the Host Management section of the Administrative Tools on the navigation bar on the left side of the screen. This section is for display purposes only and none of the settings are modifiable.

Host Management		
		=
Information		
O Host List		
IP Address	Display Name	
<u>0:0:0:0:0:0:0:1</u>	pwnt-PC	
	Information O Host List IP Address	Information       O Host List       IP Address     Display Name

Select the IP address of your computer from Host Management to view the following information:

- WebPAM version
- Display name
- IP address
- Java Virtual Machine version

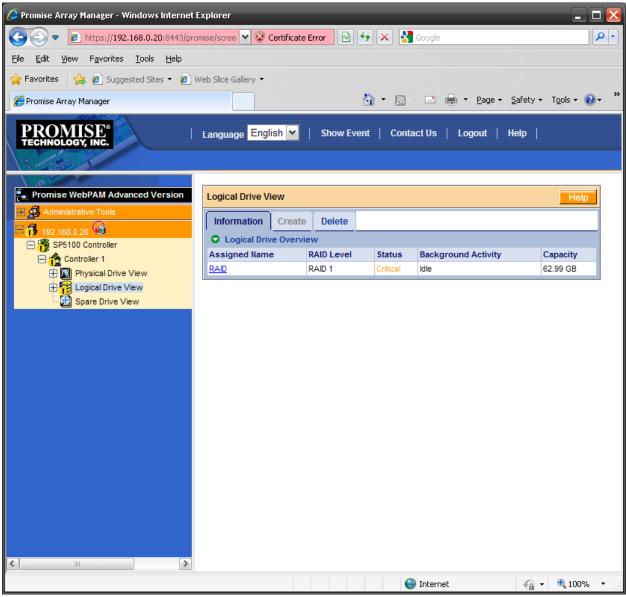
Promise WebPAM Advanced Version	Host	Help	
🚔 🥵 Administrative Tools			
🖳 👱 User Management	Information		
- 🖪 Host Management	OBasic Information		
Utility Configuration	WebPAM Version	2.3.0160.3	
🕀 🖪 0:0:0:0:0:0:0:1 🛞	Display Name	pwnt-PC	
	IP Address	0:0:0:0:0:0:1	
	Java Virtual Machine	Java HotSpot(TM) Server VM 1.6.0-b105 Sun Microsystems Inc.	

# Section 4: Promise RAID Rebuild Process

The RAID rebuild process can only be initiated through the WebPAM interface. It can not be started through the Option ROM during POST. The firmware will however display the following critical status alert during POST when an array goes critical:

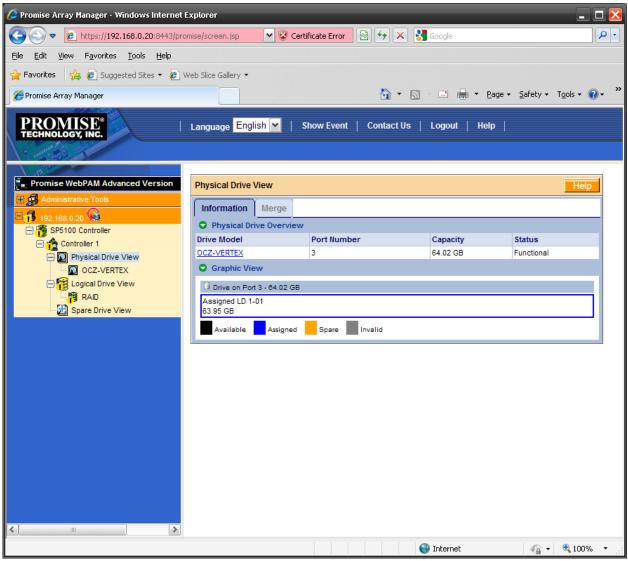
ID Mode LD	Name	LD Size	Status
01 RAID 1 RAI	D	62.996	Critical
Please refer to yo	n array has failed or is ur AMD User Manual for fu enter RAID Option ROM Ut	urther details.	

The rebuild process is identical for all RAID levels. In order to begin the rebuild process you must enter the Promise WebPAM interface. The navigation bar is found on the left side of the screen. You can view the status of your RAID arrays with the Logical Drive View tab. In this example, we can see that there is one array present on the controller – a RAID 1 that has gone critical.

