Release Notes for Sun™ Storage 6580 and 6780 Arrays

Sun Microsystems, Inc.
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Contents

Release Notes for Sun Storage 6580 and 6780 Arrays

This document contains important release information about the Sun Storage 6580 and 6780 Arrays and information that was unavailable at the time the product documentation was published. Read this document so that you are aware of issues or requirements that can affect the installation and operation of the Sun Storage 6580 and 6780 Arrays.

For information about the management software for the array, see the *Sun StorageTek Common Array Manager Software Release Notes, v6.2*.

Also, look for the latest patches pertaining to your environment. Select Patches & Updates from the following site:

`http://www.sun.com/download/`

The release notes consist of the following sections:

Features of the Sun Storage 6580 and 6780 Arrays

The Sun Storage 6580 and 6780 Arrays are 4-Gb/2-Gb/1-Gb Fibre Channel (FC) arrays that offer both direct attached storage (DAS) and storage area network (SAN) access. The Sun Storage 6580 and 6780 Arrays include the following features:

- Eight or 16 FC host interfaces
- 4-Gbits/sec, 2-Gbits/sec, and 1-Gbit/sec host interface speed
- Dual redundant controllers
- FC and Serial Advanced Technology Attachment (SATA)-2 disk drive support
- Support of up to 16 expansion trays with one controller tray
- A maximum of 256 drives (16 trays with up to 16 drives each)
- Monitoring and fault management support using Sun StorageTek Common Array Manager

The Sun Storage 6580 and 6780 Arrays are compared in TABLE 1.

TABLE 1 Comparison of Sun Storage 6580 and 6780 Array Configurations

	6580	6780
Total cache size per array	8 Gbytes	8 or 16 Gbytes
Number of host ports	8 4-Gbit/second	8 or 16 4-Gbit/second
Maximum number of drives supported	256	256
Maximum array configuration	1x17	1x17
Maximum RAW capacity	256 Tbytes	256 Tbytes
Optional number of additional storage domains supported	4/8/16/64/128/512	4/8/16/64/128/512

System Requirements

The software and hardware products that have been tested and qualified to work with the Sun Storage 6580 and 6780 Arrays are described in the following sections:

- "Firmware Requirements" on page 3
- "Disk Drives and Tray Capacity" on page 3

■ "Data Host Requirements" on page 4

You must have Sun StorageTek Common Array Manager, v6.2 (or later) software.

Firmware Requirements

The minimum firmware required for Sun Storage 6580 and 6780 Arrays is version 07.30.22.10. This firmware version (or higher) is installed on the array controllers prior to shipment.

If you need to upgrade to a later firmware revision, refer to the *Sun StorageTek Common Array Manager Software Release Notes, v. 6.2* for more information.

Disk Drives and Tray Capacity

TABLE 2 lists the size, speed, and tray capacity for the supported FC and SATA disk drives for Sun Storage 6580 and 6780 Arrays.

TABLE 2 Supported Disk Drives

Drive	Description
FC 146G15K	146-Gbyte 15,000-RPM FC drives (4 Gbits/sec); 2336 Gbytes per tray
FC 300G15K	300-Gbyte 15,000-RPM FC drives (4 Gbits/sec); 4800 Gbytes per tray
FC 400G10K	400-Gbyte 10,000-RPM FC drives (4 Gbits/sec): 6400 Gbytes per tray
FC 450G15K	450-Gbyte 15,000-RPM FC drives (4 Gbits/sec); 7200 Gbytes per tray
SATA 2, 500G7.2K	500-Gbyte 7,200-RPM SATA drives (3 Gbits/sec); 8000 Gbytes per tray
SATA 2, 750G7.2K	750-Gbyte 7,200-RPM SATA drives (3 Gbits/sec); 12000 Gbytes per tray
SATA 2, 1T7.2K	1-Tbyte 7,200-RPM SATA drives (3 Gbits/sec); 16000 Gbytes per tray

Additional legacy drives might also be supported with this product.

Data Host Requirements

This section describes supported data host software, HBAs, and switches.

Multipathing Software

This section provides a summary of the data host requirements for the Sun Storage 6580 and 6780 Arrays at the time this document was produced. It has tables listing the current multipathing software and supported host bus adapters (HBAs) by operating system.

You must install multipathing software on each data host that communicates with Sun Storage 6580 and 6780 Arrays.

For Solaris OS 8 and 9 data hosts, the multipathing software is part of the Sun StorageTek SAN Foundation software. Solaris OS 10 includes the multipathing software. For data hosts running the Solaris OS, follow the instructions in the *Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays* to download and install the software from the Sun Download Center.

TABLE 3 lists supported multipathing software by operating system.

