28м

IOPS



For 2U

Cloud & Enterprise

Servers

Supports up

to 32 SSDs

9_x

Faster

SupremeRAID[™] SR-1010

The Best Solution for NVMe RAID: SupremeRAID[™] is a softwaredefined 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.

260GB/s

Throughput

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.

100%

SSD Performance

80%

Cost Savings

	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

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



SupremeRAID[™] SR-1010

View Linux Release Notes

View Windows Release Notes



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 Physical Drives: 32

Max Drive Groups: Linux: 8 / Windows: 4

OS Support:

AlmaLinux 8 CentOS 7 / 8 Debian 11 openSUSE Leap 15 Oracle Linux 7 / 8 / 9 SLES 15 RHEL 7 / 8 / 9 Rocky Linux 8 Ubuntu 20.04 / 22.04 Windows Server 2019 / 2022 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, Hagiwara, Kingston Technologies, KIOXIA, Memblaze, Micron, Phison, Samsung, Scaleflux, Seagate, Solidigm, Western Digital

Supported Platforms: AMD, ARM, Intel

Supported Virtualization Environments:

KVM, Proxmox VE, Virtuozzo OpenVZ, VMWare Workstation Pro 17, Windows Server Hyper-V

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

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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 performancehungry applications."



SupremeRAID[™] SR-1010

SR-1010 For 2U Cloud & Enterprise Servers

Supports up to 32 SSDs

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

REBUILD	Linux Environment		
REDUILD			
4K Random Read	5.5 M IOPS	5.5 M IOPS	18 M IOPS
4K Random Write	1.1 M IOPS	800 k IOPS	12 M IOPS
1M Sequential Read	23 GB/s	24 GB/s	130 GB/s
1M Sequential Write	21 GB/s	21 GB/s	70 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 Environment			
RAID 5	RAID 6	RAID 10	
2.2 M IOPS	2.2 M IOPS	2.2 M IOPS	
1.3 M IOPS	1 M IOPS	1.6 M IOPS	
80 GB/s	80 GB/s	80 GB/s	
16 GB/s	16 GB/s	20 GB/s	

Windows Environment			
1.6 M IOPS	1.6 M IOPS	2 M IOPS	
1 M IOPS	800 K IOPS	1.6 M IOPS	
21 GB/s	21 GB/s	30 GB/s	
12 GB/s	12 GB/s	20 GB/s	

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.

Learn More: info@graidtech.com

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16м

IOPS



SR-1000 For 1U

Cloud & Enterprise

Servers

8x

Faster

Supports up

to 32 SSDs

80%

Cost Savings

SupremeRAID[™] SR-1000

The Best Solution for NVMe RAID: SupremeRAID[™] is a softwaredefined 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.

220GB/s

Throughput

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.

100%

SSD Performance

	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

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



SupremeRAID[™] SR-1000

View Linux Release Notes

View Windows Release Notes

SR-1000 For 1U Cloud & Enterprise Servers

Supports up to 32 SSDs

SR-1000 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 CentOS 7 / 8 Debian 11 openSUSE Leap 15 Oracle Linux 7 / 8 / 9 SLES 15 RHEL 7 / 8 / 9 Rocky Linux 8 Ubuntu 20.04 / 22.04 Windows Server 2019 / 2022 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, Hagiwara, Kingston Technologies, KIOXIA, Memblaze, Micron, Phison, Samsung, Scaleflux, Seagate, Solidigm, Western Digital

Supported Platforms: AMD, ARM, Intel

Supported Virtualization Environments:

KVM, Proxmox VE, Virtuozzo OpenVZ, VMWare Workstation Pro 17, Windows Server Hyper-V

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

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StorageReview

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SupremeRAID[™] SR-1000

SR-1000 For 1U Cloud & Enterprise Servers

Supports up to 32 SSDs

	Linux Environment		
OPTIMAL	RAID 5	RAID 6	RAID 10
4K Random Read	16 M IOPS	16 M IOPS	16 M IOPS
4K Random Write	900 K IOPS	500 K IOPS	8 M IOPS
1M Sequential Read	220 GB/s	220 GB/s	220 GB/s
1M Sequential Write	90 GB/s	90 GB/s	70 GB/s

Windows Environment			
RAID 5	RAID 6	RAID 10	
2 M IOPS	2 M IOPS	2 M IOPS	
700 K IOPS	500 K IOPS	1.6 M IOPS	
70 GB/s	70 GB/s	70 GB/s	
10 GB/s	10 GB/s	20 GB/s	