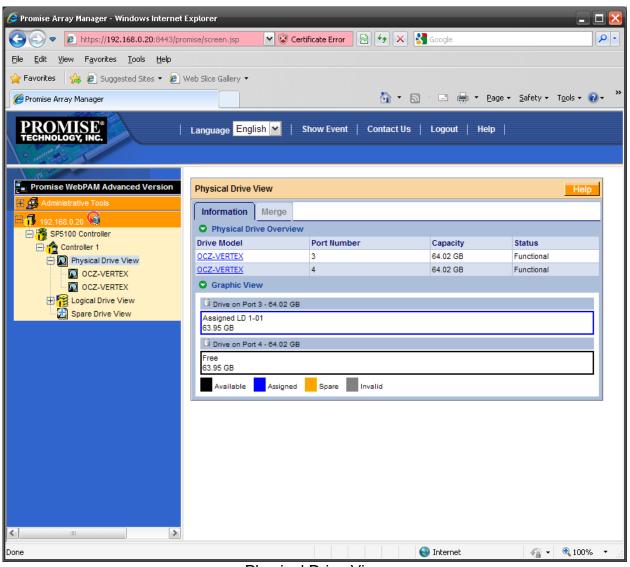


Logical drive view

The physical drives attached to the controller can be viewed under the Physical Drive View tab. In this example, there is only one drive attached to the controller.



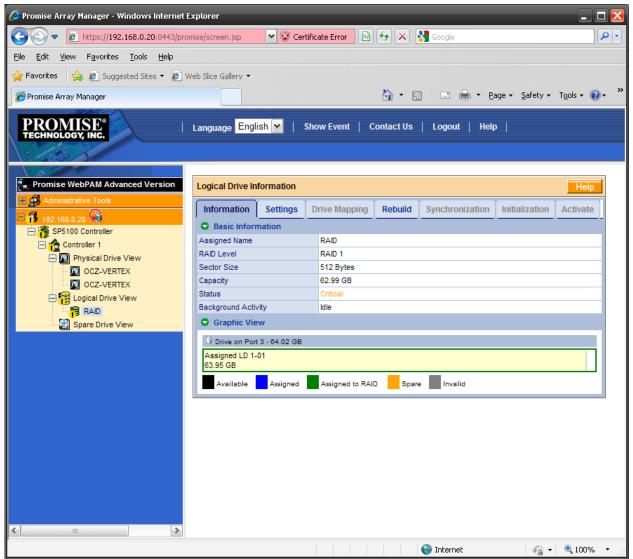
#### **Physical Drive View**



We have added a drive and it is now visible in the physical drive view.

Physical Drive View

We have selected the flagged RAID array under the Logical Drive View heading on the navigation bar on the left side of the screen. Here we can see information about the selected RAID array. The status on this array is 'Critical'. The Rebuild tab is visible at the top of the array chart.



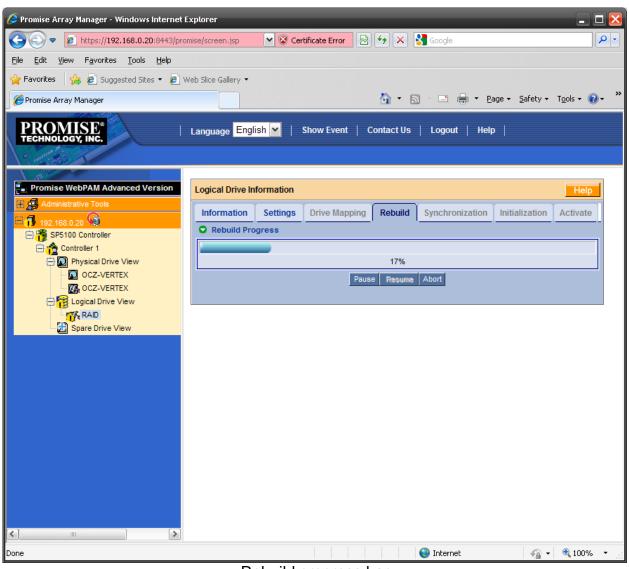
Logical Drive Information

Here we have selected the Rebuild tab of the array. This window shows available hard drives that are not part of any RAID array. In this case, we only had one spare hard drive attached, but if there were any more free hard drives they would be listed here as well.

To begin the rebuild process, select the drive that you wish to rebuild to by clicking on the drive and pressing the Start Now button.