TABLE 3 Multipathing Software

OS	Multipathing Software	Minimum Version	Latest Version	Host Type Setting	Notes
Solaris 8/9 SPARC	STMS/MPxIO	SFK 4.4.13	SFK 4.4.13 4.4.14 (Solaris 9)	Solaris with MPxIO	
Solaris 10	STMS/MPxIO	Update 6 or Update 5 with patch 137137-09 (SPARC), 137138-09 (x64/x86)	Kernel Jumbo Patch (KJP)	Solaris with MPxIO	
Solaris 8,9,10 with DMP	Symantec Veritas Dynamic Multi-Pathing (DMP)	5.0	5.0MP3	Solaris with DMP	
Windows 2003 Non-clustered	MPIO	01.03.0302.0013	01.03.0302.0013 (MPIO)	Windows 2000/2003 Non-clustered	

TABLE 3 Multipathing Software *(Continued)*

OS	Multipathing Software	Minimum Version	Latest Version	Host Type Setting	Notes
Windows MSCS Cluster	MPIO	01.03.0302.0013	01.03.0302.0013	Windows 2000/Server 2003 Clustered	You must use MPIO for 7.10 and above
Windows 2000/2003 Non-clustered with DMP	DMP	5.0	5.1	Windows 2000/Server 2003 Non-clustered (with Veritas DMP)	Pending vendor qualification, see Symantec's HCL
Windows 2003 Clustered with DMP	DMP	5.0	5.1	Windows Server 2003 clustered (with Veritas DMP)	Pending vendor qualification, see Symantec's HCL
Windows 2008	MPIO	01.03.0302.0013	01.03.0302.0013	Windows 2000/Server 2003	
AIX 5.2, 5.3	SUNdac Plugin	5.2.0.16	5.2.0.16	AIX	
AIX 5.3 with DMP	DMP	5.0	5.0MP3	AIX with DMP	Pending vendor qualification, see Symantec's HCL
Red Hat 4 SUSE 9/SUSE 10	RDAC/MPP	09.03.0B02.0013	09.03.0B02.0013	Linux	
Red Hat 5 SUSE 10 SP1	RDAC/MPP	09.03.0C02.0013	09.03.0C02.0013	Linux	
Red Hat SUSE with DMP	DMP	5.0MP3	5.0MP3	Linux with DMP	Pending vendor qualification, see Symantec's HCL
HPUX	Veritas DMP	5.0MP1	5.0MP1	HP-UX	Pending vendor qualification, see Symantec's HCL

Supported Host Bus Adaptors (HBAs)

TABLE 4, TABLE 5, and TABLE 6 lists supported HBAs and other data host platform elements by operating system.

HBAs must be ordered separately from Sun or its respective manufacturers. Sun HBAs can be ordered from:

/www.sun.com/storagetek/storage_networking/hba/

You can download HBA drivers and other host software from the Sun Download Center at:

http://www.sun.com/software/download/

Download operating system updates from the web site of the operating system company.

You must install the multipathing software before you install any OS patches.

TABLE 4 Supported HBAs for Solaris Data Host Platforms

Operating System	Minimum OS Patches	Sun 2-Gbit HBAs	Sun 4-Gbit HBAs	Sun 8-Gb HBAs
Solaris 8	108974-49 or higher	SG-XPCI1FC-QF2 (6767A) SG-XPCI2FC-QF2 (6768A) SG-XPCI2FC-QF2-Z (6768A)	SG-XPCI2FC-QF4 SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4	N/A
Solaris 9	113277-44 or higher	SG-XPCI1FC-QL2 (6767A) SG-XPCI2FC-QF2-Z (6768A) SG-XPCI1FC-EM2 SG-XPCI2FC-EM2)	SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI2FC-EM4-Z SG-XPCI1FC-EM4-Z	N/A
Solaris 10 SPARC	Update 6 or Update 5 with patch 137137-09	SG-XPCI1FC-QL2 (6767A) SG-XPCI2FC-QF2-Z (6768A) SG-XPCI1FC-EM2 SG-XPCI2FC-EM2	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z
Solaris 10 x64/x86	Update 6 or Update 5 with patch 137138-09	SG-XPCI1FC-QL2 (6767A) SG-XPCI2FC-QF2-Z (6768A) SG-XPCI1FC-EM2 SG-XPCI2FC-EM2	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z

TABLE 5 Supported HBAs for Microsoft Windows Data Host Platforms

Host OS / Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
Microsoft Windows 2008 Server 32-bit / x86 (IA32) 64-bit / x64 (AMD) EM64T IA64	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LPe12000/12002 Emulex Lpe11000/LPe11002/LPe1150 Emulex LP11000/LP11002/LP1150 Emulex LP9802/9802DC/982 Emulex LP952/LP9002/LP9002DC Emulex 10000/10000DC/LP1050 LSI 7102XP/7202XP	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z
Microsoft Windows 2003 32-bit with SP1 R2 / x86 (IA32)	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LPe12000/12002 Emulex Lpe11000/LPe11002/LPe1150 Emulex LP11000/LP11002/LP1150 Emulex LP9802/9802DC/982 Emulex LP952/LP9002/LP9002DC Emulex 10000/10000DC/LP1050 LSI 7102XP/7202XP	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z

TABLE 5 Supported HBAs for Microsoft Windows Data Host Platforms *(Continued)*

Host OS / Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
Microsoft Windows 2003 64-bit with SP1 R2 / x64 (AMD) EM64T IA64	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LPe12000/12002 Emulex Lpe11000/LPe11002/LPe1150 Emulex LP11000/LP11002/LP1150 Emulex LP9802/9802DC/982 Emulex LP952/LP9002/LP9002DC Emulex 10000/10000DC/LP1050 LSI 7102XP/7202XP	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z

TABLE 6 Supported HBAs for Linux Data Host Platforms

Host OS / Sun Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
Linux SuSE 10 SP2	QLogic QLE 256x QLogic QLE246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex LP11000/LP11002/LP1150 Emulex Lpe11000/LPe11002/LPe1150	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z

