Origin™ FibreVault

Highest-Performance, High-Availability Storage Solution to Serve Your Most Demanding Application Needs

New Fibre Channel Technology

The Origin FibreVault Fibre Channel-Arbitrated Loop (FC-AL) disk subsystem from Silicon Graphics uses the latest industry-standard, high-speed Fibre Channel serial technology. Fibre Channel provides an unprecedented combination of bandwidth, performance, high availability, and configuration flexibility for Silicon Graphics® high-end servers and disk subsystems. This new technology is ideal for servers running I/O-intensive applications such as media, Web, file serving, and large databases.

Highest Performance

Origin FibreVault supports the full Fibre Channel speed of 100MB/second peak transfer rate per loop, or 200MB/second peak with dual loops, and is scalable to 110 FC-AL disks per channel. The disk subsystem's high bandwidth, IOPs, and connectivity allow Silicon Graphics servers to easily handle high data-rate and transaction-processing applications.

High-Availability Design

This high-availability disk subsystem is designed to be completely redundant, hot-pluggable, and hot-repairable. Two independent FC-AL channels provide completely redundant I/O paths to the disk subsystem. These paths can provide dual paths from a single system, allowing full duplexing of disks in a system. Or, the two paths can be configured to multiple servers for disk sharing and to provide backup for primary applications in the event of a server failure. Origin FibreVault also supports multihost capabilities. The disks used in the subsystem contain two FC-AL ports, allowing these disks to be connected to either of the two FC-AL channels in the disk chassis. Two hot-pluggable link control cards contain all the active FC-AL circuitry for the two channels. Repair of one channel does not affect the functioning of the other Fibre Channel loop.

Origin FibreVault with operating system mirroring helps protect your system from disk failures. The disk subsystem uses redundant load-sharing power supplies. Separate AC power cords in the rack-mountable model allow power to be split among independent sources, further reducing the possibility of an outage. A single module containing redundant fans cools the chassis.

A passive mid-plane is used to connect all of the active components in the chassis, eliminating cables as a failure component, lowering costs, and improving reliability. All active components are repairable online, under power, without disruption to applications. Repair operations are simple and direct.

All components have visual failure indicators that help end users locate individual failed components. The design can also notify servers of failures. The disk subsystem conforms to the Small Form Factor (SFF) 8067 standard for environmental monitoring and reporting.

Configuration Flexibility and Manageability

Origin FibreVault has a compact, efficient design that can be configured with up to 10 FC-AL disks in a 3.5U enclosure, and supports both 18.2GB and 9.1GB FC-AL disks. To expand the disk subsystem, simply add additional 10-slot chassis; up to 11 chassis can be combined in a single subsystem, and more than a terabyte of storage can be connected to a single adapter. The disk subsystem also supports online expansion. This evolutionary design provides a low-cost entry product with unmatched scalability. Expand only when necessary, in small incremental steps.

The disk subsystem is available in both tower and rack-mountable versions. Rack-mountable chassis are based on the 19-inch NEMA standard. A total of 110 disks can be configured in a rack-mount cabinet for computer room environments, providing the high storage density required in computer room installations.

Connection between the server and disk subsystem comes with cost-effective copper media, allowing up to a 25-meter cable length. Optical media cables can also be used for locating the disks up to many kilometers from the server. Silicon Graphics also provides the Origin FibreVault Manager, an easy-to-use graphical user interface (GUI) tool for assembling and monitoring large and complex FC-AL disk configurations.

Origin FibreVault offers leading-edge Fibre channel performance, availability and configurability, and is supported on both Origin2000™ and Origin200™ systems.

Origin FibreVault

Technical Specifications

Subsystem	**Tower**	**Rack Mount**
Host interface	1 or 2 FC-AL	1 or 2 FC-AL
Connector	9-pin, DB9 shielded	9-pin, DB9 shielded
Physical dimensions		
Height	26.8" (68.0cm)	6.07" (15.4cm) 3.5 EIA Units
Width	9.8" (24.8cm)	17.5" (44.5cm)*
Depth	29.4" (74.7cm)	24" (60.9cm)
Weight (w/ 10 disks)	132 lbs (60kg)	78 lbs (35.4kg)
Drives	up to 10	up to 10
Capacity 39U 19" rack	up to 182GB	up to 182GB up to 2TB

AC Power	
Frequency	47 to 63Hz
AC voltage	90-264Vrms, single phase
Current	4.0 A max.@100Vrms
VA rating	400 VA max.
Input watt	392 W max.
Heat dissipation	1340 BTU/hr max.

*Standard NEMA 19" rack

Operating Environment	
Temperature	50° to 104° F (10° to 40° C)
Relative humidity	20% to 80% non-condensing
Elevation	8,000 ft (2438.4 m) @ 104° F (40° C) max.
Shock	3G @ 11ms, 1/2 sine pulse
Vibration	.25G @ 5-2,000Hz

Product Compliance	
Emissions	FCC Class B EN55022 Class B VCCI Class 2 CE Mark
Immunity	EN50082-1
Safety	UL 1950 CSA C22.2-950 EN 60 950 TUV GS

Disk Drives	18.2GB	9.1GB
Drive interface	FC dual port	FC dual port
Connector	40-pin FC SCA-2	40-pin FC SCA-2
Formatted capacity (MB)	18,200	9,100
Form factor (inches)	3.5	3.5
Average seek time (ms)	8.3	5.8
Data transfer rate (MB/sec)	100	100
Rotational speed (RPM)	7,200	10,000
Projected field MTBF (hours)	>800,000	>800,000

SiliconGraphics Computer Systems

Corporate Office
2011 N. Shoreline Boulevard
Mountain View, CA 94043
(650) 960-1980
www.sgi.com

U.S. 1(800) 800-7441
Europe (44) 118-925.75.00
Asia Pacific (81) 3-54.88.18.11
Latin America 1(650) 933.46.37

Canada 1(905) 625-4747
Australia/New Zealand (61) 2.9879.95.00
SAARC/India (91) 11.621.13.55
Sub-Saharan Africa (27) 11.884.41.47

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