REBUILD	Linux Environment		
4K Random Read	3 M IOPS	3 M IOPS	12 M IOPS
4K Random Write	600 K IOPS	400 K IOPS	8 M IOPS
1M Sequential Read	12 GB/s	13 GB/s	110 GB/s
1M Sequential Write	11 GB/s	11 GB/s	70 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 Environment		
1.4 M IOPS	1.4 M IOPS	1.8 M IOPS
500 K IOPS	400 K IOPS	1.5 M IOPS
12 GB/s	12 GB/s	28 GB/s
7 GB/s	7 GB/s	20 GB/s

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

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Tower & Edge Servers, Professional Workstations, & Gaming Desktops



SR-1001 For 1U Towers & Edge Servers

Supports up to 8 NVMe SSDs

SupremeRAID[™] SR-1001

The Best Solution for NVMe RAID: SupremeRAID[™] is a softwaredefined 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 NVMe 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 IOPS	80gB/ Throughpu			1.5 x Faster
		SupremeRAID [™] SR-1001	Software RAID	Hardware RAID
4K Random F	Read	6 M IOPS	~2 M IOPS	3.9 M IOPS
4K Random V	Write	500 K IOPS	200 K IOPS	180 K IOPS
1M Sequenti	al Read	80 GB/s	~9 GB/s	13.5 GB/s
1M Sequenti	al Write	30 GB/s	2 GB/s	4 GB/s
4K Random F	Read (Rebuild)	1 M IOPS	Unknown	36 K IOPS
4K Random W	Nrite (Rebuild)	350 K IOPS	Unknown	18 K IOPS
CPU Utilizatio	on	None	High	None
Data Protecti	ion	RAID 0, 1, 5, 6, 10	RAID 0, 1, 5, 10	RAID 0, 1, 5, 6
NVMeoF Sup	port	Yes	Yes	No
Flexibility		High	Limited by CPU	None
Max SSDs Su	pported	8	32	8

Based on Linux RAID5 with AMD EPYC 9654 96-Core Processor x 2 and KIOXIA CM7 x 8



Tower & Edge Servers, Professional Workstations, & Gaming Desktops

SupremeRAID[™] SR-1001

View Linux Release Notes

View Windows Release Notes



SR-1001 For 1U Towers & Edge Servers

Supports up to 8 NVMe SSDs

SR-1001 Software Specs

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

Max Physical Drives: 32 (8 NVMe drives and up to 24 SAS/SATA Drives)

Max Drive Groups:

Linux: 8 / Windows: 4

OS Support:

AlmaLinux 8 CentOS 7 / 8 Debian 11 openSUSE Leap 15 Oracle Linux 7 / 8 / 9 SLES 15 RHEL 7 / 8 / 9 Rocky Linux 8 Ubuntu 20.04 / 22.04 Windows Server 2019 / 2022 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, Hagiwara, Kingston Technologies, KIOXIA, Memblaze, Micron, Phison, Samsung, Scaleflux, Seagate, Solidigm, Western Digital

Supported Platforms:

AMD, ARM, Intel

Supported Virtualization Environments:

KVM, Proxmox VE, Virtuozzo OpenVZ, VMWare Workstation Pro 17, Windows Server Hyper-V

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

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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 PCle 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

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StorageReview

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



Tower & Edge Servers, Professional Workstations, & Gaming Desktops

SupremeRAID[™] SR-1001



	Linux Environment		
OPTIMAL	RAID 5	RAID 6	RAID 10
4K Random Read	6 M IOPS	6 M IOPS	6 M IOPS
4K Random Write	500 K IOPS	400 K IOPS	3 M IOPS
1M Sequential Read	80 GB/s	80 GB/s	80 GB/s
1M Sequential Write	30 GB/s	30 GB/s	25 GB/s

Windows Environment			
RAID 5	RAID 6	RAID 10	
1.8 M IOPS	1.8 M IOPS	1.8 M IOPS	
500 K IOPS	400 K IOPS	1.6 M IOPS	
40 GB/s	40 GB/s	40 GB/s	
8 GB/s	7 GB/s	10 GB/s	

	Linux Environment		
REBUILD			
4K Random Read	1 M IOPS	1 M IOPS	4 M IOPS
4K Random Write	350 K IOPS	300 K IOPS	3 M IOPS
1M Sequential Read	10 GB/s	10 GB/s	40 GB/s
1M Sequential Write	10 GB/s	10 GB/s	25 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 x8; 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 Environment		
1.4 M IOPS	1.4 M IOPS	1.6 M IOPS
400 K IOPS	300 K IOPS	1.5 M IOPS
10 GB/s	10 GB/s	26 GB/s
7 GB/s	7 GB/s	10 GB/s

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 x8; RAID Controller: SR-1001 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

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