TABLE 6 Supported HBAs for Linux Data Host Platforms *(Continued)*

Host OS / Sun Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
Linux SuSE 9.0 - IA 32, 2.6 kernel / x64 EM64T x86 (IA32) IA64	QLogic QLE 256x QLogic QLE246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex LP11000/LP11002/LP1150 Emulex Lpe11000/LPe11002/LPe1150	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z
Linux SuSE 8.0*, 2.4 kernel / x64 EM64T x86 (IA32) IA64	QLogic QLE 256x QLogic QLE246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex LP11000/LP11002/LP1150 Emulex LPe11000/LPe11002/LPe1150	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI1FC-QF2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4 SG-XPCI2FC-EM4 SG-XPCIE2FCGB-QZ	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8 SG-XPCIE2FC-EM8

TABLE 6 Supported HBAs for Linux Data Host Platforms *(Continued)*

Host OS / Sun Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
RedHat 5 Update 1, 2 RHEL 5u1	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex Lpe11000/LPe11002/LPe1150 Emulex Lpe12000/LPe12002	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4-Z SG-XPCI2FC-EM4-Z SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z
Red Hat 4 Update 6 RHEL 4u6	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex Lpe11000/LPe11002/LPe1150 Emulex Lpe12000/LPe12002	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4-Z SG-XPCI2FC-EM4-Z SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z

TABLE 6 Supported HBAs for Linux Data Host Platforms *(Continued)*

Host OS / Sun Servers	HBAs	Sun 2-Gb HBAs	Sun 4-Gb HBAs	Sun 8-Gb HBAs
Red Hat Linux 4.0\, 2.6 kernel / x64 EM64T x86 (IA32) IA64	QLogic QLE 256x QLogic QLE 246x QLogic QLA 246x QLogic QLA 234x QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 Emulex Lpe11000/LPe11002/LPe1150 Emulex Lpe12000/LPe12002	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2 SG-XPCI1FC-QL2 SG-XPCI2FC-QF2-Z	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4 SG-XPCI1FC-QF4 SG-XPCI2FC-QF4 SG-XPCI1FC-EM4-Z SG-XPCI2FC-EM4-Z SG-XPCIE2FCGB-QZ SG-XPCIE2FCGBE-E-Z	SG-XPCIE1FC-QF8-Z SG-XPCIE2FC-QF8-Z SG-XPCIE1FC-EM8-Z SG-XPCIE2FC-EM8-Z
Red Hat Linux 3.0, 2.4 kernel / x64 EM64T x86 (IA32) IA64	QLogic QLA 246x QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F Emulex LP982/LP9802/9802DC Emulex LP9002/LP9002DC/LP952 Emulex LP10000/10000DC/LP1050 LSI 44929 LSI 40919	SG-XPCI1FC-EM2 SG-XPCI2FC-EM2	SG-XPCIE1FC-QF4 SG-XPCIE2FC-QF4 SG-XPCIE1FC-EM4 SG-XPCIE2FC-EM4	N/A

* Oracle Real Application Clusters (RAC), SteelEye LifeKeeper Server Clustering

\ SteelEye LifeKeeper Server Clustering

TABLE 7 Other Supported Data Host Platforms

Host OS	Host Servers	HBAs	Cluster Configurations
Novell NetWare 6.0 (SP5)	x86 (IA32)	QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F	Novell Cluster Services
Novell NetWare 6.5 (SP7)	x86 (IA32)	QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F QLogic QLA 246x	Novell Cluster Services
Novell NetWare 6.5 (SP3)	x86 (IA32)	QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F QLogic QLA 246x	Novell Cluster Services
IRIX 6.5.26, 6.5.27, 6.5.28, 6.5.29	MIPS	QLogic QLA 2310	N/A
HP-UX 11.31	HP RISC	HP A6795A HP A6826A HP A6684A HP A6685A HP A5158A HP AB378A HP AB379A HP AD300A HP AD355A	

TABLE 7 Other Supported Data Host Platforms *(Continued)*

HP-UX B11.11	HP RISC	HP A6795A HP A6826A HP A6684A HP A6685A HP A5158A	
HP-UX B.11.23	HP RISC IA64	HP A6795A HP A6826A HP A9784A HP AB378A HP AB379A HP AD300A HP AD355A	
IBM AIX 5.2, 5.3	Power	IBM 5716 IBM 5758 IBM 5759 IBM 6228 IBM 6239	Veritas Cluster Service

Note – The multipathing driver for the IBM AIX platform is VERITAS DMP, bundled in VERITAS Storage Foundation 5.0 for Sun Storage 6580 and 6780 Arrays. Download the Array Support Library (ASL) from `http://support.veritas.com/` as documented in the *Sun StorageTek Common Array Manager Software Release Notes, v6.2*.

Supported Enterprise Software

The enterprise software applications listed in TABLE 8 are compatible with the Solaris OS on the data host.

