

# SupremeRAID™ SR-1010

**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-1010  
**For 2U  
Cloud &  
Enterprise  
Servers**

Supports up to 32 SSDs

**Protecting NVMe-based Data From The Cloud To The Desktop:** SupremeRAID™ SR-1010 is a PCIe Gen 4 card that supports up to 32 SSDs, and delivers superior performance and flexibility for cloud and enterprise servers. SupremeRAID™ SR-1010 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.

**28M**  
IOPS

**260GB/s**  
Throughput

UP TO **100%**  
SSD Performance

**80%**  
Cost Savings

**9x**  
Faster

	SupremeRAID™ SR-1010	Software RAID	Hardware RAID
4K Random Read	28 M IOPS	~2 M IOPS	6.9 M IOPS
4K Random Write	2 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)	5.5 M IOPS	Unknown	1 M IOPS
4K Random Write (Rebuild)	1.1 M 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



# SupremeRAID™ SR-1010



SR-1010  
For 2U  
Cloud &  
Enterprise  
Servers

Supports up  
to 32 SSDs

## SR-1010 Software Specs

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

**Max Virtual Drives  
per Drive Group:**  
1023

**Max Physical Drives:** 32

**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

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

**Max Power Consumption:**  
70 W

**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

“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.”

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

# SupremeRAID™ SR-1010



SR-1010  
For 2U  
Cloud & Enterprise  
Servers

Supports up  
to 32 SSDs

	Linux Environment		
	RAID 5	RAID 6	RAID 10
<b>OPTIMAL</b>			
4K Random Read IOPS	28 M IOPS	28 M IOPS	24 M IOPS
4K Random Write IOPS	2 M IOPS	1.5 M IOPS	12 M IOPS
1M Sequential Read THROUGHPUT	260 GB/s	260 GB/s	260 GB/s
1M Sequential Write THROUGHPUT	100 GB/s	100 GB/s	70 GB/s

	Windows Environment		
	RAID 5	RAID 6	RAID 10
4K Random Read IOPS	2.2 M IOPS	2.2 M IOPS	2.2 M IOPS
4K Random Write IOPS	1.3 M IOPS	1 M IOPS	1.6 M IOPS
1M Sequential Read THROUGHPUT	80 GB/s	80 GB/s	80 GB/s
1M Sequential Write THROUGHPUT	16 GB/s	16 GB/s	20 GB/s

	Linux Environment		
	RAID 5	RAID 6	RAID 10
<b>REBUILD</b>			
4K Random Read IOPS	5.5 M IOPS	5.5 M IOPS	18 M IOPS
4K Random Write IOPS	1.1 M IOPS	800 k IOPS	12 M IOPS
1M Sequential Read THROUGHPUT	23 GB/s	24 GB/s	130 GB/s
1M Sequential Write THROUGHPUT	21 GB/s	21 GB/s	70 GB/s

	Windows Environment		
	RAID 5	RAID 6	RAID 10
4K Random Read IOPS	1.6 M IOPS	1.6 M IOPS	2 M IOPS
4K Random Write IOPS	1 M IOPS	800 K IOPS	1.6 M IOPS
1M Sequential Read THROUGHPUT	21 GB/s	21 GB/s	30 GB/s
1M Sequential Write THROUGHPUT	12 GB/s	12 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-1010 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-1010 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](http://graidtech.com).

Learn More: [info@graidtech.com](mailto:info@graidtech.com)

5201 GREAT AMERICA PARKWAY, SUITE 320 | SANTA CLARA, CA 95054



Copyright © 2021-2024 Graid Technology Inc. All Rights Reserved. SupremeRAID™ is among the trademarks of Graid Technology Inc. and/or its affiliates in the United States, certain other countries, and/or the EU. For more information, please visit [www.graidtech.com](http://www.graidtech.com). Graid Technology Inc. reserves the right to make changes without further notice to any products or data described herein. Information provided by Graid Technology Inc. is believed to be accurate. However, Graid Technology Inc. does not assume any liability arising from the use of any application or product described herein, neither does it convey any license under its patent rights nor the rights of others.

