PRIMERGY S60
Storage Subsystem

Technical Configuration Guide

Edition August 2002

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Contents

1 Introduction

The information provided in this Technical Configuration Guide will assist you in configuring the FFx-RAID controller installed in a PRIMERGY S60 storage subsystem.

For other manuals that are needed during configuration see entries in the chapter “Related Publications” on page 55.

1.1 Target Group

The configuration information is intended for the person responsible for configuring and correctly operating the FFx-RAID controller.

To understand the different options it is necessary to have a knowledge of hardware and data transmission, as well as basic knowledge of the operating system used. It assumes that the reader has also a strong knowledge of fibre channel, SCSI and RAID technologies.

1.2 Notation Conventions

Italics	identifies commands and entries in flow text
Bold	highlights text
“Quotation marks”	indicates references to other chapters or manuals
►	identifies an operation that you have to perform.
	indicates additional information, notes and tips
 **ATTENTION!**	indicates warnings, which, if ignored, will endanger the operability of your server or the security of your data

2 Configuring the FFx-RAID Ctlr.

The information provided in this section will assist you in configuring the FFx-RAID controller installed in the PRIMERGY S60 storage subsystem for operation.

User-supplied items

– PRIMERGY S60 storage subsystem with a minimum of two drives (for RAID 3 and 5 configuration a minimum of three drives is required) and corresponding FFx-RAID controllers.
– Fibre Channel Host Bus Adapter (HBA) QLA2200 installed in the host.
– Fibre cables to connect the HBA to the storage subsystem.

If you are installing a dual-active configuration, additional hardware requirements must be met:

– Both FFx-RAID controllers must have the same physical configuration: number of FC-channels, amount of memory, and the same firmware version and type.

2.1 Installing the Hardware

Follow the steps below to prepare the hardware:

► Refer to the HBA manufacturer's installation instructions and install the HBA in the host server.

► Set the DIP switches on the host adapter of the FFx-RAID controller according to the desired connection (see section "DIP Switches Settings for Different Connections" on page 6).

► If needed, refer to the Operating Manual for the PRIMERGY S60 [6] and install the FFx-RAID controller in the storage subsystem.

> **i** If this is a single controller installation, the FFx-RAID controller must be installed in slot 0 (as DAC 0, see figure 1 on page 4). If it is not installed in slot 0, the FFx controller will not boot.

► With all components powered off, connect the drive and host channels according to the desired configuration (see chapter 3 "Configurations" on page 17).

The required connectors are on the connection panel of the corresponding FFx-RAID controller at the rear of the storage subsystem (see figure 1).

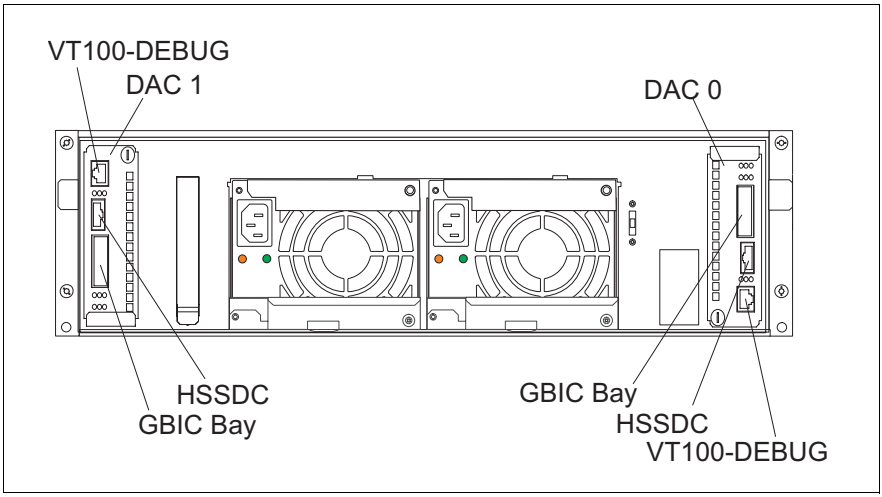

Figure 1: PRIMERGY S60 Storage Subsystem: Rear

- ► Connect the storage subsystem to a power source.
- ► Power ON the storage subsystem.
- ► Power ON the host server. Booting the system normally takes a few minutes.
- ► Refer to the appropriate documentation and install the SANArray Manager (SAM) software on the host server.
- ► Reboot the host to allow it to find the additional disk space.
- ► When the SAM and the storage subsystem are up and running, configure an array as described in the SAM documentation, being sure to configure the Global Parameters for External RAID Controllers (see section “FFx-RAID Controller Parameter Settings” on page 8 below).

Initially you should use the Automatic Configuration feature of RAID Assist Wizard to configure your array. After you have become more familiar with SAM, you might use the Manual Configuration options to configure the array.

ATTENTION!

Not all parameters can be accessed through the SAM software.

For the experienced system administrator or computer technician a configuration utility is available for configuring disk arrays.

It is embedded in the firmware that controls the operation of the FFx-RAID controller(s) delivered with the PRIMERGY S60 storage subsystem.

It can be accessed by connecting the delivered serial RS-232 interface cable between a serial (COM) port of the host and the VT100-DEBUG connector of the corresponding FFx-RAID controller of the subsystem and starting a VT100 terminal-emulation application (e.g. Hyperterminal.exe).

ATTENTION!

Pay attention to the requirements to configure the VT100-DEBUG port for terminal emulation. The controllers require jumper settings, configuration bit settings and firmware header settings.

To ensure proper communication between the terminal emulation program and the FFx controller in the subsystem the host serial port settings must be configured (refer to the Embedded Configuration Utility User's Guide/Appendix C).

2.1.1 DIP Switches Settings for Different Connections

Two DIP switch fields are available on the host adapter of the FFx-RAID controller, J1-J4 and K1-K4. The DIP switches J3, J4 and K4 are important for the connection types.

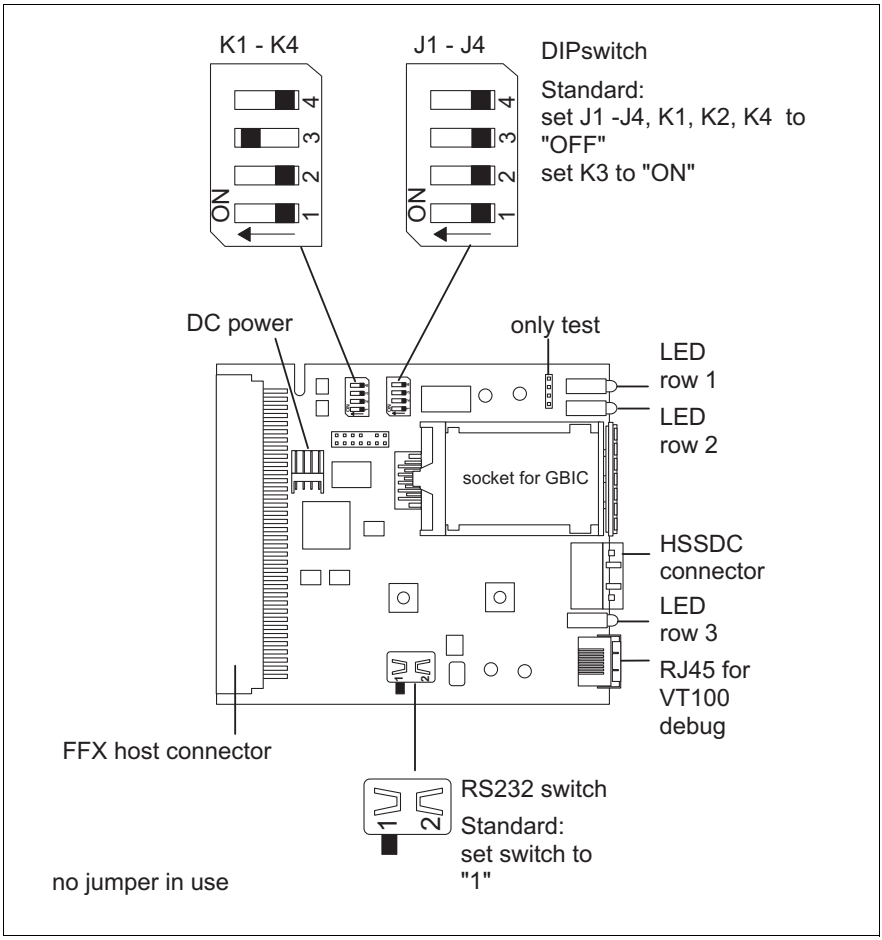

Figure 2: DIP Switches on Host Adapter: Default Settings

Direct Connection to a HBA or to a Cascaded HUB

For this connection the default setting are used (see also figure 2 on page 6):

Switch	Position
J3	OFF
J4	OFF
K4	OFF

Connection to a Switch via the HSSDC Connector (GBIC disabled)

Switch	Position
J3	OFF
J4	ON
K4	ON

Connection to a Switch via the GBIC Connector (HSSDC disabled)

Switch	Position
J3	ON
J4	OFF
K4	ON

2.2 FFx-RAID Controller Parameter Settings

Read Ahead	:	Enabled
Super Read Ahead	:	Disabled
Enable Background Initialization	:	Enabled
Rebuild Rate	:	50
Spin Up	:	Automatic / 2 / 6 / 0
Devices per Spin	:	2
Initial Delay	:	6
Sequential Delay	:	0
Enable Conservative Cache Mode	:	Enabled
SAF-TE use of UPS	:	Disabled
Enable Restrict Reassign to 1 Block	:	Disabled
Enable Smart Large Host Transfers	:	Enabled
Enable True Verification of Data	:	Disabled
Enable Write Through Verify	:	Disabled
Enable Operational Fault Management	:	Enabled
Enable Automatic Rebuild Management	:	Enabled
Enable Coelesce Device Queues	:	Disabled
Queue Limit	:	32
Automatic Reboot	:	Disabled
Reboot Limit	:	0 / greyed
Re-arm Interval	:	3 minutes / greyed
Enable Simplex no RSTCOM	:	Disabled
Enable On Queue Full give Busy	:	Disabled
Disable Busy Status on Failback	:	Disabled
Enable Vendor Unique TUR Status	:	Disabled
Enable No Pause On Controller Not Ready	:	Disabled
Disable CC for Invalid LUN	:	Enabled
Enable Auto Restore	:	Enabled
Enable Force Simplex	:	Enabled
Enable Reset Propagation	:	Disabled
Enable Multi Port Reset	:	Disabled
Host Bus Reset Delay	.	Disabled
Ctlr Pres/Flt Signals	.	Disabled

SLP/VT100	:	VT100
Baud Rate	:	19200
Enable Node Name Retention	:	Enabled
PCI Latency Control	:	Long
Frame Control	:	2 KB
Ctlr 0 Port 0	:	6
Ctlr 0 Port 1	:	N/A
Ctlr 1 Port 0	:	5
Ctlr 1 Port 1	:	N/A
Topology	:	Multi-TID (accessible in SAN mapping tab, see figure 13 on page 16)
Not accessible through SAM		
Serial Params	:	0x12 (No Parity, 1 Stop Bit)
Debug Dump to Disk	:	Enabled
Hard Loop IDs	:	Enabled

2.2.1 Simplex Configuration

ATTENTION!

Not all parameters can be accessed through the SAM software.

- Display the SAM Controller Information window (figure 3) by clicking *Administration/Controller Information* on the menu bar or the *Controller Information* icon.