TABLE 8 Supported Enterprise Software

Software	Version
Legato NetWorker	7.3
Sun Cluster	3.0, 3.1
Sun StorageTek QFS software	4.0 minimum
Sun StorageTek SAM-FS software	4.0 minimum
Sun StorageTek Availability Suite	3.2 minimum
Sun StorageTek Enterprise Backup Software	7.3

TABLE 8 Supported Enterprise Software *(Continued)*

Software	Version
Solstice DiskSuite	4.2.1 (in conjunction with the Solaris 8 OS)
Solaris Volume Manager	Embedded in the Solaris 9 and 10 OSs
VERITAS Storage Foundation (VxVM/VxFS)	5.0
VERITAS Cluster Server (VCS)	5.0
VERITAS NetBackup	6.0 or higher

Supported FC and Multilayer Switches

The following FC fabric and multilayer switches are compatible for connecting data hosts and Sun Storage 6580 and 6780 Arrays:

- Sun StorEdge Network 2 Gb FC Switch - 8, 16, and 64
- Brocade SilkWorm 200E/2400/2800/300/3200/3250/3800/3850/3900/4100/4900/5000/5100/5300/7420/7500/12000/24000/48000/DCX
- Cisco 9020/9120/9140/9124/9134/9216/9216i/9222i/9506/9509/9513
- McDATA 3216/3232/4300/4400/4500/4700/6064/6140/i10K/QPM 4 Gb blade for 6140
- QLogic
  - SANBox 3050/3602/5200/5602/9000
  - SANBox2-8
  - SANBox2-16
  - SANBox2-64

Known Issues

The following sections provide information about known issues and bugs filed against this product release:

- "Installation and Hardware Related Issues" on page 15
- "Documentation Issues" on page 19

If a recommended workaround is available for a bug, it follows the bug description.

Installation and Hardware Related Issues

This section describes known issues and bugs related to installing and initially configuring Sun Storage 6580 and 6780 Arrays.

Installation Issues

Interconnections Between the Controller and Expansion Trays

For array configurations with seven or fewer expansion trays, you can cable the controller tray to the expansion trays using a sequential or non-sequential port cabling method. Using the non-sequential method provides improved performance, however, might be more difficult to implement.

Sequential Drive Port Connections

With the sequential interconnection method, you use a left-to-right consecutive drive port sequence. This means you start with the left-most drive port of each controller (port 8 on controller A and port 1 on controller B) to connect the first expansion tray. Use the drive ports immediately to the right of each controller to connect the second expansion tray. Continue connecting to the next drive port until all drive ports are used. The ninth expansion tray is then daisy-chained with the first tray, the tenth with the second, and so forth until the maximum tray (14) configuration is reached.

Non-sequential Drive Port Connections

With the non-sequential interconnection method, you use a left-to-right non-consecutive drive port sequence. This means you start with the left-most drive port of each controller (port 8 on controller A and port 1 on controller B) to connect the first expansion tray. Then skip the next drive port pair (controller A port 7 and controller B port 2) and use the third drive port pair (controller A port 6 and controller B port 3). Repeat for the controller A port 4/controller B port 5 and lastly for the controller A port 2/controller B port 7 pairs.

Connect the fifth expansion tray to the first drive port pair that you skipped (controller A port 7 and controller B port 2). Connect the expansion trays six through eight to the remaining unused drive port pairs (controller A port 5 and controller B port 4) (controller A port 3 and controller B port 6) and (controller A port 1 and controller B port 8).

FIGURE 1 Non-sequential Drive Port Connections for Expansion Trays 1 Through 4

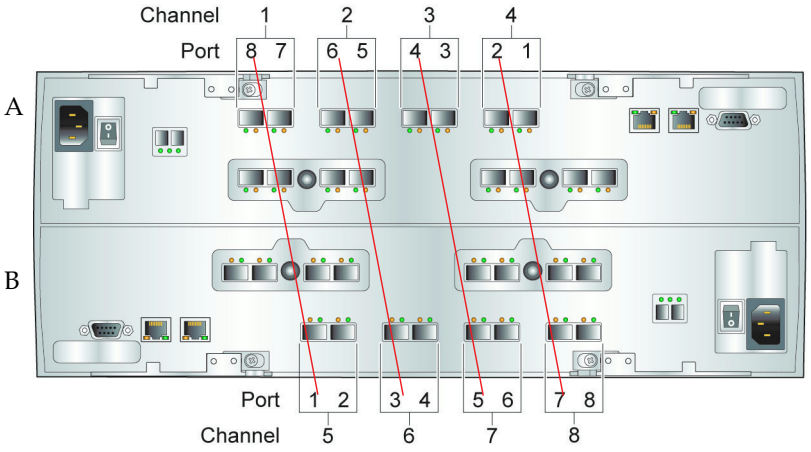


TABLE 9 Non-sequential Port Connections for Expansion Trays 1 through 7

	Drive Port Pair	
Expansion Tray	**Controller A Drive Port**	**Controller B Drive Port**
1	8	1
2	6	3
3	4	5
4	2	7
5	7	2
6	5	4
7	3	6

The CSM200 expansion tray, with mixed SATA and Fibre Channel drives, can lead to uneven performance if they share the same drive channel. The same is true for drives running at different access speeds (2Gb/sec and 4Gb/sec).

Future releases of this product will include support for additional legacy expansion trays. Best practices for those situations will be documented at that time.

Ship Kit Contents for Sun Storage 6580 and 6780 Arrays

The controller and expansion trays for the Sun Storage 6580 and 6780 Arrays are shipped separately. TABLE 10 list the contents of the controller tray and expansion tray ship kits.

