Graid Technology Inc.

SupremeRAID™ SR-1000-AM

GPU-based RAID engineered for exceptional scalability and data resilience in enterprise data centers.

Based on the NVIDIA RTX A1000 8GB GPU

Elevated storage performance for the enterprise.

SupremeRAID™ redefines RAID performance with a GPU-accelerated, software-defined architecture that eliminates CPU overhead and traditional I/O bottlenecks. Out-of-path RAID protection sends data directly from the CPU, unlocking the full potential of NVMe/NVMeoF storage while ensuring maximum efficiency, scalability, and resilience.

Designed to support up to 32 SSDs, the SR-1000-AM delivers the speed and flexibility required for today's most demanding workloads. Whether accelerating AI/ML pipelines, powering high-frequency trading, driving massive databases, or enabling seamless 4K/8K video production, it delivers exceptional results without compromise. Ideal for cloud and enterprise data centers, broadcast outlets, research labs, oil & gas operations, and HPC environments, SupremeRAID™ provides the performance, reliability, and value enterprises need to keep pace with rapidly growing data demands.

22M IOPS

220GB/s Throughput

UP TO 100% SSD Performance

80% Cost Savings

10x Faster

	SupremeRAID™ SR-1000-AM	Software RAID	Hardware RAID
4K Random Read	22 M IOPS	~2 M IOPS	6.9 M IOPS
4K Random Write	1 M IOPS	200 K IOPS	651 K IOPS
1M Sequential Read	260 GB/s	~9 GB/s	28.2 GB/s
1M Sequential Write	100 GB/s	2 GB/s	10.4 GB/s
4K Random Read (Rebuild)	3 M IOPS	Unknown	1 M IOPS
4K Random Write (Rebuild)	600 K IOPS	Unknown	548 K IOPS
CPU Utilization	None	High	None
Data Protection	RAID 0, 1, 5, 6, 10	RAID 0, 1, 5, 10	RAID 0, 1, 5, 6
NVMeoF Support	Yes	Yes	No
Flexibility	High	Limited by CPU	None
Max SSDs Supported	32 (64 soon)	32	8

Based on Linux RAID5 with AMD EPYC 9654 96-Core Processor x 2 and Phison PASCARI XP208H033T20E324T091 x 24

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2023 FLASH MEMORY SUMMIT BEST OF SHOW

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VIEW THE DRIVERS AND DOCUMENTATION

SR-1000-AM Software Specs

Supported RAID levels:
RAID 0, 1, 5, 6, 10

Max Physical Drives: 32

Max Drive Groups:
Linux: 8
Windows: 4

OS Support:
AlmaLinux 8 / 9
CentOS 7 / 8
Debian 11 / 12
openSUSE Leap 15
Oracle Linux 7 / 8 / 9
SLES 15
RHEL 7 / 8 / 9
Rocky Linux 8 / 9
Ubuntu 20.04 / 22.04 / 24.04
Windows Server 2019 / 2022 / 2025
Windows 11

Max Virtual Drives per Drive Group:
Linux: 1023 / Windows: 8

Max Drive Group Size:
Defined by physical drive size

Supported NVMe SSDs:
Dapustor, FADU, Hagiwara, Kingston Technologies, KIOXIA, Memblaze, Micron, Petaio, Phison, Samsung, Scaleflux, Seagate, Solidigm, Western Digital

Supported Platforms:
AMD, Arm (Ubuntu only), Intel

Supported Virtualization Environments:
KVM, Proxmox VE, Virtuozzo
OpenVZ, Windows Server Hyper-V

SR-1000-AM GPU Specs

Host Interface:
PCIe Gen 4 x 8

Max Power Consumption:
50 W

Form Factor:
2.7" H x 6.4" L, Single Slot

Get the full NVIDIA RTX A1000 8GB datasheet here

Flexible & Future Ready

Unmatched flexibility with features like new O/S support, compression, encryption, thin provisioning, or boot drive protection can be easily added with software releases