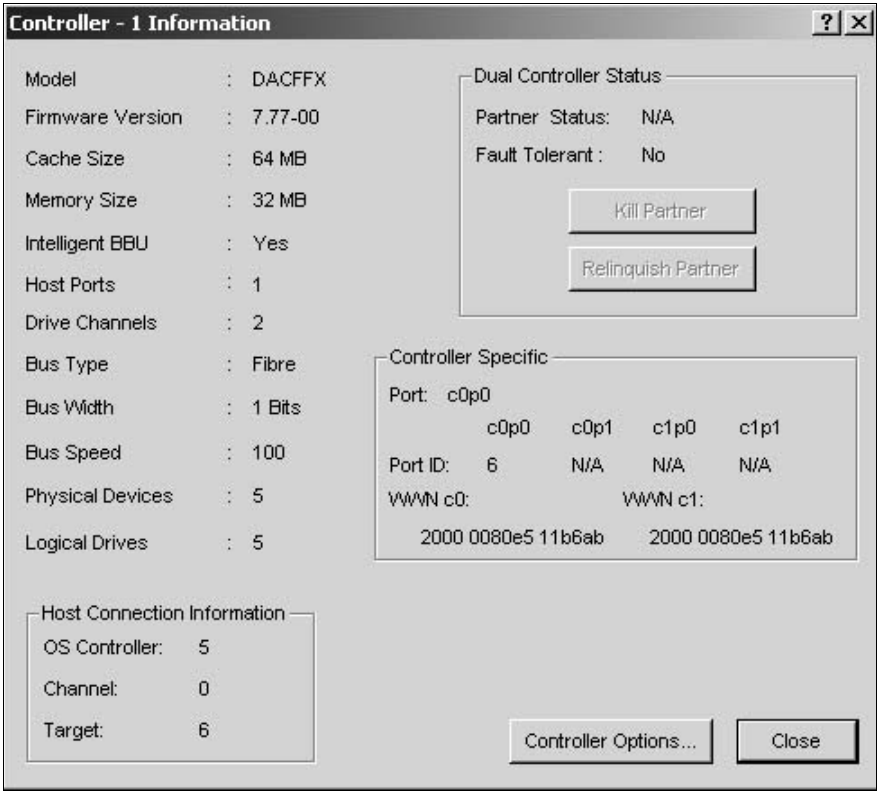

Figure 3: SAM Controller Information Window (simplex)

The SAM Controller Information window (simplex), might look different (Firmware Version, WWN c0, WWN c1, ...).

- Click the *Controller Options* button to view the *Controller Options* window of user-definable controller parameters.

For more information see “Setting and Modifying Controller Options” in the SAM documentation.

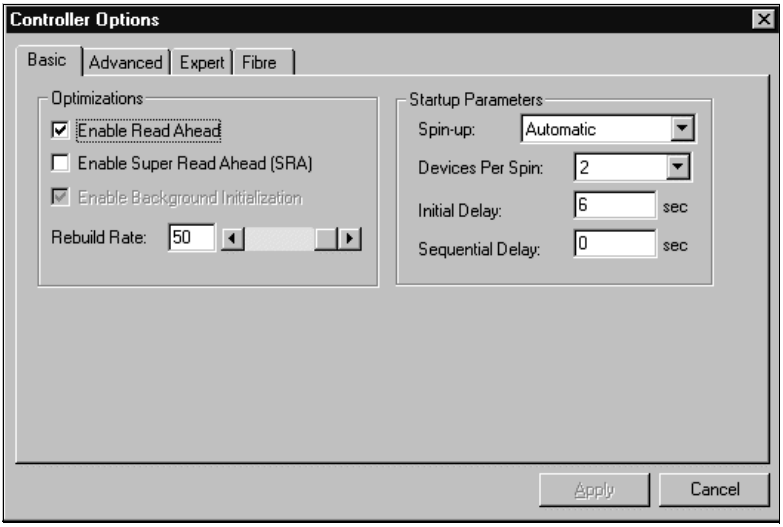

Figure 4: SAM Basic Controller Options Dialog Box (simplex)

► Open the *Basic* dialog box and set the parameters as shown in figure 4.

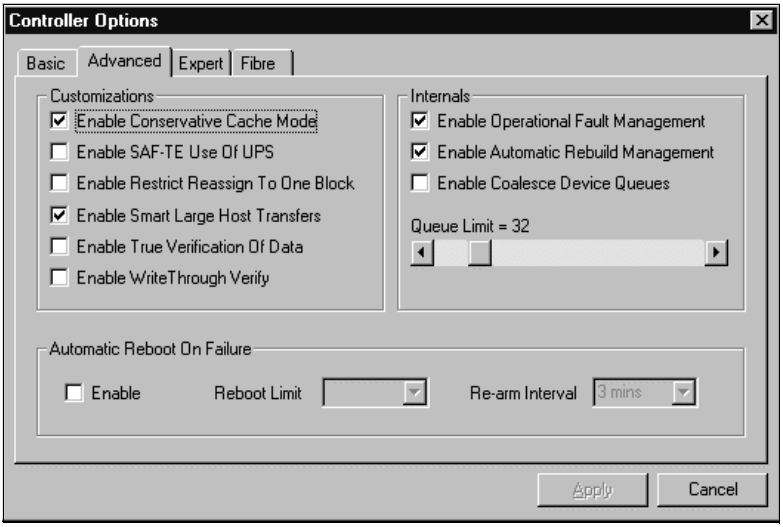

Figure 5: SAM Advanced Controller Options Dialog Box (simplex)

► Open the *Advanced* dialog box and set the parameters as shown in figure 5.

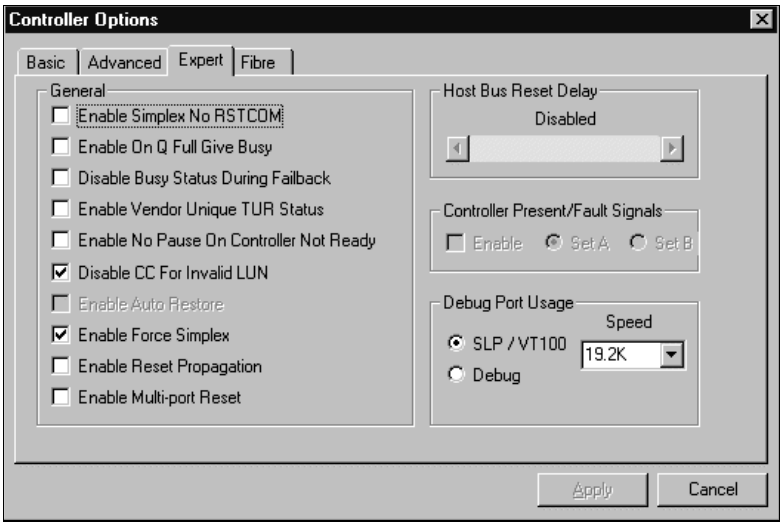

Figure 6: SAM Expert Controller Options Dialog Box (simplex)

► Open the *Expert* dialog box and set the parameters as shown in figure 6.

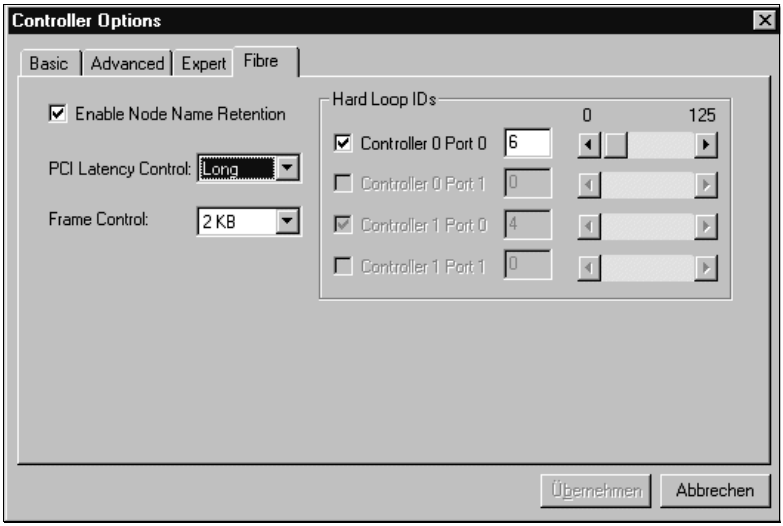

Figure 7: SAM Fibre Controller Options Dialog Box (simplex)

► Open the *Fibre* dialog box and set the parameters as shown in figure 7.

2.2.2 Dual Active Configuration

Use the same procedure for setting the controller parameter in a dual active configuration as shown in the figures below.

When both FFx controllers are in the same loop, the mapping of controller Hard Loop IDs to Target IDs for ordering of the disks depends on the Operating System, and different operating systems do this differently (Windows NT4 vs. Windows 2000).

If you wish to have the disks with lower numbers on controller C0, you may have to exchange the Hard Loop IDs of the DAC FFx controllers.

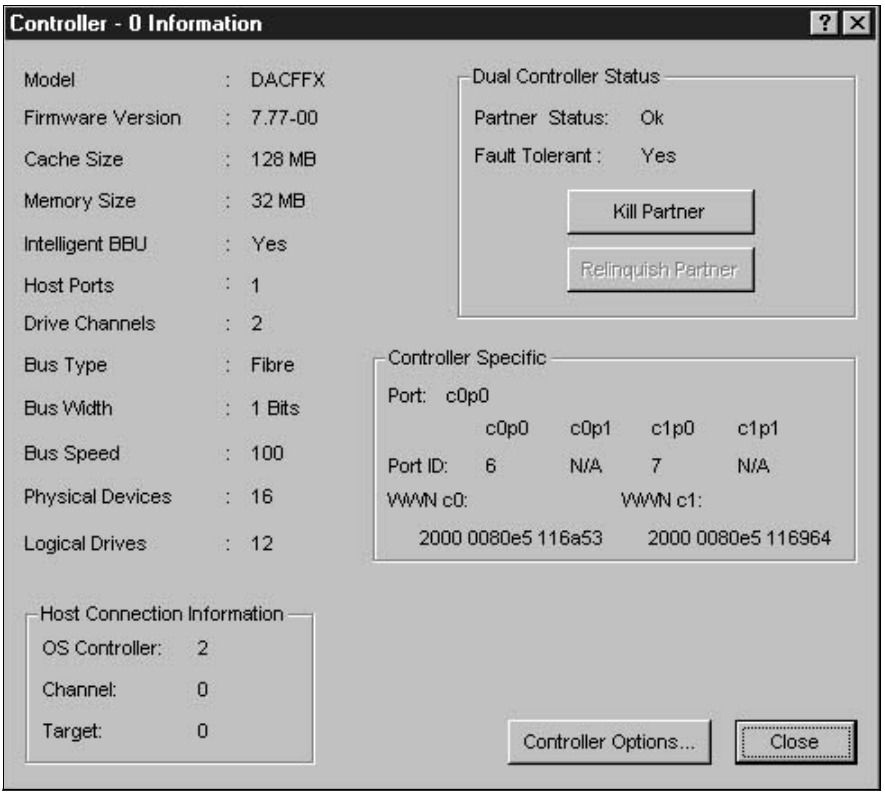

Figure 8: SAM Controller Information Window (dual active)

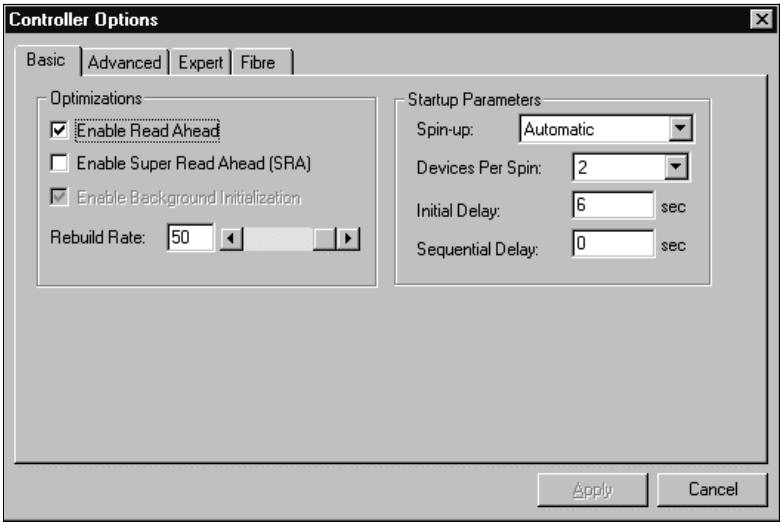

Figure 9: SAM Basic Controller Options Dialog Box (dual active)