TABLE 10 Controller and Expansion Tray Ship Kit Contents

Quantity	Component	Required For
Controller Ship Kit Contents		
8 or 16	SFPs	Host port connections
2	5-meter fibre channel (FC) cables	Data host connections
2	AC power cords	Controller tray to rack power connections
1	6-meter RJ45 -RJ45 serial cables	Controller tray serial port connection for setting initial IP address
1	RJ45- DB9 serial adapter (silver)	Connecting to the array from most Sun workstations, portable PCs, and terminal servers. To connect from a portable PC without a serial port, you will need to purchase a USB to serial adapter, available from most computer stores.
1	RJ45- DB9 serial adapter with null modem (black)	
1	PS2 6-pin DIN to RJ-45 serial cable	For service personnel only
1	*Important Safety Information for Sun Hardware Systems*	
1	*EIP Environmental Information for CSM200 Storage Array*	
1	*Getting Started Guide for Sun Storage 6580 and 6780 Array*	Overview of the rack-mounted installation process
1	*Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays*	Detailed installation instructions for rack-mounted and rack-ready arrays
Expansion Tray Ship Kit Contents		
2	2-meter optical FC cables	Host port connections
8	SFPs	Data host connections
2	AC power cords	Expansion tray to rack power connections

Setting the Tray Link Rate

When setting the tray link rate for an expansion tray, all expansion trays connected to the same drive channel must be set to operate at the same data transfer rate (speed).

For details about how to set the tray link rate, see "Setting the Tray Link Rate" in the *Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays*.

Upgrading the Sun StorageTek 6540 Array

Bug CR 6783749 – When upgrading a Sun StorageTek 6540 array to a Sun Storage 6580 or 6780 Array, you cannot change the tray ID 85 to tray ID 99 using CAM.

Workaround – You can use controller tray ID 85 for array configurations up to the maximum of 256 drives.

Hardware Issues

This section describes general issues related to Sun Storage 6580 and 6780 Arrays hardware and firmware.

Replacing CRUs/FRUs in Less Than 15 Minutes

Caution – Without adequate ventilation and air circulation, the controller tray will overheat resulting in potential damage to all customer-replaceable units (CRUs) or field-replaceable units (FRUs). Do not allow any CRU/FRU slot to remain empty for an extended time. Replace the failed CRU/FRU within 15 minutes.

System Cabinet Doors Must Be Closed

Caution – The front and back doors of the system cabinet must be closed for compliance to domestic and international EMI regulations as well as proper equipment cooling. Do not block or cover the openings of the system cabinet. Cabinet airflow is from front to back. Allow at least 30 inches (76.2 cm) in front of the cabinet, and at least 24 (60.96 cm) inches behind the cabinet, for service clearance, proper ventilation, and heat dissipation.

ASL Reports Wrong Enclosure Name

Bug 6742100 – The VxFS 5.0 application (MP3) ASL reports the wrong enclosure name for Sun Storage 6580 and 6780 Arrays.

Workaround – The Array Support Library (ASL) required for Sun Storage 6580 and 6780 Arrays is available but, is pending qualification for Solaris OS.
http://seer.entsupport.symantec.com/docs/312599.htm

Intermittent Power Supply Failure Notification

Bug 6760395 – CAM logEvent messages intermittently reports power supply failures and 12 seconds later changes to optimal. This is caused by devices not responding to polling.

Workaround – You can ignore the failure messages.

The `cfgadm -c unconfigure` *Command Unconfigures UTM LUNs Only and Not Other Data LUNs (Solaris 10)*

Bug 6362850 – The `cfgadm -c unconfigure` command unconfigures Universal Transport Mechanism (UTM) LUNs only and not other data LUNs. When this happens, you will not be able to unconfigure LUNs.

Workaround – Obtain Solaris 10 patch 118833-20 (SPARC) or patch 118855-16 (x86) to fix this issue.

Documentation Issues

Getting Started Guide Ship Kit Contents

Problem – The *Getting Started Guide for Sun Storage 6580 and 6780 Arrays* (820-5772) does not include a complete listing of the ship kit contents.

Correction – Use the ship kit contents listing in "Controller and Expansion Tray Ship Kit Contents" on page 17 to be sure you have all of the required components before you start the installation process.

Hardware Installation Guide Cabling Diagrams

Problem – Two cabling diagrams in Appendix B of the *Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays* (820-5773) are inaccurate. Figure B-12 and Figure B-14 show two cables incorrectly routed and two cables that are missing.

Correction – The corrected cabling diagrams for 1x12 and 1x16 configurations are provided in FIGURE 2 and FIGURE 3.

