Graid Technology Inc.

Cloud & Enterprise Servers

SupremeRAID™ SR-1000

The Best Solution for NVMe RAID: SupremeRAID™ is a software-defined RAID solution on a GPU, designed to deliver maximum SSD performance without consuming CPU cycles or creating throughput bottlenecks. Out-of-path RAID protection technology means data travels directly from the CPU to deliver unmatched flexibility, unprecedented NVMe/NVMeoF performance, and overall superior value.

SR-1000

For 1U Cloud & Enterprise Servers

Supports up to 32 SSDs

Protecting NVMe-based Data From The Cloud To The Desktop: SupremeRAID™ SR-1000 is a PCIe Gen 3 card that supports up to 32 SSDs, and delivers superior performance and flexibility for cloud and enterprise servers. SupremeRAID™ SR-1000 is the perfect storage choice for enterprise data centers, broadcast outlets, studios, CSPs, MSPs, research, oil & gas, and HPC. Its powerful performance capabilities are well suited for applications such as AI/ML, databases, Fintech (High Frequency Trading), streaming media, 4K and 8K video, as well as any performance-hungry application.

16M	220GB/s	UP TO 100%	80%	8x
IOPS	Throughput	SSD Performance	Cost Savings	Faster

	SupremeRAID™ SR-1000	Software RAID	Hardware RAID
4K Random Read	16 M IOPS	~2 M IOPS	6.9 M IOPS
4K Random Write	820 K IOPS	200 K IOPS	651 K IOPS
1M Sequential Read	220 GB/s	~9 GB/s	28.2 GB/s
1M Sequential Write	90 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	32	8

Based on Linux RAID5 with AMD EPYC 9654 96-Core Processor x 2 and KIOXIA CM7 x 24

THE CHANNEL CO. CRN THE TOP 10 DATA STORAGE STARTUPS 2021

CES INNOVATION AWARDS 2022 HONOREE

THE CHANNEL CO. CRN EMERGING VENDORS 2022

GRAID DATA CENTER WORLD

2022 FLASH MEMORY SUMMIT BEST OF SHOW

2023 FLASH MEMORY SUMMIT BEST OF SHOW

BC Best Choice AWARD

Storage Trailblazers 2023 WINNER

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SR-1000 Software Specs

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

Max Physical Drives: 32

Max Drive Groups: 8

Max Virtual Drives per Drive Group:
1023

Max Drive Group Size:
Defined by physical drive size

OS Support:

AlmaLinux 8.5, 8.6, 8.7 (Kernel 4.18)
CentOS 7.9 (Kernel 3.10 or 4.18), 8.3, 8.4, 8.5 (Kernel 4.18)
Debian 11.6 (Kernel 5.10)
openSUSE Leap 15.2, 15.3 (Kernel 5.3)
Oracle Linux 8.7 (RHCK 4.18 or UEK 5.15)
Oracle Linux 9.1 (RHCK 5.14 or UEK 5.15)
SLES 15 SP2, 15 SP3 (Kernel 5.3)
RHEL 7.9 (Kernel 3.10 or 4.18) , 8.3, 8.4, 8.5, 8.6, 8.7 (Kernel 4.18)
RHEL 9.0, 9.1 (Kernel 5.14)
Rocky Linux 8.5, 8.6, 8.7 (Kernel 4.18)
Ubuntu 20.04.0-20.04.5 (Kernel 5.15)
Ubuntu 22.04.0-22.04.2 (Kernel 5.15)
Windows Server 2019 x86-64
Windows Server 2022 x86-64
Windows 11 x86-64

SR-1000 Card Specs

Host Interface:
x16 PCIe Gen 3.0

Max Power Consumption:
50 W

Form Factor:
2.713" H x 6.137" L, Single Slot

Product Weight:
132.6 g

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 16M 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.

Cloud & Enterprise Servers

SupremeRAID™ SR-1000

SR-1000

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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	16 M IOPS	16 M IOPS	16 M IOPS	2 M IOPS	2 M IOPS	2 M IOPS
4K Random Write IOPS	900 K IOPS	500 K IOPS	8 M IOPS	700 K IOPS	500 K IOPS	1.6 M IOPS
1M Sequential Read THROUGHPUT	220 GB/s	220 GB/s	220 GB/s	70 GB/s	70 GB/s	70 GB/s
1M Sequential Write THROUGHPUT	90 GB/s	90 GB/s	70 GB/s	10 GB/s	10 GB/s	20 GB/s

REBUILD	Linux Environment			Windows Environment		
4K Random Read IOPS	3 M IOPS	3 M IOPS	12 M IOPS	1.4 M IOPS	1.4 M IOPS	1.8 M IOPS
4K Random Write IOPS	600 K IOPS	400 K IOPS	8 M IOPS	500 K IOPS	400 K IOPS	1.5 M IOPS
1M Sequential Read THROUGHPUT	12 GB/s	13 GB/s	110 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 Specifications: Server: Supermicro AS-2125HS-TNR x1; CPU: AMD EPYC 9654 96-Core Processor x2; Memory: Samsung M321R2GA3BB6-CQKVS DDR5 16GB x24; SSD: Kioxia CM7 KCMY1RUG3T84 x24; RAID Controller: SR-1000 x1; OS: Ubuntu 20.04.4 LTS; Kernel: 5.4.0-155-generic; Benchmarking tool: fio-3.16; SupremeRAID™ Driver version: 1.5.0-rc1-20230804.gcf5e69d8

Windows Testing Specifications: Server: Supermicro SYS-220U-TNR x1; CPU: Intel Xeon Gold 6338 CPU @ 2.00GHz x2; Memory: SK Hynix HMA82GR7CJR8N-XN 16GB DDR4-3200 RDIMM x16; NVMe Drive: Solidigm D7-P5510 x16; RAID Controller: SR-1000 x1; OS: Windows 2022, Driver Version: 1.2.3-185; SupremeRAID™ driver version: 1.2.3; max performance based on a group with 16 physical drives and 2 virtual drives.

SupremeRAID™: Protecting NVMe-based Data From The Cloud To The Desktop

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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