Setting up SATA RAID on the HP xw4300 Workstation

Mini-White Paper



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Introduction

This document details the steps needed to setup RAID 0, RAID 1, RAID 5 and RAID 10 disk configurations on an HP xw4300 Workstation. Additional information on these RAID modes can be found in the *Workstation RAID Primer* mini-white paper which can be found by visiting www.hp.com/support/xw4300_manuals and selecting the **White papers** quick jump link.

Steps

These steps are common to all RAID configurations. RAID-configuration-specific values are given as needed.

- 1. **Install Drives**. With the power off, physically install the correct number of SATA drives using any combination of the 4 available SATA ports. Table 1 below indicates the number of drives to install.
- 2. Enable RAID.
 - a. Boot the system and enter **BIOS Setup (F10)**.
 - b. Using the **Arrow** keys and the **Enter** key, go to **Storage** and then **Storage Options**. SATA Emulation must be set to "RAID."

Figure 1. Storage Options

Storage	Options ———
Removable Media Boot Legacy Diskette Write BIOS DMA Data Transfers SATA Emulation IDE Controller	►Enable Enable Enable RAID Enable

 Next, enter Advanced, then Device Options. SATA RAID OPTION ROM Download must be set to "Enable." Leave the other settings as you found them. Press F10 twice and Enter to save these settings. The system will reboot.



Device Option	ns —
Printer Mode Num Lock State at Power-On S5 Wake on LAN Processor Cache Unique Sleep State Blink Rates Monitor Tracking NIC PXE Option ROM Download SATA RAID Option ROM Download	EPP+ECP Off Enable Enable Disable Disable Enable Enable ►Enable
Attached Device Detect>	Enable
;	F10=Accept, ESC=Cancel-

- 3. **Configure the RAID Volume**. When the system comes up it will prompt to enter the Intel Matrix Storage Manager Configuration Utility.
 - a. Press CTRL-I to enter the Utility
 - b. Select "Create RAID Volume."
 - c. Volume Name enter a name for the RAID Volume (default is "Volume0")
 - d. RAID Level Select the desired RAID level with the up/down arrow keys (default is RAID 0)
 - e. Disk Select Press Enter, use the up/down arrow keys to move over the drives in list, use the space bar to select the drive for the volume. Make sure that the correct number of drives is selected, per Table 1 below.

Figure 3. RAID Volumes

	Intel(R) Matrix Copyright(C)	Storage Manager og 2003-05 Intel Corg	otion RO poration	M ∨5.0.0. . All Ri	1032 ICH7R w ghts Reserve	RAID5 d.
		1. Create 2. Delete	RAID Vo RAID Vo	lume lume		
		3. Reset I 4. Exit)isks to	Non-RAID		
		DISK/VOLUME	INFORMA	TION 1-		
RAID	Volumes:					
ID	Name	Level	Strip	Size	Status	Bootable
Θ	Volume0	RAID5(Parity)	64KB	298.1GB	Normal	Yes
Phys	ical Disks:					
Port	Drive Model	Serial #		Size	Type/Status	(Vol ID)
0	SAMSUNG HD160JJ	S08HJ10Y407476		149.1GB	Non-RAID Di	sk
1	Maxtor 6Y160M0	Y42W05EE		149.1GB	Member Disk	(0)
2	Maxtor 6Y160M0	Y457VDAE		152.7GB	Member Disk	(0)
3	Maxtor 7B250S0	B606EEYH		232.9GB	Member Disk	(0)

Table 1	RAID 0	RAID 1	RAID 5	RAID 10
# of Disks	2, 3, or 4	2	3 or 4	4

- f. Strip Size Use up/down arrow keys to select strip block size (default is 128KB this is a reasonable value).
- g. Capacity is based on the drives and the RAID level selected. Select the default value.
- h. Create Volume Press enter to create the RAID volume. Note the RAID Volume status of "Normal" and which drives are "Members" of the volume.
- i. Exit the Intel Matrix Storage Manger Configuration Utility.

4. Set the Boot Order.

- a. Reboot the system and enter Setup (F10) again.
- b. Enter Storage and then Boot Order.
- c. Use the arrow keys to move to "Intel VolumeO" or "Intel <name>" if you named the volume above. Press Enter. This will allow that entry to be moved up and down using the arrow keys.
- d. Use the arrow keys to move the new volume to the top of the boot order, as shown in the following screen shot.

Figure 4. Boot Order

Boot Order
ATAPI CD-ROM Drive
Diskette Drive
USB device
Hard Drive
▶ Intel Volume0
SAMSUNG HD160JJ
Integrated SATA
Integrated IDE
Broadcom Ethernet controller
Enter=Drag, F10=Accent, ESC=Cancel

- e. At this point, place an xw4300 Recovery CD in the optical drive for the upcoming rebuild of the OS
- f. Press F10 twice and Enter to accept and save. The system will reboot.
- 5. **Rebuild the OS on the new RAID Volume**. When the recovery CD boots, follow the instructions to install the OS (Windows XP SP2) onto the newly-created RAID volume.
- Install the Intel Matrix Storage Manager. Go to Start -> Programs -> Intel Matrix Storage Manager. This enables a console for future management and monitoring of the newlycreated RAID volume.

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