FIGURE 2 Cabling for One Controller and Twelve Expansion Trays

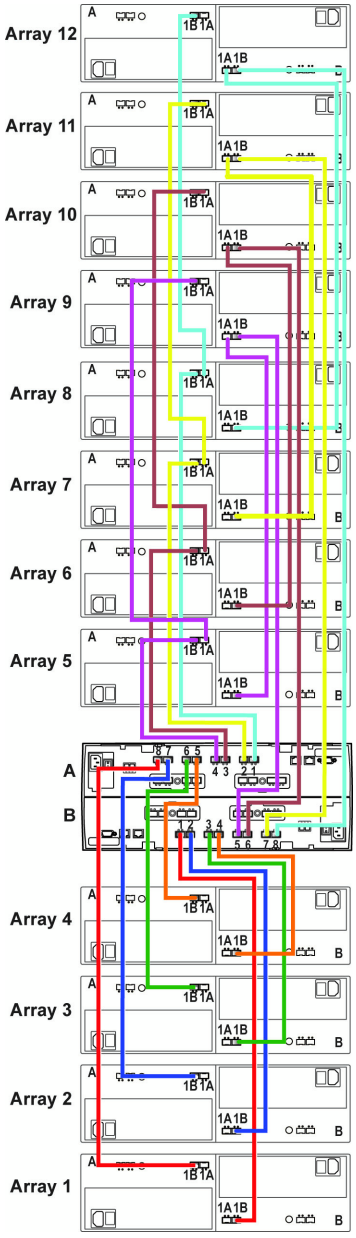
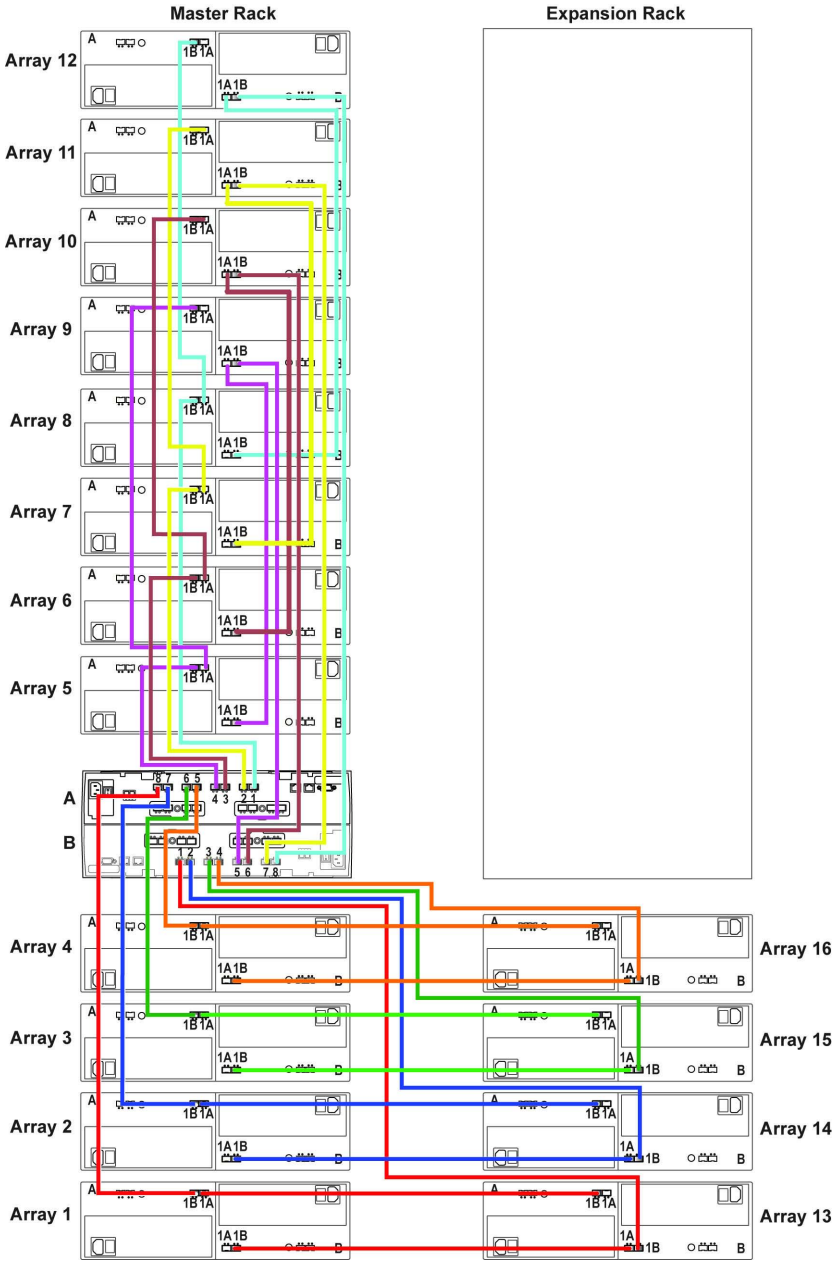


FIGURE 3 Cabling for One Controller and Sixteen Expansion Trays



About the Controller Tray ID Numeric Display and Diagnostic Display

The Sun Storage 6580 and 6780 controllers have a pair of 7-segment displays located at the back of the controller tray that form a 2-digit display. This section defines the indicators and what conditions they represent when activated.

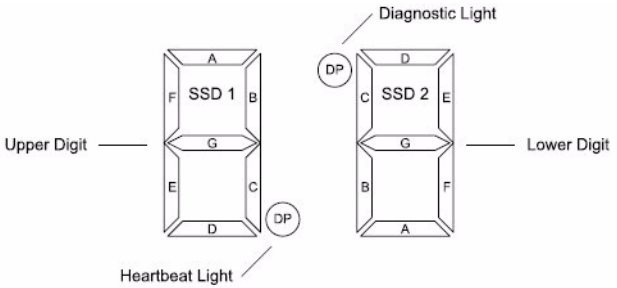
TABLE 11 FC 4Gb Host Card LED Link Rate Indicators

L1	L2	Definition
Off	Off	No connection or link down
On	Off	1 Gb link rate
Off	On	2 Gb link rate
On	On	4 Gb link rate

Each digit has a decimal point, and is rotated 180 degrees relative to the other digit as shown in FIGURE 4. With this orientation, the display looks the same regardless of controller orientation.

