

Enterprise MAID Quick Reference Guide

What is MAID?

MAID (Massive Array of Idle Disks) is a storage technology that employs a large group of disk drives in which only those drives in active use are spinning at any given time. This reduces power consumption and prolongs the life of the drives. MAID is designed for Write Once Read Occasionally (WORO) applications.

SGI COPAN Enterprise MAID improves upon standard MAID with features that are purpose built for storing long-term, persistent data.

COPAN 400M MAID Solution



1
2,688TB

Competing Solution



6
2,880TB

Why COPAN Enterprise MAID?

SGI COPAN technology simplifies persistent data storage while drastically lowering utility costs, and freeing up valuable data center floor space.	Massive Scalability From 224TB to 2,688TB raw capacity	High Density 268TB per ft ² (2,688TB per .93 m ²)
	Simple Management GUI-based	High Performance Throughput up to 23TB an hour
	Unprecedented Reliability Six times more reliable than traditional SATA drives	Energy Efficiency Up to 85% more efficient than traditional, always spinning disk solutions

MAID		Not MAID
MAID	COPAN Enterprise MAID	Transactional Storage with "Spin Down"
SNIA Definition MAID (Massive Array of Idle Disks) <ul style="list-style-type: none"> • Drives are powered on only when data is requested • More than 50% of the drives are powered off at any one time • Large number of densely packaged, power managed disks • Lower management and environmental costs with longer drive life 	An architecture specifically designed for storing persistent data, with Enterprise class attributes, that enhances the MAID feature set <ul style="list-style-type: none"> • Helps lower energy costs as maximum of 25% or 50% if the drives are powered on at any one time and are powered down when not in use • Patented, high-density packaging • Save at least 85% in power and cooling costs • Power Managed RAID® software • Disc Aerobics® software 	Transactional storage with "Spin Down" or "Sleepy Drive" functionality <ul style="list-style-type: none"> • Enabling of spin down or sleepy drives is a manual configuration process • Does not reduce power and cooling capacity requirements

Disaster Recovery Replication Protection:

Three-Tier System Architecture

- Simplifies system management of persistent data
- Scales performance with capacity
- Enables industry-leading, high density, storage capacity in a single footprint
- Enhances drive reliability with unique disk packaging, cooling and vibration management

Patented Power Managed RAID® Software

- Lowers energy costs as drives spin only when needed and are powered down when not in use
- Extends the service life of the disk drives by more than six times
- Provides RAID protection for all of your data

Patented Disc Aerobics® Software

- Pro-actively monitors and manages drive health by periodically exercising all disks and detecting potential drive failures, before they occur
- Copies data from a “suspect”, potentially failing drive to a new, “healthy” spare drive, avoiding lengthy RAID rebuild times and data loss
- Provides continuous data integrity checks

Patented Canister Technology

- Patented mounting scheme eliminates “rotational vibration” within a storage shelf
- Canister technology enables efficient and quick servicing of the 14 disk drives
- Data is striped across canisters with a shelf in 3+1 RAID sets

A Comparison of Storage Technologies for Backup, Recovery and Archiving

Storage Environment Considerations	Tape	Traditional Disk-Based Storage	COPAN Enterprise MAID
Quick Data Recovery		✓	✓
Cost per GB	✓		✓
Operating Expense			✓
Scalability	✓		✓
Small Footprint	✓		✓
Power & Cooling Efficiency	✓		✓
Ease of Management		✓	✓
Built for Long-Term Data Storage			✓

Solving Today's Storage Challenges

Problems with Tape	The Enterprise MAID Solution
<ul style="list-style-type: none"> • Shrinking backup windows/failed backups • Growing amount of data to recover • Unrecoverable data due to media degradation • Lost tapes and/or incomplete backups 	<ul style="list-style-type: none"> • High performance backup with up to 23TB/hr throughput • Scales performance with capacity • Reliable, quick data access with greater reliability and continuous data integrity checks • Offsite replication option and better reliability than tape
Problems with Transactional Disk	The Enterprise MAID Solution
<ul style="list-style-type: none"> • Spinning disk solutions do not handle persistent data efficiently • Expensive (both in capital and operating expenses) • Large footprint and uses excessive amounts of costly data center tile space 	<ul style="list-style-type: none"> • Purpose-built architecture for handling persistent data • Saves in both capital and operating expenses • Store up to 2,688TB in 10 ft.² of floor space • Re-purpose Tier 1 and Tier 2 capacity for transactional applications
General Storage Problems	The Enterprise MAID Solution
<ul style="list-style-type: none"> • Growing amount of persistent data is creating storage scalability issues and is difficult to manage • Data center power and cooling costs increasing exponentially • Data center footprint is becoming more expensive 	<ul style="list-style-type: none"> • Scalable from 224TB to 2,688TB of raw capacity within a single rack and management interface • Up to 85% savings on power and cooling costs • The only platform specifically designed for storing persistent data

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