SupremeRAID™ SR-1010

The World's Fastest NVMe & NVMeoF RAID Card for PCIe Gen 3, 4, & 5

Graid Technology Inc.

Further disrupting the global storage industry, Graid Technology Inc. now offers the world's fastest NVMe and NVMeoF RAID card for PCIe Gen 3, 4, & 5 designed to deliver world class data protection while increasing read and write performance — all at world record performance speeds and and extremely low TCO.

THE CHALLENGE

RAID Bottleneck

As NVMe SSD quickly becomes the new standard for storage infrastructure, a challenge arises for data center storage infrastructure design: the industry requires a future-ready solution to deliver NVMe SSD performance without sacrificing data security or business continuity. Simply put: flash storage performance is evolving too fast to be fully utilized by existing storage architecture.

Implementing a basic software RAID via the CPU can only deliver 10-20% SSD performance on average, while unfortunately consuming almost all of the CPU computing power. While utilizing proprietary hardware might achieve improved performance, the architecture still can't maximize the potential of flash storage.

THE SOLUTION

SupremeRAID™ SR-1010

In today's data center world, speed and throughput are everything. Graid Technology recognized the limitations and bottlenecks caused by traditional RAID and developed a GPU-based storage solution to launch RAID technology into the future.

Graid Technology is proud to introduce the world's first NVMe and NVMeoF RAID card created to unlock the full potential of your SSD performance. Our innovative GPU-based solution delivers world-record performance while increasing scalability, improving flexibility, and lowering TCO. With proven performance tests and partnerships with global industry leaders, SupremeRAID™ delivers maximum SSD performance, comprehensive enterprise data protection, unmatched flexibility, and ubeatable ROI.

28M IOPS

260GB/s Throughput

UP TO 100% SSD Performance

80% Cost Savings

9x Faster

	SupremeRAID™ SR-1010	High-end Hardware RAID
4K Random Read	**28 M IOPS**	6.9 M IOPS
4K Random Write	**2 M IOPS**	651 K IOPS
1M Sequential Read	**260 GB/s**	28.2 GB/s
1M Sequential Write	**100 GB/s**	10.4 GB/s
4K Random Read In Rebuild	**5.5 M IOPS**	1 M IOPS
4K Random Write In Rebuild	**1.1 M IOPS**	548 K IOPS

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

Unbeatable Performance

Graid Technology Inc.

SupremeRAID™ SR-1010 increases read performance to **28 M IOPS and 260GB/s** throughput and increases write performance to **2 M IOPS and 100 GB/s** throughput in RAID 5, while maintaining the superior level of data protection our customers and partners have come to expect.

Flexible & Future Ready

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

World Record Performance

Unprecedented NVMe/NVMeoF performance up to 28M IOPS and 260GB/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

Global Partners & OEMs

AIC
Altos
AMD
ASRock Rack
ASUS
Gigabyte
KeyWin
KIOXIA
LIQID
MSi
Seagate
StarWind
SuperMicro
Tyan
Western Digital

Global Distributors

Afastor
Arrow
ASBIS
CLIMB
EDOM Tech
Gluesys
InnoTech
Sunway
TD Synnex

Global Resellers

Advanced HPC
Applied Data Systems
ARKAY
Aspen Systems
AUK Computing
A-VAR
Boston
Bold Data
Computacenter
Crystal Group
Data in Science (DST)
DiGiCOR
Define Tech
Evotek
Exxact
Flytech Spain
GPL Technologies
GTS Technology Solutions
HPC Tech Japan
Images et Technologie
365 Master Data
Mazda Computing
Nextron
OMTX Brazil
primeLine Solutions
SHI
Starline
SysGen
TBA Informatica
Technologies for Tomorrow
Thinkmate
Top Flight Computers
Trenton Systems
Vesper

"SupremeRAID™ SR-1010 arrives with a substantial performance uplift... it's light years beyond even the most high-end hardware RAID arrays."

TOM'S HARDWARE
INDEPENDENT REVIEW

tom's HARDWARE

Challenge the status quo for performance-demanding workloads with 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 www.graidtech.com.

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SupremeRAID™ SR-1010

FOR PCIe GEN 3, 4, & 5

Test Environment Specifications | Hardware Specs: Server: Supermicro AS -2125HS-TNR; CPU: AMD EPYC 9654 96-Core Processor x 2; Memory: Samsung M321R2GA3BB6-CQKVS DDR5 16GB x 24; SSD: Kioxia CM7 KCMY1RUG3T84 x 24; RAID Controller: SR-1010 x 1 | Software Environment: 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

SR-1010 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-1010 Card Specs

Host Interface:
x16 PCIe Gen 4.0

Max Power Consumption:
70 W

Form Factor:
2.713" H x 6.6" L, Dual Slot

Product Weight:
306 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 28M IOPS and 260GB/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

Contact Graid Technology Inc.

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RELEASE NOTES & DOCUMENTATION

SupremeRAID™ SR-1010

FOR PCIe GEN 3, 4, & 5

Graid Technology Inc.

The ultimate in flexibility and choice. SupremeRAID™ SR-1010 is the world's fastest NVMe/NVMeoF RAID card, designed to deliver the full potential of PCIe Gen 3, 4, & 5 systems in enterprise data centers. The SR-1010 increases performance of both reads and writes while maintaining the superior level of data protection our customers and partners have come to expect.

Unbeatable Performance

Designed for performance-demanding workloads, SupremeRAID™ is the world's fastest NVMe and NVMeoF RAID solution for PCIe Gen 3, 4 and 5 servers. A single SupremeRAID™ card blasts performance to 28M IOPS and 260GB/s and supports up to 32 native NVMe drives, delivering superior NVMe/NVMeoF performance while increasing scalability, improving flexibility, and lowering TCO.

	Linux Environment			Windows Environment		
OPTIMAL	RAID 5	RAID 6	RAID 10	RAID 5	RAID 6	RAID 10
4K Random Read IOPS	28 M IOPS	28 M IOPS	24 M IOPS	2 M IOPS	2 M IOPS	2 M IOPS
4K Random Write IOPS	2 M IOPS	1.5 M IOPS	12 M IOPS	600 K IOPS	450 K IOPS	1 M IOPS
1M Sequential Read THROUGHPUT	260 GB/s	260 GB/s	260 GB/s	74 GB/s	68 GB/s	70 GB/s
1M Sequential Write THROUGHPUT	100 GB/s	100 GB/s	70 GB/s	15 GB/s	15 GB/s	35 GB/s

	Linux Environment			Windows Environment		
REBUILD						
4K Random Read IOPS	5.5 M IOPS	5.5 M IOPS	18 M IOPS	300 K IOPS	350 K IOPS	2 M IOPS
4K Random Write IOPS	1.1 M IOPS	800 k IOPS	12 M IOPS	500 K IOPS	500 K IOPS	1 M IOPS
1M Sequential Read THROUGHPUT	23 GB/s	24 GB/s	130 GB/s	21 GB/s	21 GB/s	15 GB/s
1M Sequential Write THROUGHPUT	21 GB/s	21 GB/s	70 GB/s	12 GB/s	12 GB/s	13 GB/s

BASED ON TESTING SPECIFICATIONS LISTED ON PREVIOUS PAGE

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RELEASE NOTES & DOCUMENTATION

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