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Prepared by: Network Storage Solutions Hewlett Packard Company

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# Configuring the HP StorageWorks Modular Smart Array 1000 for external boot with Microsoft Windows – New Installations

*Abstract:* This technical note outlines step-by-step procedures for configuring the HP StorageWorks MSA1000, servers, and the FCA2101 Host Bus Adapter for external boot.

### **Notice**

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### **Considerations and Limitations**

These steps and procedures are intended for an advanced user who has a solid foundation of knowledge in server hardware, storage hardware, and operating system installation. All prerequisites and current scaling limitations for the MSA1000 apply

- HP StorageWorks Secure Path is supported in an external boot (boot from SAN) environment by the MSA1000. Please note however that since Secure Path is a host based failover architecture, Secure Path loads after the OS (host) has fully booted and provides no path redundancy until the OS fully boots. Once booted the system enjoys full Secure Path failover protection.
- You must copy the FCA2101 driver files from the HP StorageWorks Modular Smart Array 1000 Support Software CD to a floppy for a part of the OS installation

Where X: is the drive letter of your CD ROM drive, copy all files to a floppy – during OS installation you will be asked for controller drivers, and you can only install them via floppy.

Microsoft Windows 2000: X:\Win2k\\*.\* (all files EXCEPT LputiInt.EXE)

Microsoft Windows NT 4.0: **X:\Winnt4\\*.\*** (all files AND subdirectories EXCEPT Lputilnt.exe)

- Do not perform any configuration on internal drives until the installation of the operating system has been completed on the MSA1000. Upon system reboot, execute the Online RAID Configuration Utility and enable the internal drives.
- These procedures assume a clean install on both the server and the MSA1000 in other words, both are new, out of the box and have not previously been configured
- The pagefile (*pagefile.sys*) for the operating system should be installed to an internal drive per the recommendation of Microsoft. <u>http://support.microsoft.com/default.aspx?scid=http://support.microsoft.com:80/support/k</u> <u>b/articles/q305/5/47.asp&NoWebContent=1</u>
- ProLiant servers are available in two configurations. Newer models use ROM Based Setup Utility (RBSU), while older models do not. For servers with RBSU, refer to the section **Setup for RBSU Servers**, for those without this utility, refer to the section **Setup for Servers without RBSU**. Select one of the following procedures based on your ProLiant server configuration.
- Selective Storage Presentation must be used if multiple servers are to access volumes on the same MSA1000

#### Setup for RBSU Servers

1. Boot the server from the ProLiant Smart Start CD-ROM version 5.3 or higher. As an alternative, you can download the latest ROM BIOS from http://www.hp.com.

Install the latest ROM from the Smart Start CD-ROM or the downloaded version.
 Set the boot order:

- a. While the system is booting, Press F9 to start the ROM Setup Utility.
- b. Choose **Boot Controller Order**.
- c. Select the primary HBA and move it to Controller Order 1.
- d. Exit the utility.

### Setup for Servers without RBSU

If your server does not have RBSU or the current system partition installed, perform the following steps:

1. Download and install the latest system ROM from the website: http://www.hp.com.

- 2. Download SOFTPAQ SP18002.
- 3. Run the SOFTPAQ program to create an upgrade diskette.
- 4. Boot from the ProLiant Smart Start CD-ROM and run the program to clear the configuration.
- 5. Reboot from the new upgrade diskette. The ORD.EXE program should start automatically.
- 6. Set the Primary HBA to **Position** 1.
- 7. Reboot the server.

# Configuration of Volume(s) on MSA1000

- 1. Power on server with HP StorageWorks Modular SAN Array 1000 Support Software CD in CD-Rom
- 2. After initialization the user will see Array Configuration Utility XE
- 3. A list of detected controllers is displayed on the left of the screen



1. Select the MSA1000 Controller and choose Advanced Configuration

Compaq Array Configuration Utili	ty XE - Microsoft Internet Explorer			
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	Select the method you woul	Id like to use to configure your controller: Asks you a few simple questions, then co your controller.	the items box in the click on the item (excep you would	in the gray middle? e image of the pt for unused ge) for which like more
	Assisted Configuration	Allows you to configure your controller us series of wizards which guide you through process. Gives you the greatest flexibility in config your controller.	Ing a Information the What if I configure controller Select the	vant to a different ? controller you
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5. The array controller and available drives will be displayed. Select the array controller and click on **Create Array** 

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6. Select the drives to be included in the array and choose OK

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7. Select the Create Logical Drive command

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8. Configure the volume with the Fault Tolerance and parameters desired and choose OK

🚰 Compaq Array Configuration Utili	ity XE - Microsoft Internet Explorer			_	. 8 >
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9. Configuration of the MSA1000 is complete. Choose **Save** and then **Exit**. Close the browser window and the server will perform a reboot. Remove the HP StorageWorks Modular SAN Array 1000 Support Software CD from the CD-Rom and prepare to configure the boot BIOS in the next section.