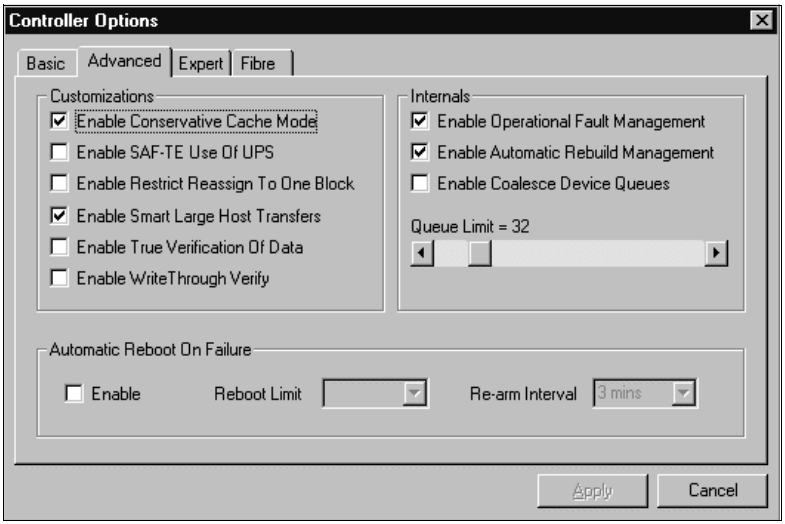

Figure 10: SAM Advanced Controller Options Dialog Box (dual active)

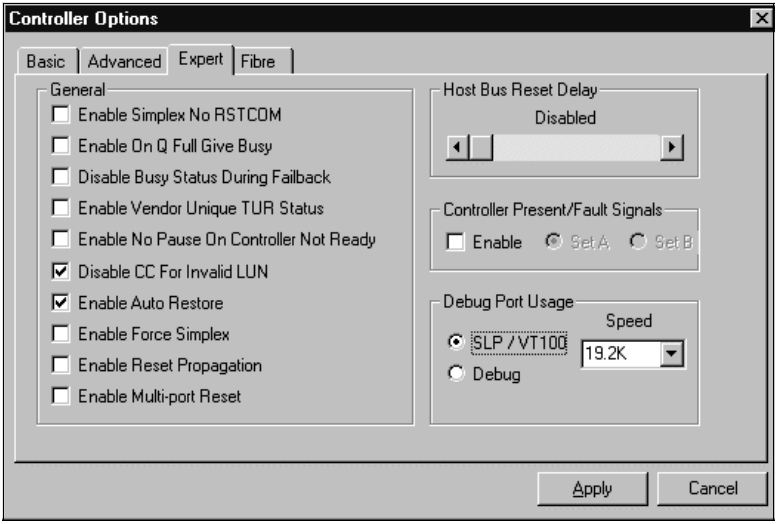

Figure 11: SAM Expert Controller Options Dialog Box (dual active)

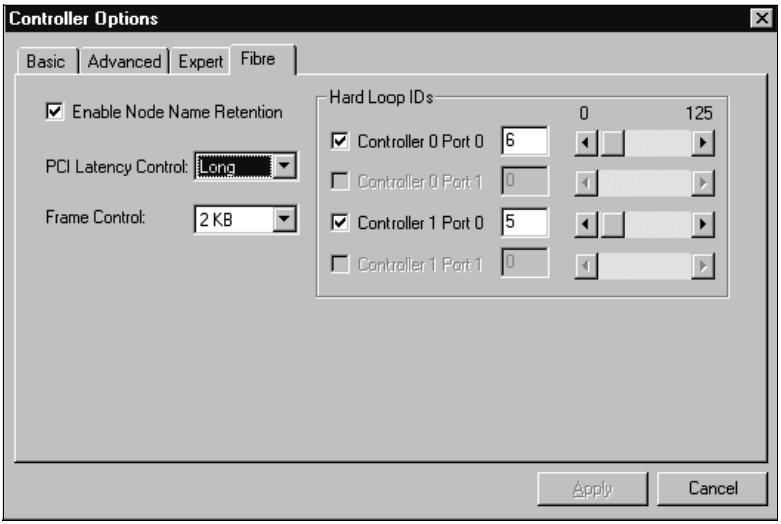

Figure 12: SAM Fibre Controller Options Dialog Box (dual active)

2.2.3 SAN Mapping Tab

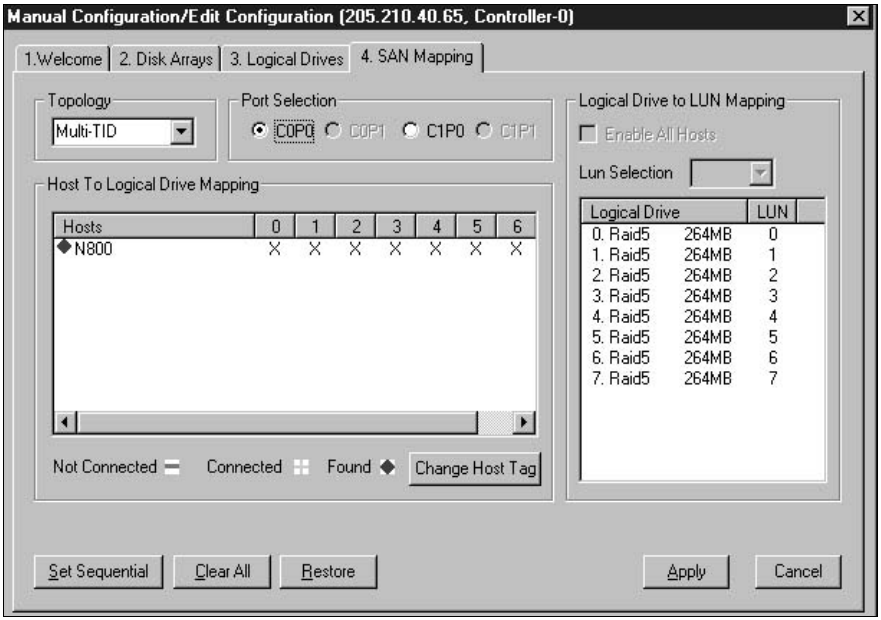

Figure 13: SAM Manual Configuration / Edit Configuration

2.3 Qlogic Configuration Hints

In Switch/Fabric configurations the *Connection Options* (parameter 1.6.3 in table 9 on page 51) must be set to **1**.

The *LUN per Target* (parameter 1.5.4 in table 6 on page 50) must be set to the number of LUNs configured in the PRIMERGY S60 (maximum 32) when booting from a FFx-RAID controller.

E.g.: When booting from a FFx-RAID controller, *LUN per Target* must be set.

3 Configurations

The FFx-RAID controllers use RAID technology to provide protection against drive failures. The FFx-RAID controllers also support configurations that employ multiple hosts and redundant controllers for improved fault-tolerance and high-performance data through-put. This chapter provides examples of non-clustering and cluster server single and dual-active controller configurations in host cabling topologies.

Single controller configurations do not provide continuous operation in the event of a controller failure; however, they do provide fault-tolerance against data loss provided a redundant RAID level is installed.

i In a simplex configuration the storage subsystem can be accessed only via the FFx-RAID controller module 0 (marked DAC 0 in figure 1 on page 4).

Dual-active controller topologies allow more than one controller to access the storage space. Some dual-active configurations ensure that if one controller fails, the other will take over the functions and continue to process system I/O operations. This is known as fail over.

i The corresponding FC connectors on the FFx-RAID controller modules in the configuration diagrams are marked with the notational convention below:

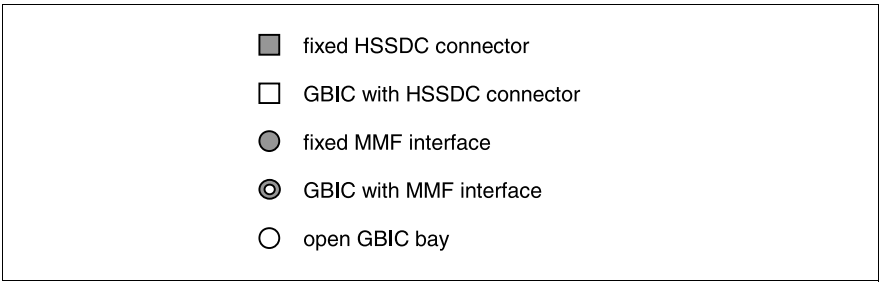

Figure 14: Notational Conventions for FC Connectors

3.1 Non Cluster Configurations

3.1.1 Direct Attached

Description

- single controller configuration, no controller and path redundancy
- for rack internal connections low cost copper cable (up to 10 m) are preferred, no GBIC needed
- optional use of MMF (Multi Mode Fibre) cables (up to 500 m) with MMF HBA and MMF GBIC plugged into the PRIMERGY S60
- configuration with SMF (Single Mode Fibre) cables to PRIMERGY S60 (up to 10 km), requires HUB or switch with one MMF GBIC and one SMF GBIC, MMF HBA for the server and SMF GBIC plugged into the PRIMERGY S60
- SMF connections between HUB or switch and PRIMERGY S60 are also allowed for all other configurations with external HUB or switch

  ATTENTION!

  Long SMF connection (> 3 km) will reduce the performance due to longer delay on the optic cable. The released HBA are not optimized for long distance connection (capacity of credit buffer).
- direct SMF connection between server (HBA) and PRIMERGY S60 or HUB/switch is **NOT** possible, as there is no HBA with SMF interface available, this is also not planned

Configuration hints

- Fibre-Topology: -
- LUN Mapping: affinity to all ports, enable all hosts
- Loop IDs (see figure 15 on page 19)

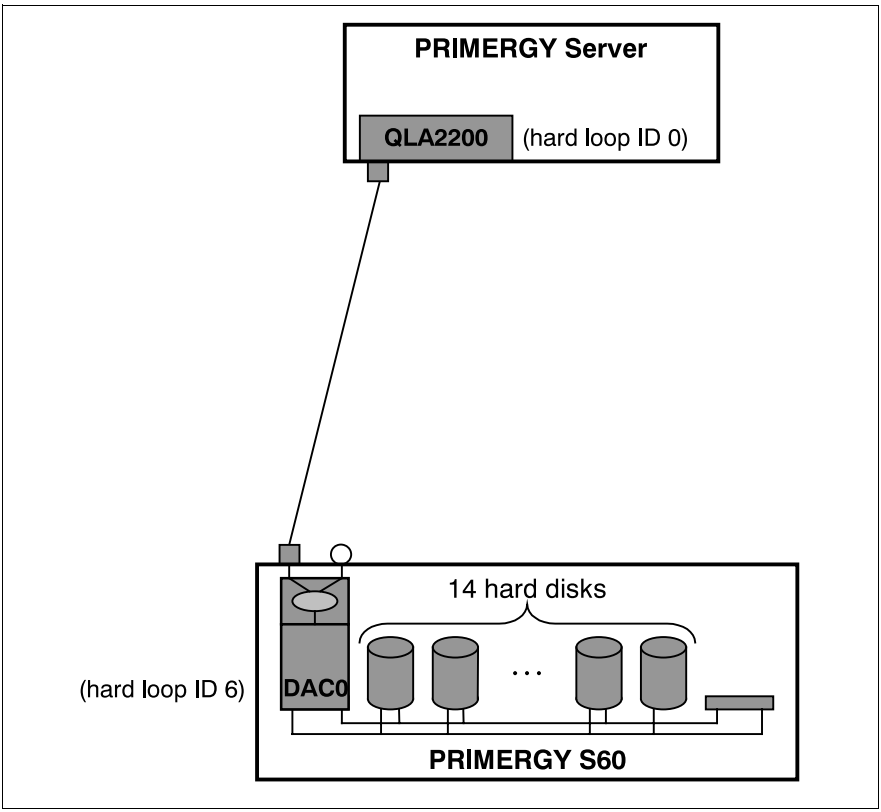

Figure 15: Direct Attached Storage Subsystem

3.1.2 Direct Attached with Controller Fail Over

Description

- dual controller configuration, with controller redundancy (controller fail over) and no path redundancy
- host connector with MMF (up to 500 m), MMF HBA and GBIC with MMF interface plugged into the PRIMERGY S60 necessary
- copper cable (3 m) with HSSDC connector for FFx-RAID controller module to module connection
- optional use of MMF cables (up to 500 m) with MMF HBA and one MMF GBIC plugged into the PRIMERGY S60
- dual-active FFx configuration is possible, but results only in a small performance increase

Configuration hints

- Fibre-Topology: Multi-TID
- shared loop configuration
- Loop IDs (see figure 16 on page 21)
- LUN Mapping: necessary, enable all hosts

A system drive may only be mapped once, either on DAC 0 or DAC 1 (see figure 1 on page 4), not on both controllers at one time; mapping of a system drive on both controllers results in double appearance to the Operating System.

