Graid Technology Inc.

SupremeRAID™ SR-1001

SR-1001
For 1U Towers & Edge Servers

Supports up to 8 SSDs

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.

Protecting NVMe-based Data From The Cloud To The Desktop: SupremeRAID™ SR-1001 is a PCIe Gen 3 card that supports up to 8 SSDs, and delivers superior performance and flexibility for tower and edge servers, professional workstations, and gaming desktops. SupremeRAID™ SR-1001 is the perfect storage choice for engineers, videographers, telcos, CSPs, and MSPs. Its powerful performance capabilities are well suited for applications such as CAD, video editing, IoT, and gaming.

6M	**80GB/s**	UP TO **100%**	**80%**	**1.5x**
IOPS	Throughput	SSD Performance	Cost Savings	Faster

	SupremeRAID™ SR-1001	Software RAID	Hardware RAID
4K Random Read	6 M IOPS	~2 M IOPS	3.9 M IOPS
4K Random Write	500 K IOPS	200 K IOPS	180 K IOPS
1M Sequential Read	80 GB/s	~9 GB/s	13.5 GB/s
1M Sequential Write	30 GB/s	2 GB/s	4 GB/s
4K Random Read (Rebuild)	1 M IOPS	Unknown	36 K IOPS
4K Random Write (Rebuild)	350 K IOPS	Unknown	18 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	8	32	8

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

CRN THE TOP 10 DATA STORAGE STARTUPS 2021

CES INNOVATION AWARDS 2022 HONOREE

THE CHANNELCO. 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-1001 Software Specs

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

Max Physical Drives: 8

Max Drive Groups: 4

Max Virtual Drives per Drive Group:
8

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-1001 Card Specs

Host Interface:
x16 PCIe Gen 3.0

Max Power Consumption:
30 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 6M IOPS and 80GB/s throughput with a single SupremeRAID™ card delivers the full value of your server investment

Highly Scalable
Easily manage 8 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.

Tower & Edge Servers, Professional Workstations, & Gaming Desktops

SupremeRAID™ SR-1001

OPTIMAL

	Linux Environment				Windows Environment		
	RAID 5	RAID 6	RAID 10		RAID 5	RAID 6	RAID 10
4K Random Read — IOPS	6 M IOPS	6 M IOPS	6 M IOPS		1.8 M IOPS	1.8 M IOPS	1.8 M IOPS
4K Random Write — IOPS	500 K IOPS	400 K IOPS	3 M IOPS		500 K IOPS	400 K IOPS	1.6 M IOPS
1M Sequential Read — THROUGHPUT	80 GB/s	80 GB/s	80 GB/s		40 GB/s	40 GB/s	40 GB/s
1M Sequential Write — THROUGHPUT	30 GB/s	30 GB/s	25 GB/s		8 GB/s	7 GB/s	10 GB/s

REBUILD

	Linux Environment				Windows Environment		
	RAID 5	RAID 6	RAID 10		RAID 5	RAID 6	RAID 10
4K Random Read — IOPS	1 M IOPS	1 M IOPS	4 M IOPS		1.4 M IOPS	1.4 M IOPS	1.6 M IOPS
4K Random Write — IOPS	350 K IOPS	300 K IOPS	3 M IOPS		400 K IOPS	300 K IOPS	1.5 M IOPS
1M Sequential Read — THROUGHPUT	10 GB/s	10 GB/s	40 GB/s		10 GB/s	10 GB/s	26 GB/s
1M Sequential Write — THROUGHPUT	10 GB/s	10 GB/s	25 GB/s		7 GB/s	7 GB/s	10 GB/s

Linux Testing Specifications: Server: Supermicro AS-2125HS-TNR x1; CPU: AMD EPYC 9654 96-Core Processor x2; Memory: Samsung M321R2GA3BB6-CQKVS DDR5 4800 MT/s 16GB x24; NVMe SSD: KIOXIA CM7-R 3.84T KCMY1RUG3T84 x24; RAID Controller: SR-1001 x1; Linux Distro: Ubuntu 22.04.1 LTS; Kernel: 5.15.0-83-generic; Benchmarking tool: fio-3.16; SupremeRAID™ Driver version: 1.5.0-670.g03a5380c.001gcf5e69d8

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-1010 x1; OS: Windows 2022, Driver Version: 1.2.3-185; SupremeRAID™ driver version: 1.2.3; max performance based on a drive group with 8 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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