The decimal point for the lower digit is defined as the Diagnostic Light. The decimal point for the upper digit is defined as the Heartbeat light.

FIGURE 4 Tray ID Display



The values on each display (Controller A and Controller B) are shown as if the digits had the same orientation. For example, if the tray ID is set to 43, the top controller display might appear as shown in FIGURE 5, while the bottom controller display would then appear as shown in FIGURE 6.

FIGURE 5 Controller A Tray ID Example

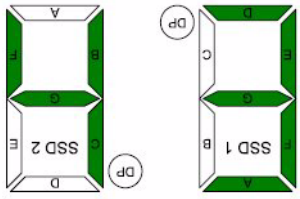
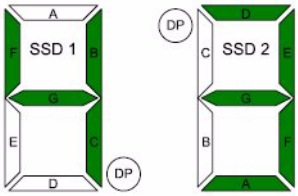


FIGURE 6 Controller B Tray ID Example



Alphanumeric characters are represented on the display as shown in FIGURE 7. During normal operation, the tray ID display on each controller is used to display the enclosure tray ID. The display is also used for diagnostic codes. The Diagnostic Light indicates current usage. The Diagnostic Light is off when the display is used to show the current tray ID.

FIGURE 7 Seven-Segment Alphanumeric Characters

Numbers	0	1	2	3	4	5	6	7	8	9
7-Segment Font	0	1	2	3	4	5	6	7	8	9

Letters	A	b	C	d	E	F	H	L	n	O	o	P	r	S	U	u
7-Segment Font	A	b	C	d	E	F	H	L	n	O	o	P	r	S	U	u

Similar Letters and Numbers			
Upper-Case Letter “O”	O	O	Number “0”
Upper-Case Letter “S”	S	S	Number “5”
Lower-Case Letter “b”	b	6	Number “6”

The tray ID is an attribute of the enclosure. In other words, both controllers will always display the same tray ID. It is possible, however, that one controller may display the tray ID, while the other controller displays a diagnostic code.

Sequence Category Codes

TABLE 12 defines the sequence category codes and their associated detail codes. Startup errors and operational states can be displayed in sequences by themselves. If the display is used to identify a component failure, information about the controller state in which the error was identified will also be displayed, as indicated in TABLE 13.

Note – If the Sun Storage 6580 or 6780 controller module is powered on when the interconnect canister is missing, or if Controller B is inserted when the interconnect canister is missing, the values shown on the Controller B tray ID display will be inverted.

TABLE 12 Seven-Segment Display Sequence Code Definitions

Category	Category Code	Detail Codes (Notation described in the notes at the end of this table)
Startup Error	SE+	• 88+ Power-on default • dF+ Power-on diagnostic fault
Operational Error	OE+	• Lx+ Lock-down codes (Note 3)
Operational State	OS+	• OL+ Offline (held in reset, Note 11) • bb+ Battery Backup (operating on batteries) • CF+ Component failure (Note 12)
Component Failure	CF+	• dx+ Processor/Cache DIMM (x = location, Note 6) • Cx+ Cache DIMM (x = location, Note 7) • Px+ Processor DIMM (x = location, Note 8) • Hx+ Host card (x = location) • Fx+ Flash drive (x = location)

TABLE 12 Seven-Segment Display Sequence Code Definitions *(Continued)*

Category	Category Code	Detail Codes
	(Notation described in the notes at the end of this table)	
Category Delimiter	dash+	• Separator between category-detail code pairs (Notes 4, 9)
End-of-Sequence Delimiter	blank-	• End-of-sequence indicator (Notes 5, 10)

Note -

1. xy+ 2-digit code with the Diagnostic light ON.
2. xy- 2-digit code with the Diagnostic light OFF.
3. Lx+ Lock-down codes (see "Seven-Segment Display Lock-Down Codes" on page 26).
4. dash+ All segments off except for the middle segments and with the Diagnostic light ON.
5. blank- All segments off with the Diagnostic light OFF.
6. dx+ Used when there is a single memory system for processor and data cache.
7. Cx+ Used when there are separate processor and data cache memory systems.
8. Px+ Used when there are separate processor and data cache memory systems.
9. Category-Detail separator used when there is more than one category-detail code pair in the sequence. See Table 38 for examples.
10. End-of-Sequence indicator automatically inserted by hardware at the end of the sequence. Example: SE+ 88+ blank- (repeat)
11. If a tray ID is being displayed, this sequence is programmed to display if the controller is subsequently held in reset.
12. The tray ID is nominally displayed during normal operation. This operational state is displayed if an internal controller component failure occurs while the controller is online. An additional detail code identifies the failed component as defined for the Component Failure category. This sequence will continue to be displayed even if the controller is subsequently placed offline (held in reset) to service the failed component.