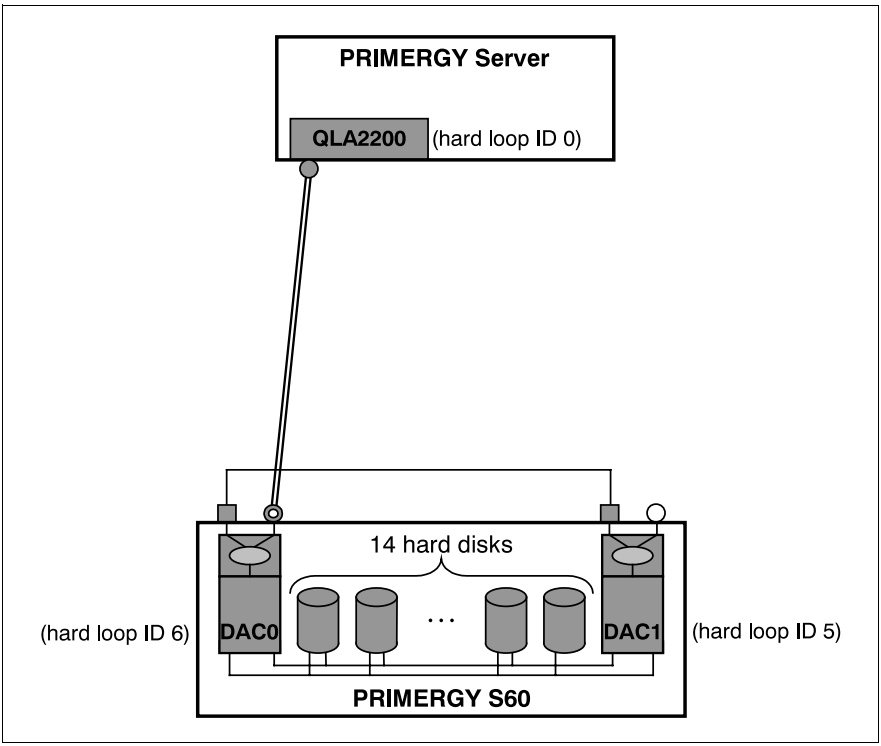

Figure 16: Direct Attached Storage Subsystem with Controller Fail Over

3.2 Path Redundancy Configurations

3.2.1 Standard Configuration (with Dual FFx-RAID Controller)

Description

- dual controller configuration with controller and path redundancy
- dual-active FFx configuration recommended, increases performance by nearly twofold
- DuplexDataManager (MultiPath) necessary
- for rack internal connections low cost copper cables (up to 10 m) are preferred, no GBIC needed
- optional use of MMF cables (up to 500 m) with MMF HBA and two MMF GBIC plugged into the PRIMERGY S60

Configuration hints

- Fibre-Topology: Multi Port
- Loop IDs (see figure 17 on page 23)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

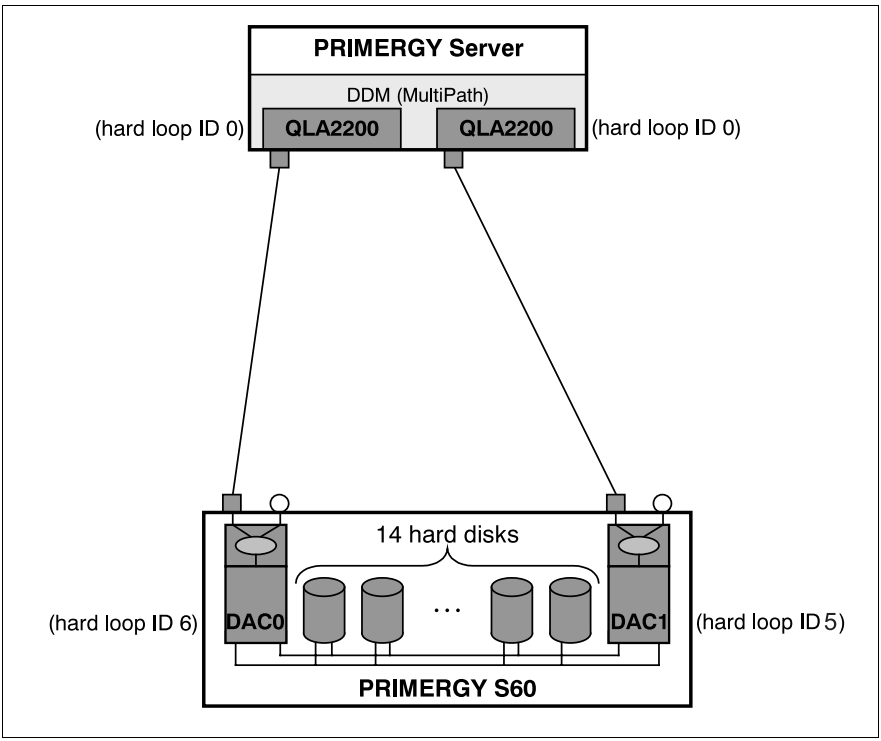

Figure 17: Path Redundancy with Dual FFx-RAID Controller

3.2.2 Path redundancy with Single FFx-RAID Controller

In a simplex configuration the storage subsystem can be accessed only via the FFx-RAID controller module 0 (marked DAC 0 in figure 1 on page 4).

Description

- DuplexDataManager (MultiPath) necessary
- for rack internal connections low cost copper cables (up to 10 m) are preferred, one copper GBIC needed
- optional use of MMF cables (up to 500 m) with MMF HBAs, one MMF GBIC and MIA plugged into the PRIMERGY S60

Configuration hints

- Fibre-Topology: -
- Loop IDs (see figure 18 on page 25)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

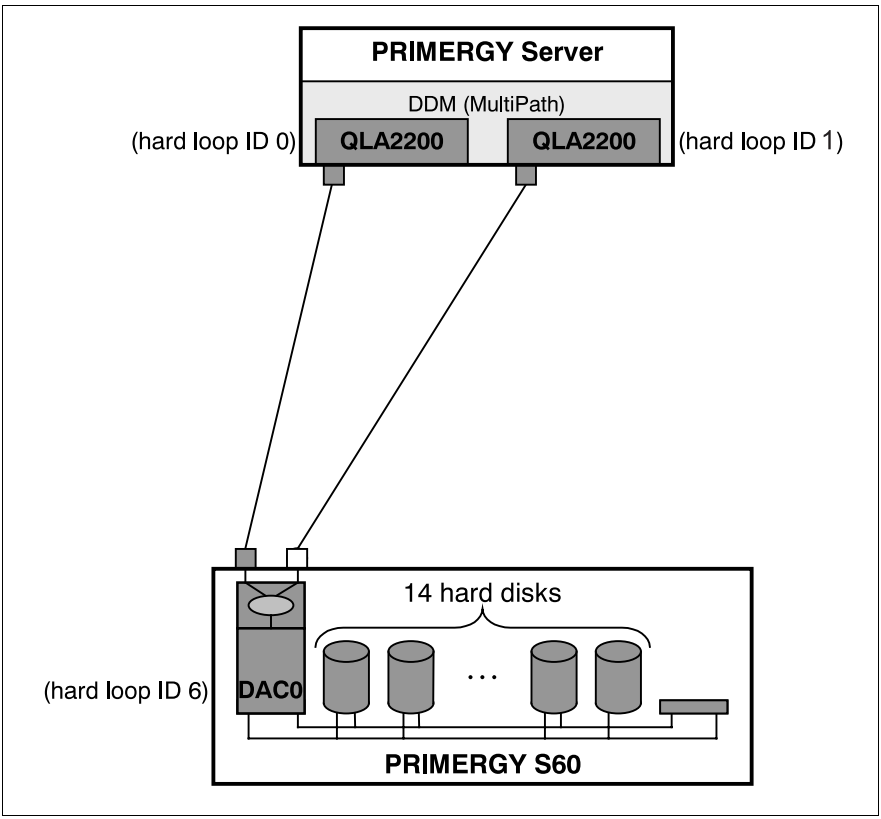

Figure 18: Path Redundancy with Single FFx-RAID Controller

3.2.3 MultiPath and DuplexWrite

Description

- for rack internal connections low cost copper cables (up to 10 m) are preferred, two copper GBIC needed
- copper cables for PRIMERGY S60 to PRIMERGY S60 connection required
- optional use of MMF cables (up to 500 m) between server with MMF HBA and PRIMERGY S60, two MMF GBIC necessary instead of copper GBICs plugged into the PRIMERGY S60. Copper cables for PRIMERGY S60 to PRIMERGY S60 connection are still used
- DuplexDataManager (MultiPath and DuplexWrite) necessary
- dual-active FFx configuration recommended, increases performance by nearly two

Configuration hints

- Fibre-Topology: Multi-Port
- Loop IDs (see figure 19 on page 27)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

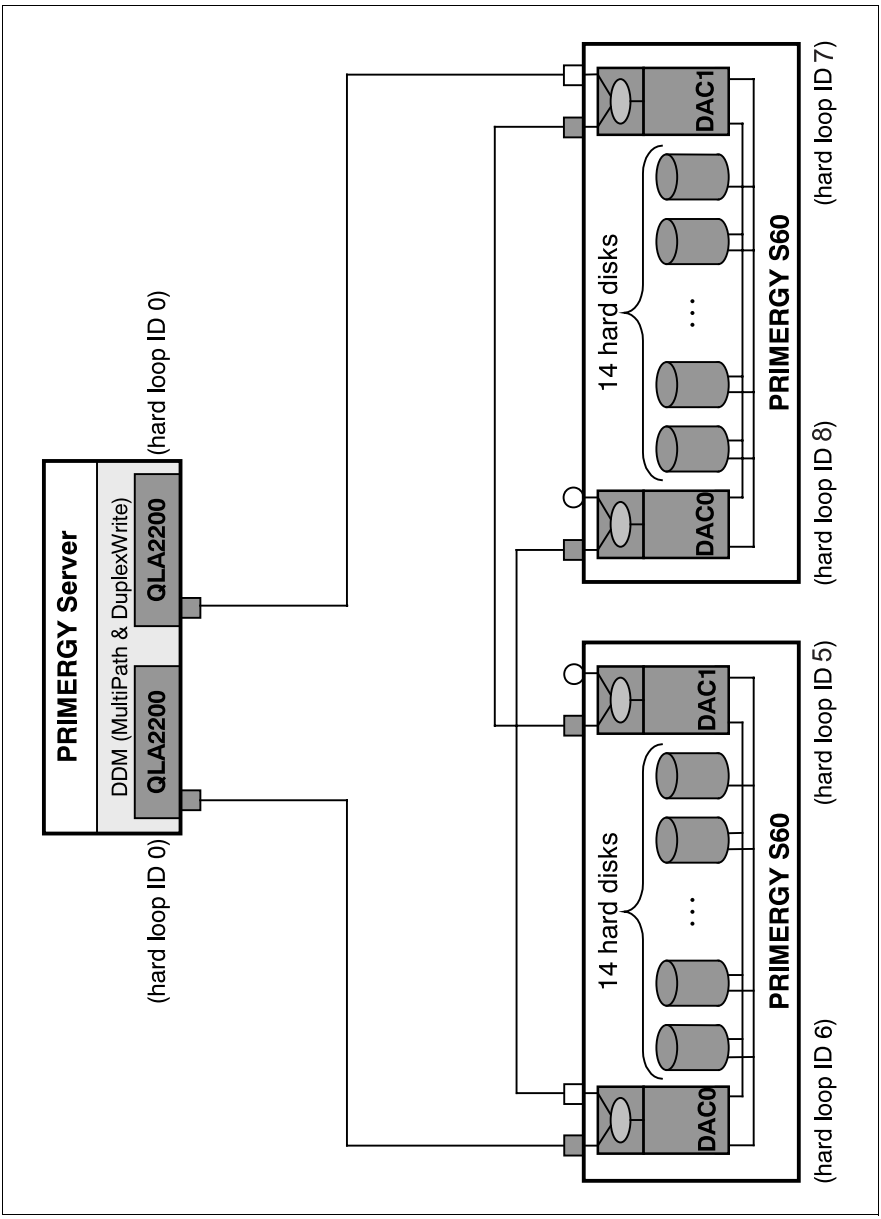

Figure 19: MultiPath and DuplexWrite

3.3 Cluster Configurations

3.3.1 Entry Cluster with Single Controller Configuration

Description

- Microsoft Cluster released and certified
- UnixWare Cluster released and certified
- for rack internal connections low cost copper cables (up to 10 m) are preferred, one copper GBIC needed
- optional use of MMF cables (up to 500 m) with MMF HBAs and one MMF GBIC plugged into the PRIMERGY S60.