World Record Performance

Unprecedented NVMe/NVMeoF performance up to 22M IOPS and 220GB/s throughput with a single SupremeRAID™ card delivers the full value of your server investment

Highly Scalable

Easily manage 32 direct attached NVMe SSDs; extend data protection without sacrificing performance with Software Composable Infrastructure

Plug & Play

Effortless installation, no cabling or motherboard re-layout required; direct connect to SSD without PCIe switches

Free Up CPU Resources

Offload your entire RAID computation to SupremeRAID™ to free-up CPU computing resources for 5G, AI, and AIoT applications

Easy to Use

SupremeRAID™ doesn't rely on memory caching technology, eliminating the need for battery backup modules

"We're perpetually impressed with the extreme storage performance SupremeRAID™ enables. For maximizing NVMe SSD performance, we haven't seen anything on the market that can touch the SupremeRAID™ Gen5 solution. It's fantastic, plus we're doing the work on an inexpensive NVIDIA A2000 GPU."

StorageReview

"Gone are the days of IO bottlenecks... SupremeRAID™ is the perfect platform for AI/ML, IoT, video processing, and other performance-hungry applications."

BLOCKS & FILES.

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OPTIMAL	Linux Environment			Windows Environment		
	RAID 5	RAID 6	RAID 10	RAID 5	RAID 6	RAID 10
4K Random Read IOPS	22 M IOPS	22 M IOPS	20 M IOPS	2.2 M IOPS	2.2 M IOPS	2.2 M IOPS
4K Random Write IOPS	1 M IOPS	700 K IOPS	10 M IOPS	750 K IOPS	600 K IOPS	1.6 M IOPS
1M Sequential Read THROUGHPUT	260 GB/s	260 GB/s	260 GB/s	80 GB/s	80 GB/s	80 GB/s
1M Sequential Write THROUGHPUT	100 GB/s	100 GB/s	70 GB/s	12 GB/s	11 GB/s	20 GB/s

REBUILD REBUILD SPEED: LOW JOURNAL: ENABLED	Linux Environment			Windows Environment		
4K Random Read IOPS	3 M IOPS	3 M IOPS	14 M IOPS	1.6 M IOPS	1.6 M IOPS	2 M IOPS
4K Random Write IOPS	600 K IOPS	400 K IOPS	10 M IOPS	500 K IOPS	400 K IOPS	1.5 M IOPS
1M Sequential Read THROUGHPUT	12 GB/s	13 GB/s	120 GB/s	12 GB/s	12 GB/s	28 GB/s
1M Sequential Write THROUGHPUT	11 GB/s	11 GB/s	70 GB/s	7 GB/s	7 GB/s	20 GB/s

Linux Testing Environment: Hardware: Server Model: Supermicro AS -2125HS-TNR, CPU: AMD EPYC 9654 96-Core Processor * 2, Memory: Samsung M321R2GA3BB6-CQKVS DDR5 4800 MT/s 16GB * 24, RAID Controller: SR-1000-AM * 1, NVMe Drive: KIOXIA CM7-R 3.84T KCMY1RUG3T84 * 24 // Software: OS: Ubuntu 24.04.1 LTS, Kernel: 6.8.0-38-generic, Graid Driver: 1.6.1-328, Benchmark Tool: fio-3.30

Windows Testing Environment: Hardware: Server Model: ASUS RS720-E11-RS24U, CPU: INTEL (R) XEON(R) PLATINUM 8562Y+, Memory: 512GB, RAID controller: SR-1000-AM, NVMe Drive: Phison PASCARI XP208H033T20E324T091*24 // Software: OS: Windows Server 2022, Kernal: 10.0.20348.2966, Graid Driver: graidserver 1.2.4-48 / kernel driver 1.2.4-43, Benchmark Tool: Fio 3.38

We Invented the Future of Storage with Award-winning GPU-based SupremeRAID™

Graid Technology Inc. is headquartered in Silicon Valley, with an R&D center in Taipei, Taiwan. Our leadership is composed of a dedicated team of experts with decades of experience in the SDS, ASIC and storage industries. Learn more at graidtech.com.

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