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## **Configuration of Boot BIOS with Emulex BIOS Utility**

1. As the server boots the menu for the HBA will display. Press <Alt E> to start the Emulex BIOS Utility.



2. You are presented with a list of HBAs in the server, press  $1 \rightarrow$  Enter to select the displayed HBA.



3. You are presented with two selections. Note the options at the bottom of the screen to navigate through the menus.

	Adapter 1	1:	PCI Bus	#:04	PCI	Device ;	#:04	
	LP950: Port Name Topology:	I/O Base 2: 100000 : Auto To	: 6000 00 C927: pology:	Firm 2A43 Loop	ware Nod firs	Version e Name: t (Defau	n: RS3.822 20000000 ult)	Al C9272A43
L _ 2 -	Configure Configure	Boot Dev This Ada	vices opter's 1	Parame	eters			

4. Press  $2 \rightarrow$  Enter to select **Configure This Adapter's Parameters**.

```
PCI Bus #:04 PCI Device #:04
    Adapter 1:
    LP950: I/O Base: 6000 Firmware Version: RS3.82A1
    Port Name: 10000000 C9272A43 Node Name: 20000000 C9272A43
Topology: Auto Topology: Loop first (Default)
1. Enable or Disable BIOS
2. Change Default ALPA of this adapter
3. Change PLOGI Retry Timer (+Advanced Option+)
4. Topology Selection (+Advanced Option+)
5. Enable or Disable Spinup delay (+Advanced Option+)
6. Auto Scan Setting (+Advanced Option+)
7. Enable or Disable EDD 3.0 (+Advanced Option+)
8. Enable or Disable Start Unit Command (+Advanced Option+)
9. Enable or Disable Environment Variable (+Advanced Option+)
  Enter a Selection:
Enter <x> to Exit
                                                <PageUp> to Previous Mem
```

- 5. You are presented with 9 options, press  $1 \rightarrow$  Enter to Enable or Disable BIOS.
- 6. Press  $1 \rightarrow$  Enter to enable the BIOS
- 7. Press the PageUp key to return to the previous menu
- 8. Press PageUp to return to the first menu
- 9. Press  $1 \rightarrow$  Enter to **Configure Boot Devices**
- 10. You are presented with a list of saved boot devices.

A	ldapter	1: S_ID:0	11900 PCI Bus	#:04 PCI I	)evice #:	:04	
L	ist of	Saved Boot	Devices:				
1. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00	Primary	Boot
2. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
3. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
4. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
5. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
6. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
7. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
8. Un	nused	DID:000000	WWPN:00000000	00000000	LUN:00		
s	Select a	a Boot Entr	y:				
Enter	: ≺x≻ to	o Exit		<]	PageUp≻ t	co Previo	ous Menu

- 11. Press  $1 \rightarrow$  Enter to select **Primary Boot**.
- 12. You are prompted to select the desired boot device.
- 13. Press  $00 \rightarrow$  Enter to clear selected boot entry.
- 14. Press  $1 \rightarrow$  Enter to select **Primary Boot**.
- 15. Press  $01 \rightarrow$  Enter to select the entry with the LUN that is presented by the MSA1000 controller.
- 16. You are prompted to enter in a two-digit LUN number, enter  $00 \rightarrow$  Enter.



17. You are presented with a list of available LUNs visible to the HBA.

	Adapter 1:	S_ID:01	1900 PCI B	us #:04	PCI De	vice #:0	4	
	DID:011001	WWPN: 500	805F3 0000	09F1				
01. 02.	LUN:00 LUN:01	) L	COMP COMP	AQ LOG	ICAL VO	LUME O. LUME O.	52 52	
E	nter a Selec	tion:	INIDAL DAD.	<b>D</b> +		- D.T.D.		
Ent	#w: Boot num er <x> to E;</x>	uber via :it	WWPN. B#D:	Boot n	umber v: <pa< td=""><td>ia DID geUp≻ to</td><td>Previous</td><td>Menu</td></pa<>	ia DID geUp≻ to	Previous	Menu

18. Press  $01 \rightarrow$  Enter to select the first LUN (logical drive 1) on the MSA1000.

- Adapter 1: S\_ID:011900 PCI Bus #:04 PCI Device #:04 DID:011001 WWPN:500805F3 000009F1 01. LUN:00 COMPAQ LOGICAL VOLUME 0.52 02. LUN:01 COMPAQ LOGICAL VOLUME 0.52 DID:011001 WWPN:500805F3 000009F1 LUN: 1. Boot this device via WWPN 2. Boot this device via DID <PageUp> to Previous Menu Enter a Selection: Enter a Selection: 01 B#W: Boot number via WWPN. B#D: Boot number via DID Enter <x> to Exit <PageUp> to Previous Menu
- 19. You are prompted to select how to boot the device.

- 20. Press  $1 \rightarrow$  Enter.
- 21. You are returned to the list of saved boot devices.
- 22. Press  $x \rightarrow y$  to exit the menu and reboot the server. As server begins reboot, insert the CD which contains the operating system

## Installation of Operating System

1) On reboot insert OS CD and begin installation

2) As the operating system install begins a message will be displayed

Setup is inspecting your computers hardware configuration....

followed by a blue installation screen.

You must press F6 at this time to allow the operating system to install the additional

driver required for the FCA2101.

### **Operating System Install Procedure Notes:**

Windows 2000 will display a message: Press F6 if you need to install a third party SCSI or RAID driver. Windows NT4.0 will not display a message, but will accept the F6 key to identify the need for installation of a third party driver.

(If you choose to install off the three boot disks then you can use the specify additional drivers when prompted later in the installation.)

1. When setup prompts you to Specify an Additional Device because it can't find a driver for the hardware that you have, choose **S=Specify Additional Device**.

2. Insert the KGPSA driver diskette (that was specified in the **Considerations** section of this Technical Note) and press enter. Choose: **KGPSA-xx**, **PCI-Fibre Channel HBA** and press <enter>

3. You will be returned to the Specify Additional Device screen. Press <enter>

4. Setup will continue to load additional drivers. From this point the installation will resume as normal.

NOTE: When prompted for the location to install the operating system ensure that you select the volume created on the MSA1000.

#### **Completing the Server Build**

Follow the on screen prompts during the OS install. When instructed, remove all media from floppy and CD ROM drives, and perform a reboot. Continue building the server for your specific environment.