FFx configuration hints

- Fibre-Topology: -
- Loop IDs (see figure 20 on page 29)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

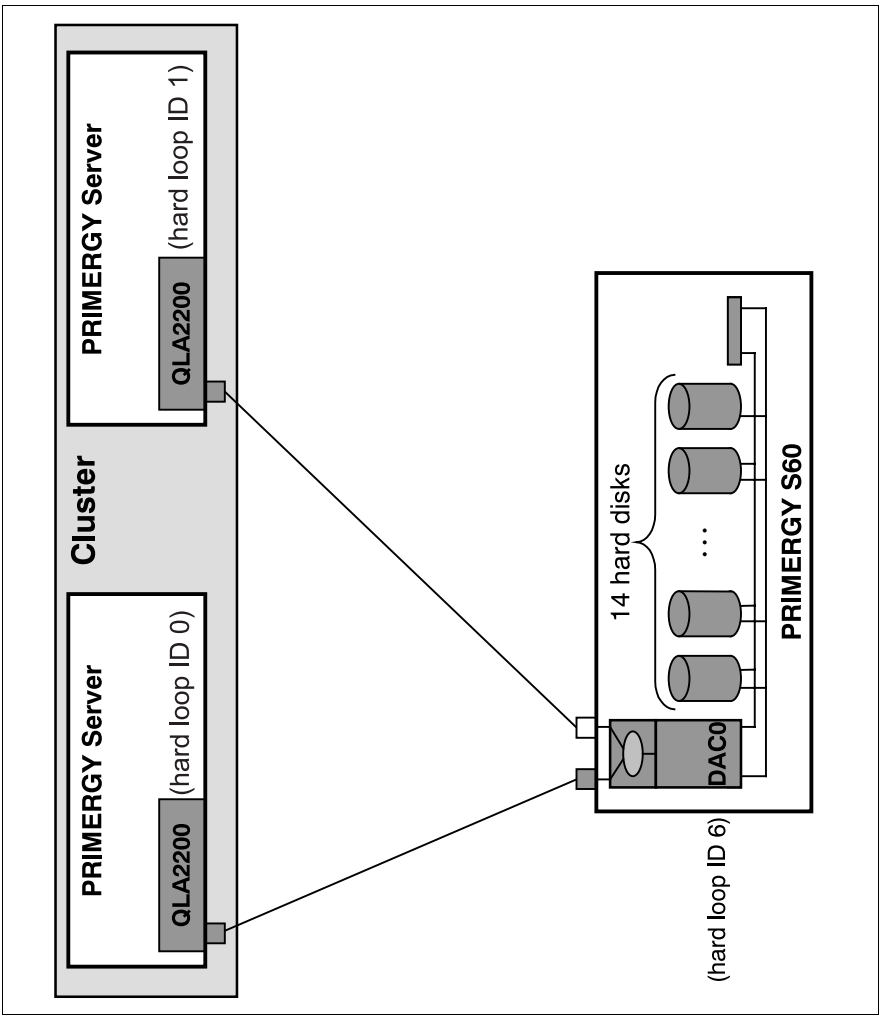

Figure 20: Entry Cluster

3.3.2 Entry Cluster with redundant Dual RAID Controller

Description

- no path redundancy
- Microsoft Cluster released and certified
- Linux Cluster with Reliant Cluster in preparation (no SAM server/driver available)
- for rack internal connections low cost copper cables (up to 10 m) are preferred, one copper GBIC at PRIMERGY S60 is needed

FFx configuration hints

- Fibre-Topology: Multi-TID
- Loop IDs (see figure 21 on page 30)
- LUN Mapping necessary: configure as needed

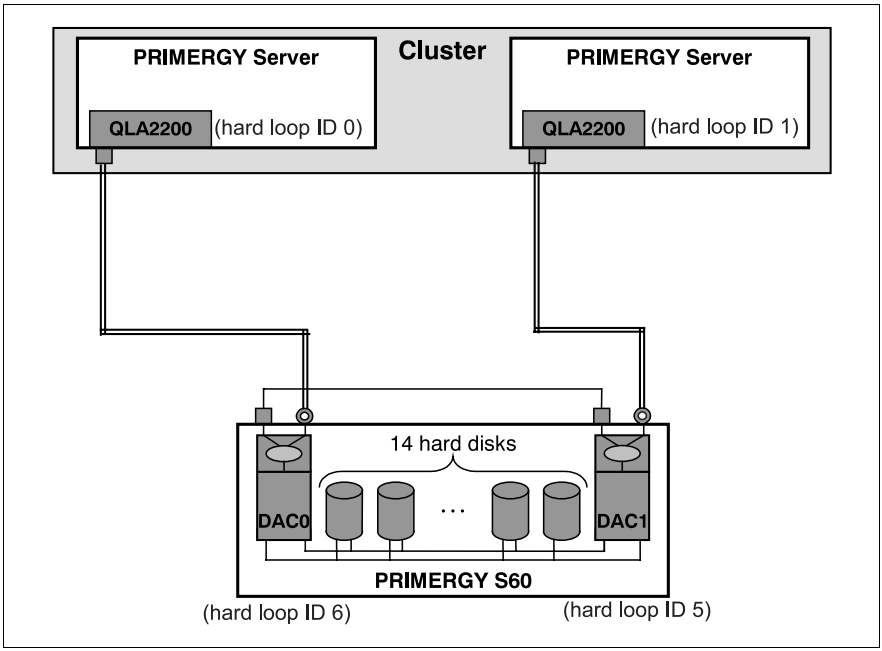

Figure 21: Entry Cluster with redundant Dual RAID Controller

3.3.3 Entry Cluster with Dual RAID Controller

Description

- no path redundancy
- Microsoft Cluster released and certified
- Linux Cluster with Reliant Cluster in preparation (no SAM server/driver available)
- for rack internal connections low cost copper cables (up to 10 m) are preferred

FFx configuration hints

- Fibre-Topology: Multi-Port
- Loop IDs (see figure 22 on page 31)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

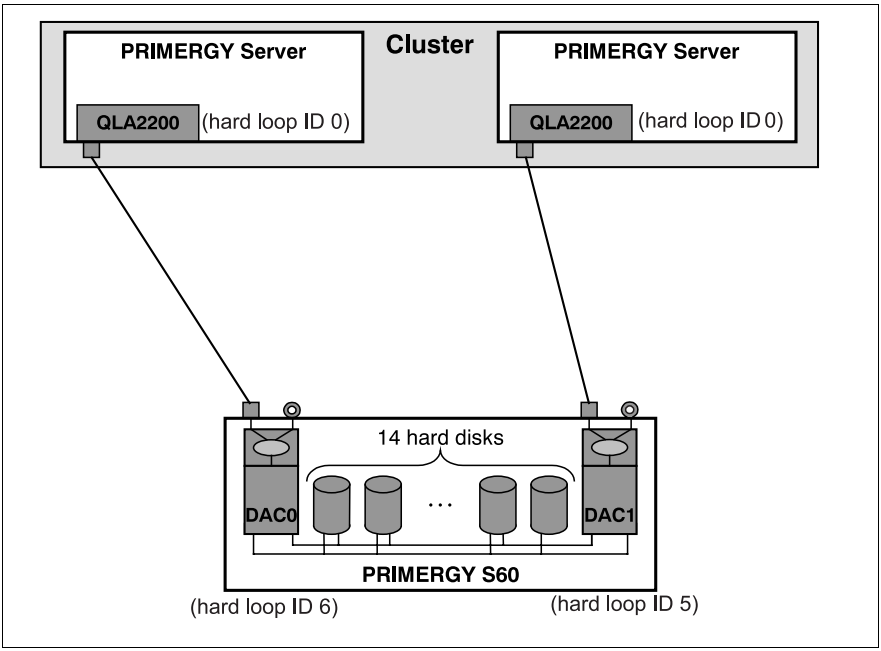

Figure 22: Entry Cluster with Dual RAID Controller

3.3.4 Cluster with DuplexWrite

Description

- Microsoft Cluster released and certified
- for rack internal connections low cost copper cables (up to 10 m) are preferred, two copper GBICs needed
- DuplexDataManager (DuplexWrite) needed

FFx configuration hints

- Fibre-Topology: -
- Loop IDs (see figure 23 on page 33)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

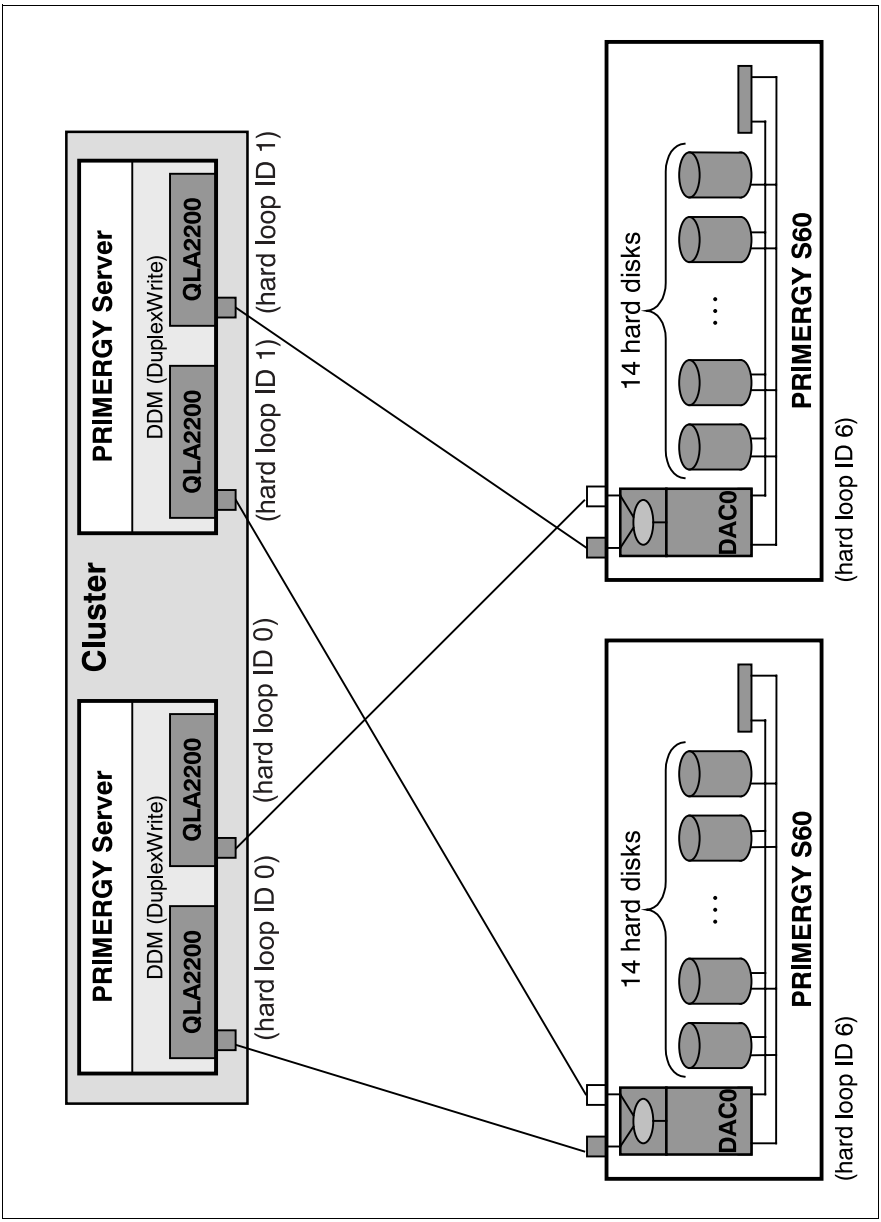

Figure 23: Cluster with DuplexWrite

3.3.5 Cluster with MultiPath

Description

- Microsoft Cluster released and certified
- for rack internal connections low cost copper cables (up to 10 m) are preferred, two copper GBICs needed
- DuplexDataManager (MultiPath) necessary