🤌 Promise Array Manager - Windows Internet Explorer 📃 🗖 🔀						
C C T Attps://192.168.0.20:8443/pro	mise/screen.jsp 🔽 😵 Certificate Error 🔯 🍫 🗙 🋂 Google					
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp						
🔶 Favorites 🛛 🚖 💋 Suggested Sites 👻 🖉 V	/eb Slice Gallery 👻					
🔗 Promise Array Manager	🛐 👻 🔂 👘 🖃 🖶 🖷 Page 🗸 Safety 🛪 Tools 🛪 🔞 🛪 🂙					
PROMISE <sup>®</sup> TECHNOLOGY, INC.	Language English 🛩   Show Event   Contact Us   Logout   Help					
Promise WebPAM Advanced Version	Logical Drive Information Help					
Administrative Tools	Information Settings Drive Mapping Rebuild Synchronization Initialization Activate					
☐ 192.168.0.20 ☐ 193.168.0.20 ☐ 193.168.	Select available drive(s) to rebuild.					
🖹 🏫 Controller 1	3 Drive on Port 4 - 64.02 GB					
Physical Drive View     OCZ-VERTEX	Free 63.95 GB					
	Selected Available Invalid					
Cogical Drive View	Start Now Schedule					
<						
	🌍 Internet 🦷 👻 100% 👻 🛒					

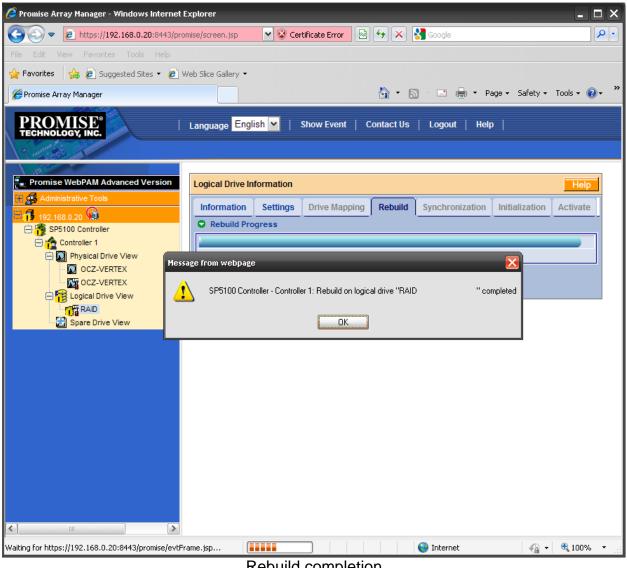
Logical Drive Information



During the rebuild process, you may check the progress by monitoring the Rebuild tab of the array.

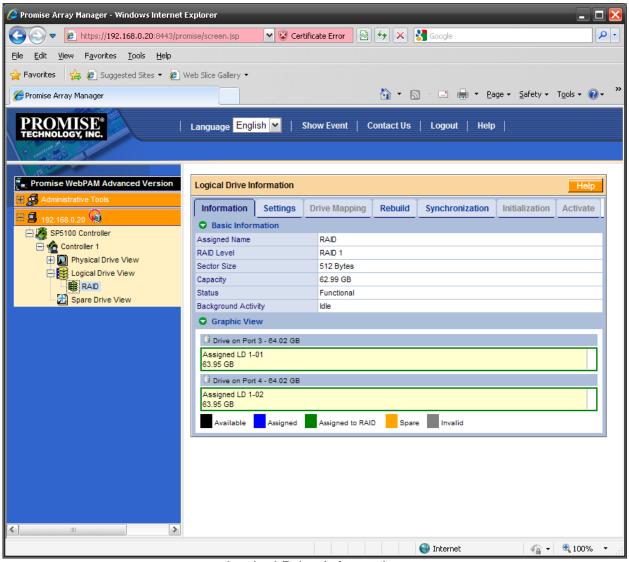
Rebuild progress bar

Once the array has completed the rebuild process the controller will display an alert informing you of the completion.



#### **Rebuild completion**

Now that the rebuild process has completed we can see that the array's status has gone from Critical to Functional.



### Logical Drive Information

**Note:** The RAID rebuild process can only be initiated with the WebPAM interface. The firmware during POST can only be used to create and delete arrays and can't assign spares or rebuild arrays. If the operating system is not bootable for any reason the WebPAM interface will not be accessible. A potential workaround in this situation would be to add a spare hard drive and install windows along with the WebPAM software to the spare drive to allow access to this interface if the original operating system is non-operational.