TABLE 13 Seven-Segment Display Sequence Use Cases

Use Case	Repeating Sequence
Controller power-on	
Normal power-on or controller insertion	SE+ 88+ blank-
Controller inserted while held in reset	SE+ 88+ blank-
Operational states	
Normal operation	xy- (static controller tray ID)
Controller placed in reset while displaying tray ID	OS+ OL+ blank-

TABLE 13 Seven-Segment Display Sequence Use Cases *(Continued)*

Use Case	Repeating Sequence
Controller is operating on batteries (cache backup)	OS+ bb+ blank-
Component failure when the controller is operational (Notes 1, 2)	
Failed host card	OS+ CF+ Hx+ blank-
Failed flash drive	OS+ CF+ Fx+ blank-
Power-on diagnostic failure (Note 1)	
Non-FRU component failure	SE+ dF+ blank-
Processor DIMM failure	SE+ dF+ dash+ CF+ Px+ blank-
Cache memory DIMM failure	SE+ dF+ dash+ CF+ Cx+ blank-
Processor/cache DIMM failure	SE+ dF+ dash+ CF+ dx+ blank-
Controller is suspended and there are no other errors to report	
All lock-down conditions	OE+ Lx+ blank-
Controller is suspended due to component errors	
Persistent processor DIMM ECC errors	OE+ L2+ dash+ CF+ Px+ blank-
Persistent cache DIMM ECC errors	OE+ L2+ dash+ CF+ Cx+ blank-
Persistent processor/cache DIMM ECC errors	OE+ L2+ dash+ CF+ dx+ blank-
Controller is suspended due to persistent cache backup configuration errors	
Write-protect switch set during cache restore	OE+ LC+ blank-
Memory size changed with dirty data in flash drives	OE+ LC+ dd+ blank-

Note -

1. If more than one component failure occurs, only the first component failure detected will be identified on the seven-segment display.
2. If a component failure is indicated on the seven-segment display while the controller is operational, other event notification (MEL events, recovery guru procedures, etc.) that normally occurs for that condition will continue to occur.

Seven-Segment Display Lock-Down Codes

Diagnostic codes are used to indicate controller state information. In general, these codes are displayed only when the controller is in a non-operational state. The controller might be non-operational due to a configuration problem (such as mismatched controller types), or it might be non-operational due to a hardware

fault. If the controller is non-operational due to system configuration, the controller Fault Light will be off. If the controller is non-operational due to a hardware fault, the controller Fault Light will be on.

TABLE 14 provides a definition of the diagnostic lock-down codes. The code is displayed as a sequence.

TABLE 14 Tray ID Display Diagnostic Codes

Value	Controller State	Description
L0	Suspended	Mismatched controller types
L1	Suspended	Missing interconnect canister
L2	Suspended	Persistent memory errors
L3	Suspended	Persistent hardware errors
L4	Suspended	Persistent data protection errors
L5	Suspended	ACS failure
L6	Suspended	Unsupported host card
L7	Suspended	Submodel identifier not set or mismatched
L8	Suspended	Memory configuration error
L9	Suspended	Link speed mismatch
LA	Suspended	Reserved
Lb	Suspended	Host card configuration error
LC	Suspended	Persistent cache backup configuration error
Ld	Suspended	Mixed cache memory DIMMs
LE	Suspended	Uncertified cache memory DIMM sizes
LF	Suspended	Lock-down with limited SYMbol support
LH	Suspended	Controller firmware mismatch

Product Documentation

Related product documentation is available at the Sun documentation web site:

http://docs.sun.com/app/docs/prod/6780.array#hic

For translated versions of the documentation, go to the http://docs.sun.com web site, select your language, and search for the product documentation.

Application	Title	Part Number
Site planning information	*Site Planning Guide for Sun Storage 6580 and 6780 Arrays*	820-5775
Regulatory and safety information	*Sun Storage Regulatory and Safety Compliance Manual*	820-5506
Installation overview for rack-mounted arrays	*Getting Started Guide for Sun Storage 6580 and 6780 Arrays*	820-5772
Rack installation instructions	*Sun Rack II User's Guide*	820-4759
Rail kit installation instructions	*Sun Modular Storage Rail Kit Installation Guide*	820-5774
PDU installation instructions	*Power Distribution Unit Installation Guide for Sun Storage 6580 and 6780 Arrays and Sun StorageTek 2500 and 6000 Array Series*	820-6200
Array installation instructions	*Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays*	820-5773
Upgrade a Sun StorageTek 6540 array to a Sun Storage 6580 or 6780 array	*Sun Storage 6000 Series Hardware Upgrade Guide for Sun StorageTek 6540 Array to Sun Storage 6580 Array and Sun Storage 6780 Array Upgrades*	820-7003
Software installation and initial configuration instructions	*Sun StorageTek Common Array Manager Software Installation Guide, v6.2*	820-5747
Command line management interface reference	*Sun StorageTek Common Array Manager CLI Guide, v6.2*	820-5748

Application	Title	Part Number
Release-specific information for the Sun StorageTek Common Array Manager	*Sun StorageTek Common Array Manager Release Notes, v6.2*	820-5749
Multipath failover driver installation and configuration	*Sun StorageTek MPIO Device Specific Module Installation Guide For Microsoft Windows OS*	820-4737
	Sun StorageTek RDAC Multipath Failover Driver Installation Guide For Linux OS	820-4738

Service Contact Information

If you need help installing or using this product, go to:

http://www.sun.com/service/contacting

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