FFx configuration hints

- Fibre-Topology: Multi-Port
- Loop IDs (see figure 24 on page 35)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed

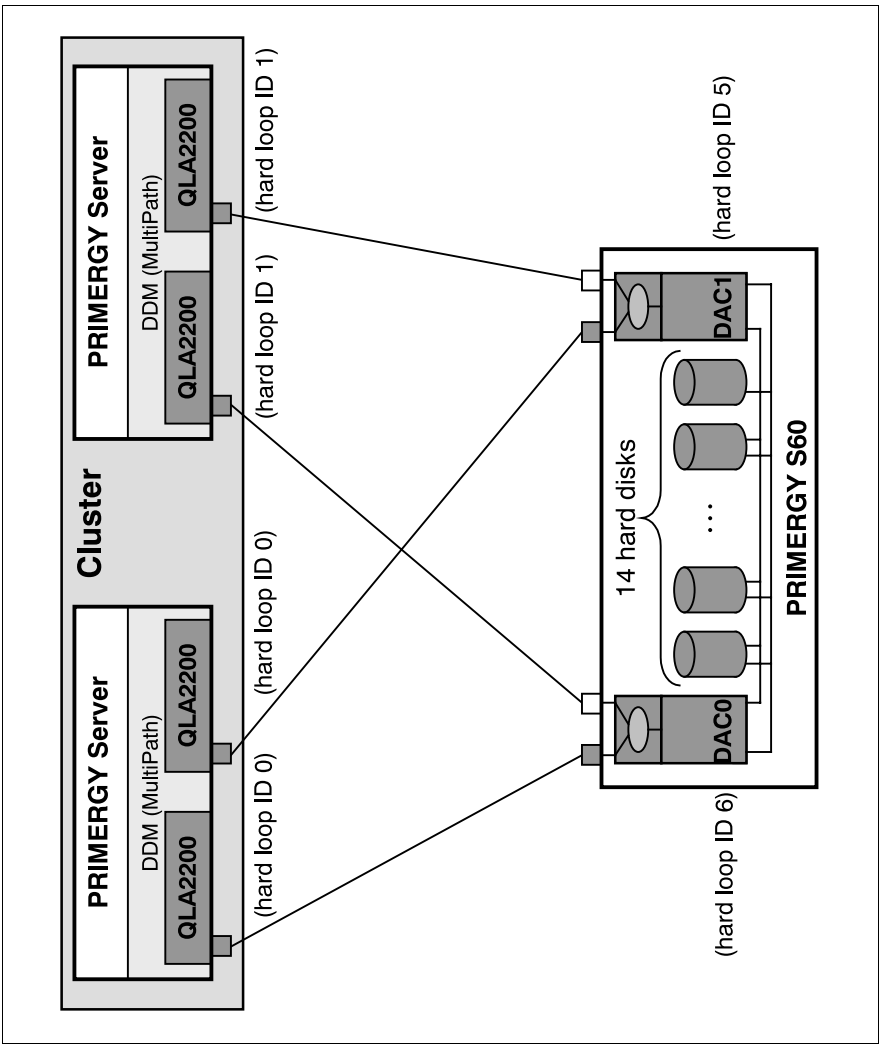

Figure 24: Cluster with MultiPath

3.3.6 Cluster with MultiPath and DuplexWrite

Configuration hints

- Fibre-Topology: Multi Port
- Loop IDs (see figure 25 on page 37)
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed
- optional use MMF cables (up to 500 m) with MMF HBA and MMF GBIC plugged into the PRIMERGY S60
- DuplexDataManager (MultiPath and DuplexWrite) necessary

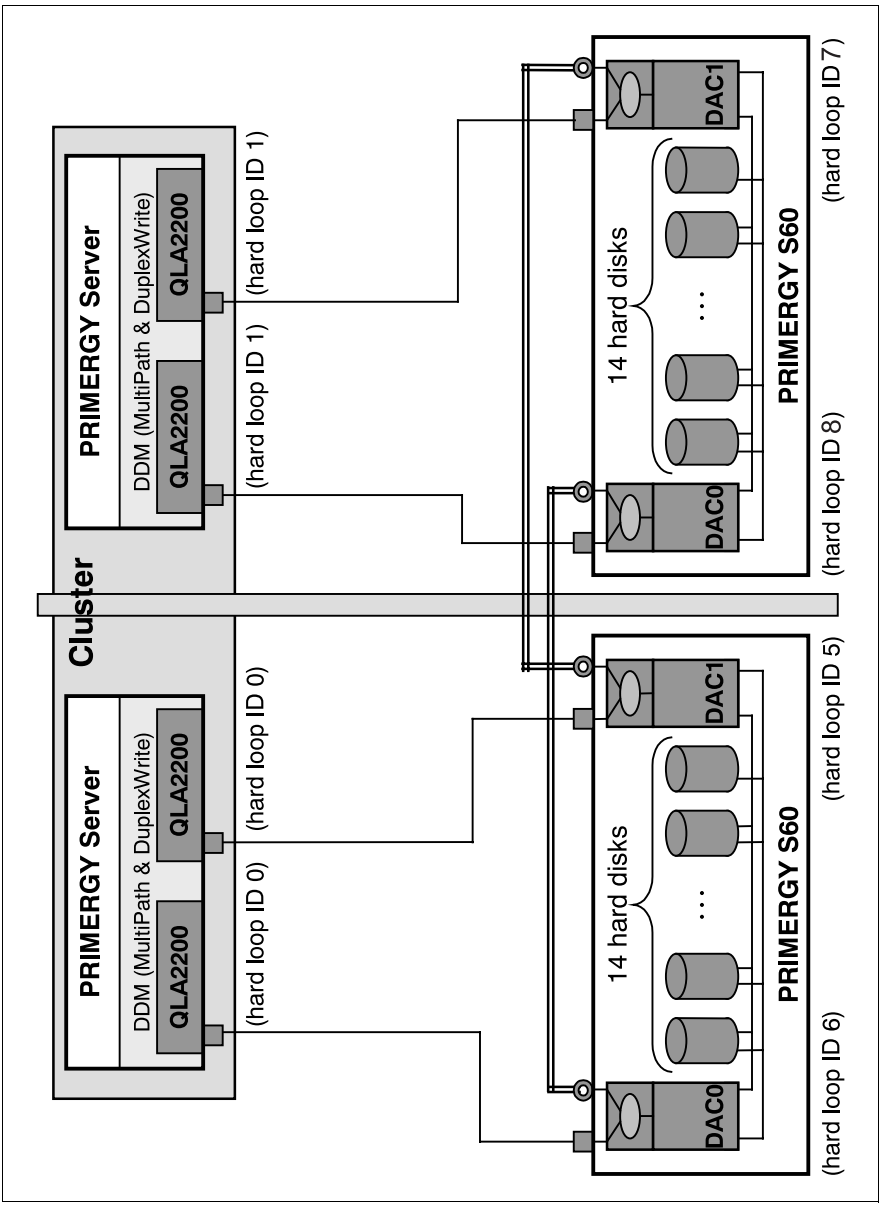

Figure 25: Cluster with MultiPath and DuplexWrite

3.3.7 Cluster with MultiPath and DuplexWrite in a Switch Configuration

Configuration hints

- Fibre-Topology: Multi Port
- LUN Mapping: affinity to all ports, enable all hosts or configure as needed
- optional use MMF cables (up to 500 m) with MMF HBA and MMF GBIC plugged into the PRIMERGY S60
- DuplexDataManager (MultiPath and DuplexWrite) necessary
- the alternate MultiPath connections must be separated by zoning
- Hard Loop ID disabled

Settings

► Set DIP switches on FFx-RAID controller/host adapter (HA board) (see section “DIP Switches Settings for Different Connections” on page 6).

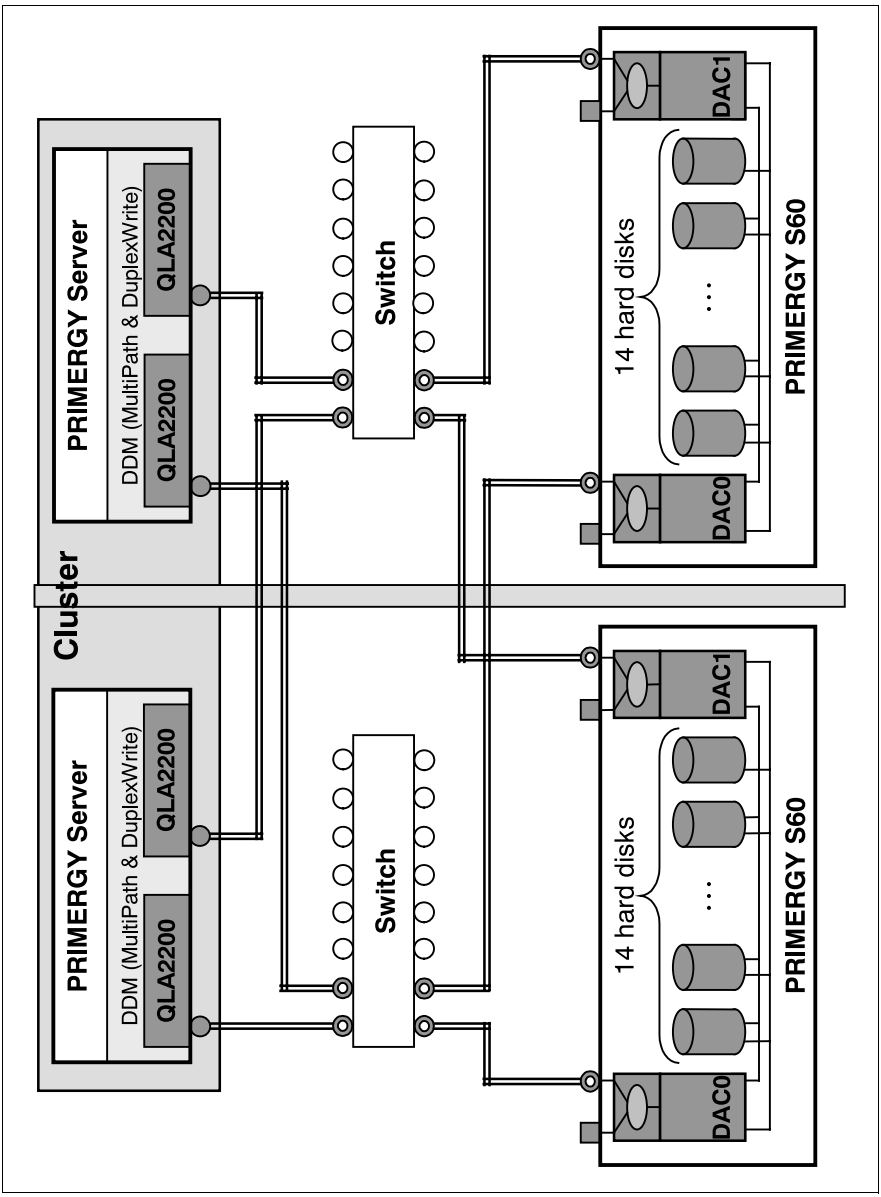

Figure 26: Cluster with MultiPath and DuplexWrite in a Switch Configuration

3.4 SAN Mapping Configurations

3.4.1 SAN Mapping without External HUB/Switch

Configuration hints

- Fibre-Topology: -
- Loop IDs (see figure 27 on page 40)
- LUN affinity as needed

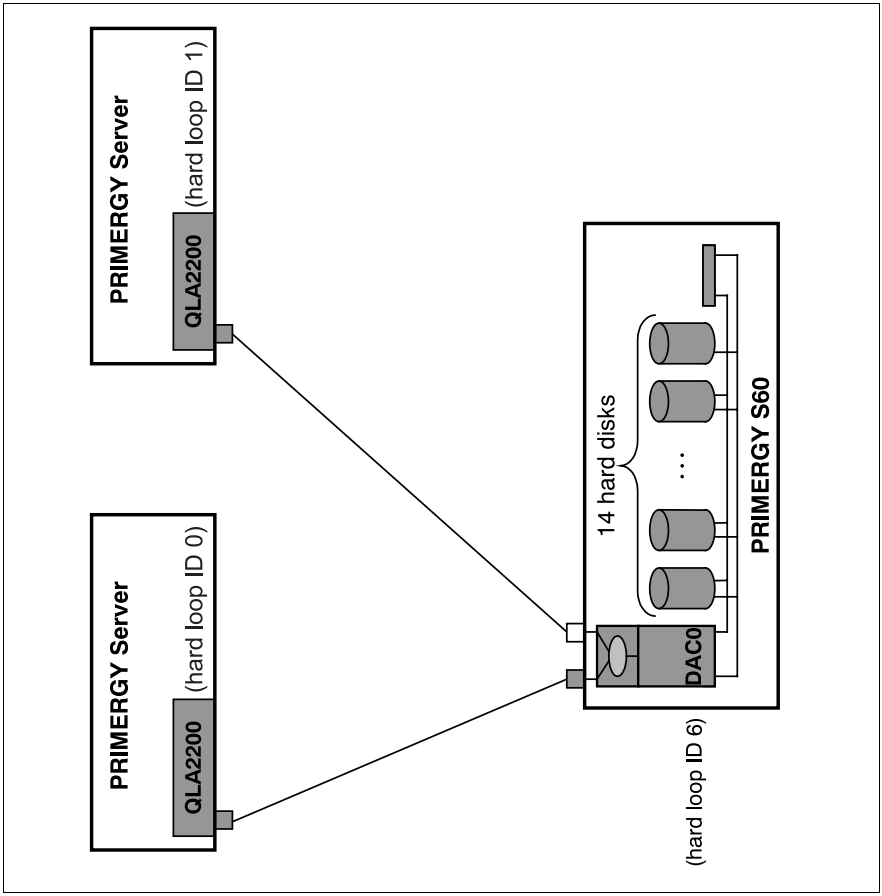

Figure 27: SAN Mapping without External HUB/Switch

3.4.2 Standard SAN Mapping in Switch Configuration

Configuration hints

- Fibre-Topology: -
- LUN Mapping: affinity to C0P0, host-to-LUN-mapping
- up to four PRIMERGY servers are released
- in configurations with switches MMF is the preferred connection medium
- zoning recommended for the switch
- QLA 2200 settings: see table 9 on page 51, Submenu 1.6.3: *Connection Options/Point to Point Only (1)*
- Hard Loop ID disabled

Settings

► Set DIP switches on FFx-RAID controller/host adapter (HA board) (see section “DIP Switches Settings for Different Connections” on page 6).

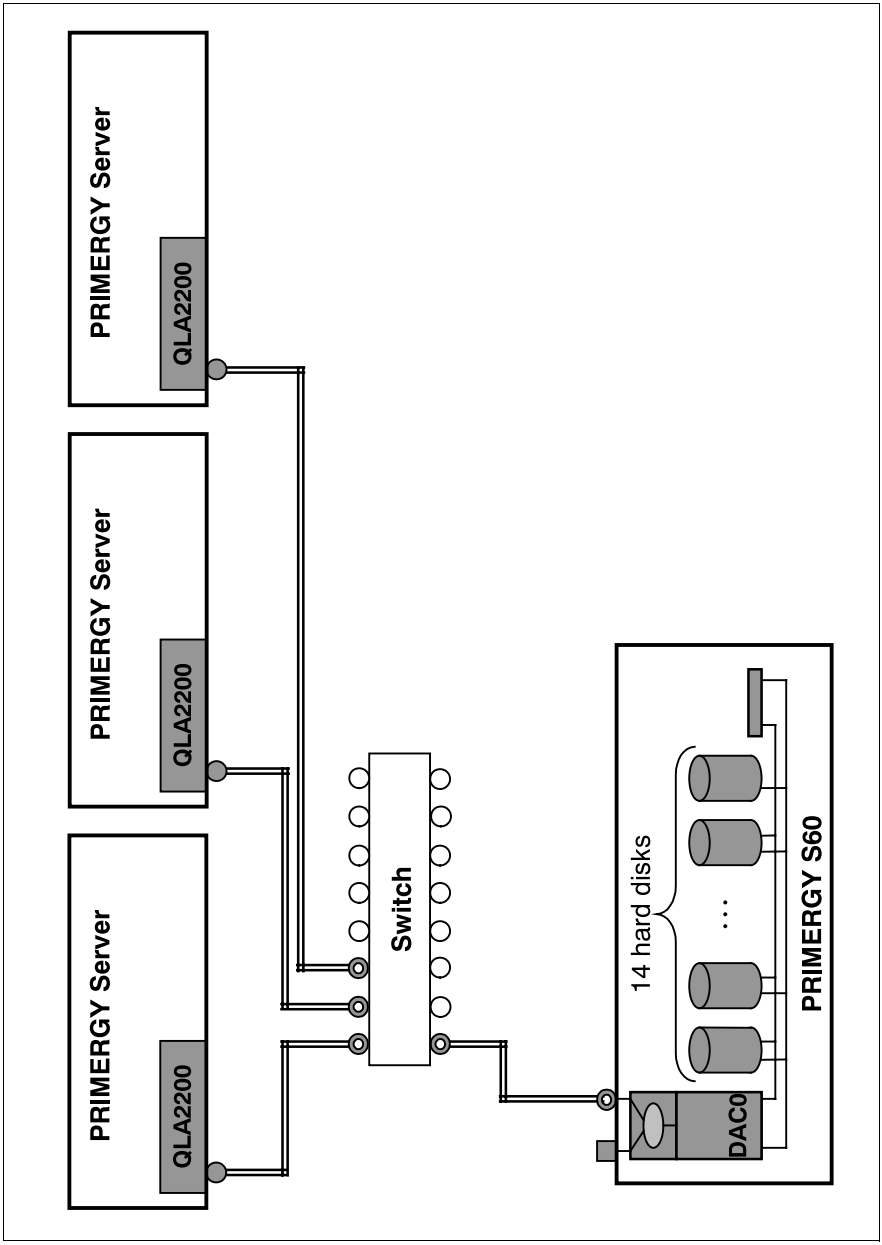

Figure 28: Standard SAN Mapping in Switch Configuration

3.4.3 SAN Mapping with Controller Fail Over in Switch Configuration

PRIMERGY S60 configurations with both FFx-RAID controller in the same loop attached to a fibre channel switch can not be supported. Due to a technical modification of the mini HUB this configuration must be withdrawn.

3.4.4 SAN Mapping with MultiPath in Switch Configuration

Configuration hints

- Fibre-Topology: Multi Port
- LUN Mapping: affinity to all ports, host-to-LUN-mapping
- up to four PRIMERGY servers are released
- in configurations with switches MMF is the preferred connection medium
- DuplexDataManager (MultiPath) necessary
- zoning recommended for the switch
- Loop IDs (see figure 29 on page 44) for FFx, HBAs disabled

Settings

► Set DIP switches on FFx-RAID controller/host adapter (HA board) (see section “DIP Switches Settings for Different Connections” on page 6).

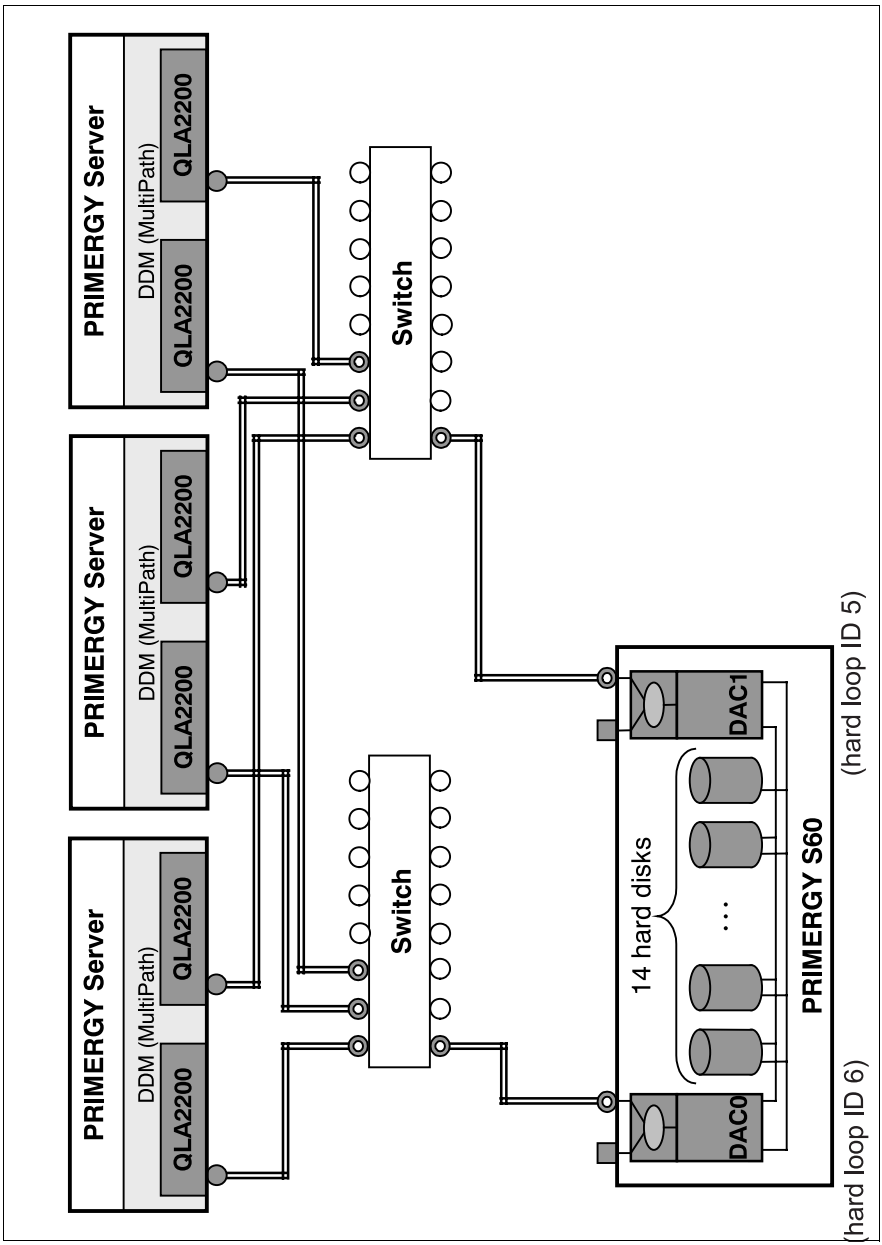

Figure 29: SAN Mapping with MultiPath in Switch Configuration

3.4.5 SAN Mapping with MultiPath and DuplexWrite in Switch Configuration

Configuration hints

- Fibre-Topology: Multi Port
- LUN Mapping: affinity to all ports, host-to-LUN-mapping
- up to four PRIMERGY servers are released
- in configurations with switches MMF is the preferred connection medium
- DuplexDataManager (MultiPath and DuplexWrite) necessary
- QLA 2200 settings: see table 9 on page 51, Submenu 1.6.3: *Connection Options/Point to Point Only (1)*
- Loop IDs (figure 30 on page 46) for FFx, HBAs disabled

Settings

► Set DIP switches on FFx-RAID controller/host adapter (HA board) (see section “DIP Switches Settings for Different Connections” on page 6).

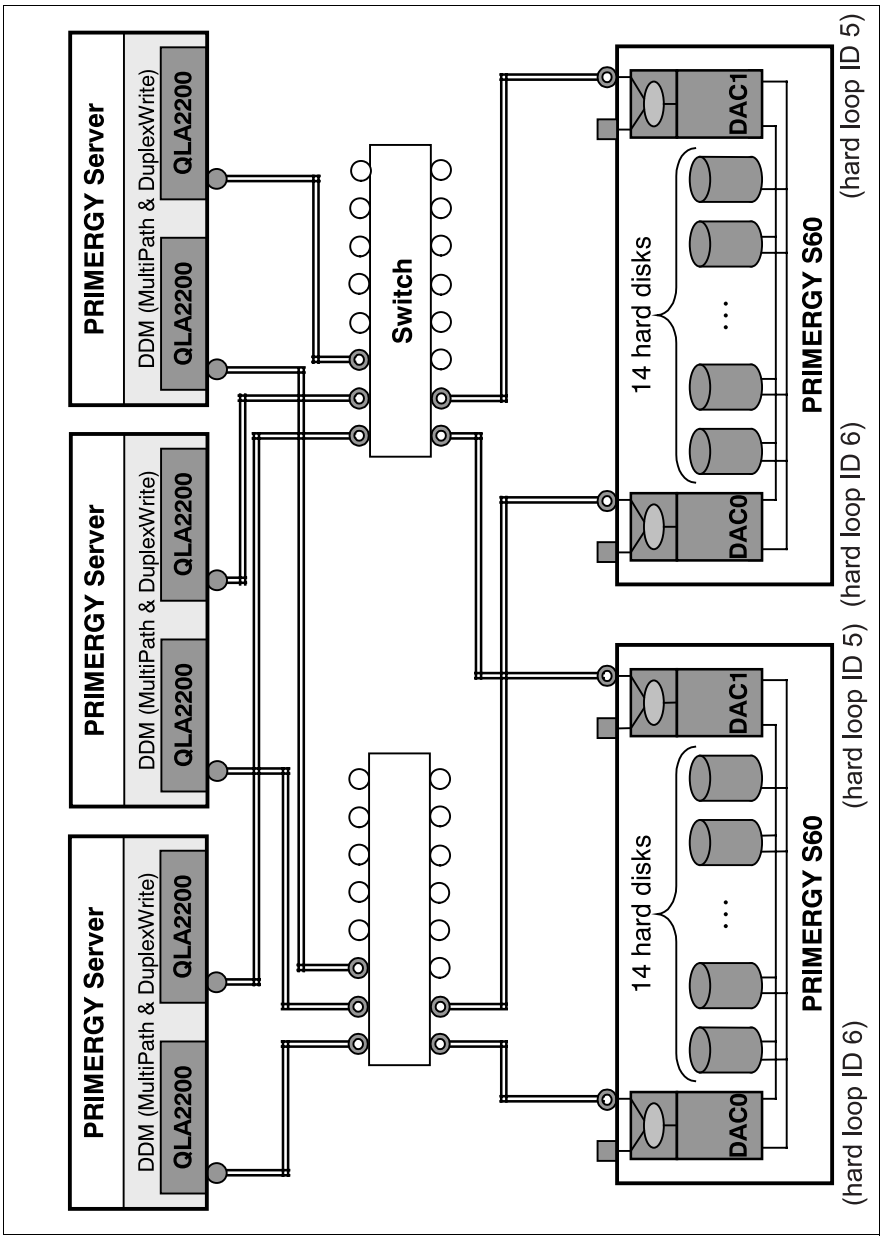

Figure 30: SAN Mapping with MultiPath and DuplexWrite in Switch Configuration

4 Appendix

4.1 Recommended Configuration Settings for QLA2200 Fibre Channel HBA

The settings described in this chapter are valid for QLA FW 1.61 only.

Fujitsu Siemens Computers recommends configuring the Qlogic BIOS settings with the FSC-approved NVRAM settings file. This contains all the BIOS settings for the QLA2200 HBA that have been tested and approved for connection to storage subsystems (like PRIMERGY S60) in RAID configurations.

If you are configuring the QLA2200 HBA, you must manually set the adapter topology for either fabric or arbitrated loop and the Port Down Retry Count using the *Fast!UTIL* tool.

Follow the steps below to set the topology and the Port Down Retry Count:

1. Boot the Windows host and press Alt + Q when prompted to:

   ```
   Press <Alt-Q> for Fast!UTIL
   ```

   This prompt appears with the Qlogic startup banner during boot-up.

2. After the *Fast!UTIL-Version 1.77* program loads, the initial display will depend on whether there are multiple Qlogic HBAs installed in the server:

   - If there is only one Qlogic HBA, the *Fast!UTIL Options* menu appears (table 1 on page 49).
   - If there are multiple Qlogic HBAs, a list of memory addresses occupied by those HBAs appears:

Selected Adapter	
Adapter Type	**I/O Address**
QLA22xx	xxx
xxx	xxx

     Using the arrow keys, select the desired HBA and press Enter ↵. The *Fast!UTIL Options* menu (table 1 on page 49) appears.

3. Select *Configuration Settings* (see table 1 on page 49) from the *Fast!UTIL Options* menu and press Enter ↵.
4. Select *Extended Firmware Settings* (submenu no. 1.6; see table 2 on page 49) from the *Configuration Settings* menu and press Enter ↵.
5. Select *Connection Options* (submenu no. 1.6.3; see table 9 on page 51)and press Enter ↵.
6. Set the appropriate option value corresponding to the table below and press Enter ↵:

Loop configuration	option	value
Arbitrated Loop	Loop Only	0
Fabric	Point to Point Only	1

7. Press Esc to return to the *Configuration Settings* menu.
8. Select *Advanced Adapter Settings* (submenu no. 1.5; see table 2 on page 49) from the *Configuration Settings* menu and press Enter ↵.
9. Select *PortDownRetryCount* (submenu no. 1.5.9; see table 6 on page 50)and press Enter ↵.
10. Set the appropriate value (**60**) and press Enter ↵(see also table 8 on page 51).
11. Press Esc to return to the *Fast!UTIL Options* menu.
12. When prompted to save changes made to the current adapter, select *Save Changes* and press Enter ↵.
13. If there are more adapters to configure, choose *Select Host Adapter* in the *Fast!UTIL Options* menu and repeat steps 3 through 9 for each adapter.
14. Press Esc to exit *Fast!UTIL*.
15. Reboot the host.

i For more detailed description of all parameters refer to Hardware Installation Guide for the QLA2200/2200F/2202F on the ServerBooks-CD (see “Related Publications” on page 55).

4.1.1 Fast!UTIL - Menus

(QLA Bios 1.61, see FSC-Mailbox)

Menu No.	Fast!UTIL Options
1	Configuration Settings
2	Scan Fibre Devices
3	Fibre Disk Utility
4	Select Host Adapter
5	Exit Fast!Util

Table 1: Fast!UTIL Options menu

Submenu No. 1	Configuration Settings
1.1	Host Adapter Settings
1.2	Selectable Boot Settings
1.3	Restore Default Settings  **CAUTION!** Never activate!
1.4	Raw NVRAM Data
1.5	Advanced Adapter Settings
1.6	Extended Firmware Settings

Table 2: Configuration Settings submenu

Submenu No. 1.1	Host Adapter Settings	Options	Default
1.1.1	BIOS Address		xxxxx
1.1.2	BIOS Revision		1.61
1.1.3	Adapter Serial Number		Axxxxx
1.1.4	Interrupt Level		xx
1.1.5	Adapter Node Name		xxxxxxxxxxxxxxx
1.1.6	Host Adapter BIOS	enabled/disabled	disabled
1.1.7	Frame Size	512, 1024, 2048	2048
1.1.8	Loop Reset Delay	0-60 seconds	5 seconds
1.1.9	Adapter Hard Loop ID	enabled/disabled	disabled
1.1.10	Hard Loop ID	0-125	0

Table 3: Host Adapter Settings submenu

Submenu No. 1.2	Selectable Boot Settings	Options	Default
1.2.1	Selectable Boot Device		disabled
1.2.2	Current Boot Node Name (see table 5 below)		0000000000000000
1.2.3	Current Boot LUN Number		xx

Table 4: Selectable Boot Settings submenu

Submenu No. 1.2.2	Host Adapter Settings
1.2.2.1	Displays the node names of a maximum of 255 devices in the loop for selection of boot devices: ID Vendor Product Rev. Node Name Port Name

Table 5: Current Boot Node Name submenu

Select LUN	
0	LUN Status supported

Submenu No. 1.5	Advanced Adapter Settings	Options	Default
1.5.1	Execution Throttle	1-256	64
1.5.2	Fast Command Posting		enabled
1.5.3	> 4 GB Addressing		disabled
1.5.4	LUN per Target (see also section “Qlogic Configuration Hints” on page 16 and table 7 below)	0-255	8
1.5.5	Enable LIP Reset		no
1.5.6	Enable LIP full Login		yes
1.5.7	Enable Target Reset		yes
1.5.8	Login Retry Count	0-255	8
1.5.9	Port Down Retry Count (see table 8 below)	0-255	60
1.5.10	Driver Load Risk Code		enabled
1.5.11	Enable Data Base Updates		no
1.5.12	Disable Data Base Load		no

Table 6: Advanced Adapter Settings submenu

Submenu No. 1.5	Advanced Adapter Settings	Options	Default
1.5.13	IOCB Allocations	0-512	256
1.5.14	Extended Error Login		disabled

Table 6: Advanced Adapter Settings submenu

Submenu No. 1.5.4	LUN per Target	Option Value
1.5.4.1	QLA2200 is running on a WINNT4.0/WIN2000 system platform	8
1.5.4.2	QLA2200 is running on a system platform other than WINNT4.0/WIN2000	N N=1-255

Table 7: LUN per Target submenu

Submenu No. 1.5.9	Port Down Retry Count	Option Value
1.5.9.1	Primergy S40 /S60	60
1.5.9.2	EMC/Symmetrix specific	45

Table 8: Port Down Retry Count submenu

Submenu No. 1.6	Extended Firmware Settings	Options	Default
1.6.1	Extended Control Block		enabled
1.6.2	RIO Operation Mode		0
		Multiple responses	0
		Multiple responses, 16 bit handles, interrupt host	1
		Multiple responses, 32 bit handles, interrupt host	2
		Multiple responses, 16 bit handles, delay host interrupt	3
		Multiple responses, 32 bit handles, delay host interrupt	4

Table 9: Extended Firmware Settings submenu

Submenu No. 1.6	Extended Firmware Settings	Options	Default
1.6.3	Connection Options (see also section “Qlogic Configuration Hints” on page 16)		0
		Loop Only	0
		Point to Point Only	1
		Loop Preferred, otherwise Point to Point	2
		Point to Point, otherwise Loop	3
1.6.4	NonParticipating Hard ID		disabled
1.6.5	Class 2 Service		disabled
1.6.6	ACK 0		disabled
1.6.7	Fibre Channel Tape Support		disabled
1.6.8	Fibre Channel Confirm		disabled
1.6.9	Command Reference Number		disabled
1.6.10	Read Transfer Ready		disabled
1.6.11	Response Timer	0-255	0
1.6.12	Interrupt Delay Timer	0-255	0

Table 9: Extended Firmware Settings submenu

Submenu No. 2	Scan Fibre Devices
	Displays for 255 devices: ID Vendor Product Rev. Node Name Port Name

Table 10: Scan Fibre Devices submenu

Abbreviations

DAC
Disk Array Controller

DDM
DuplexDataManager

FC
Fiber Channel

GBIC
Gigabit Interface Converter

HBA
Host Bus Adapter

HSSDC
High Speed Serial Direct Connect

LUN
Logical Unit Number

MMF
Multi Mode Fibre

RAID
Redundant Arrays of Independent Disks

SAM
SAN Array Manager

SCSI
Small Computer System Interface

SMF
Single Mode Fibre

Related Publications

You find the PDF files listed below on the CD-ROM delivered with each server system.

[1] **Safety, Warranty and Ergonomics**

[2] **Global Array Manager™**
Client Software with Workstation Array Manager
Installation Guide and User Manual

[3] **Global Array Manager™ Server Software**
Installation Guide and User Manual

[4] **SANArray Manager™ Client Software**
Installation Guide and User Manual

[5] **Embedded Configuration Utility**
User's Guide

[6] **PRIMERGY S60 Server Subsystem**
Operating Manual

[7] **Hardware Installation Guide for the QLA2200/2200F/2202F**

Index

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Comments
Suggestions
Corrections

Submitted by

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