# GRAID Technology SupremeRAID™ SR-1000

## Benefits

### Unbeatable Performance

- Up to:
  - 6 million IOPS
  - 100 GiB/s throughput
- RAID 5 In Re-building:
  - 1.8 million IOPS
  - 10 GiB/s throughput

### Software-composable Infrastructure Ready

- Able to pulling SSD resources from a remote JBOF to provision a storage volume for your application

### Release CPU Power for Applications

- GRAID SupremeRAID™ shoulders all the IO processing and RAID computation burden

### Plug and Play

- Doesn't require extra cabling to connect SSD disks to the RAID card

### Support Various NVMe interfaces

- Support  U.2, M.2 and AIC NVMe interfaces or even SAS and SATA

### Ease of Management

- No memory caching
- No battery

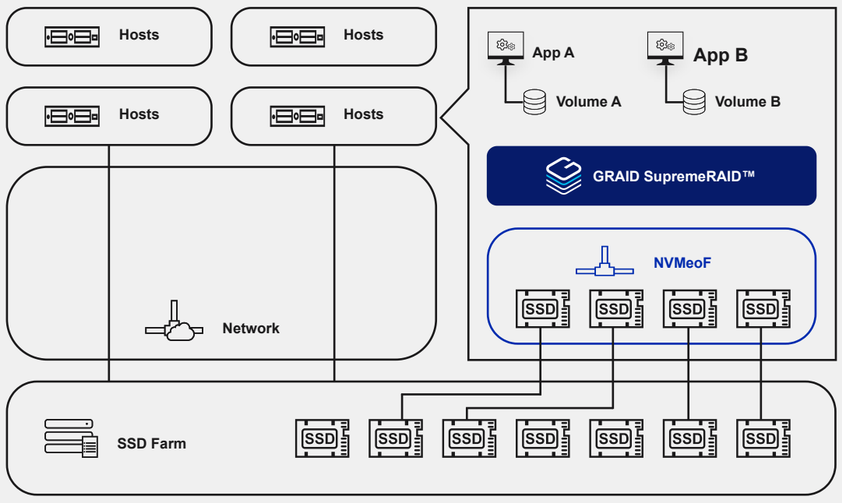
### Highly Extensible

- Can add more features via software update

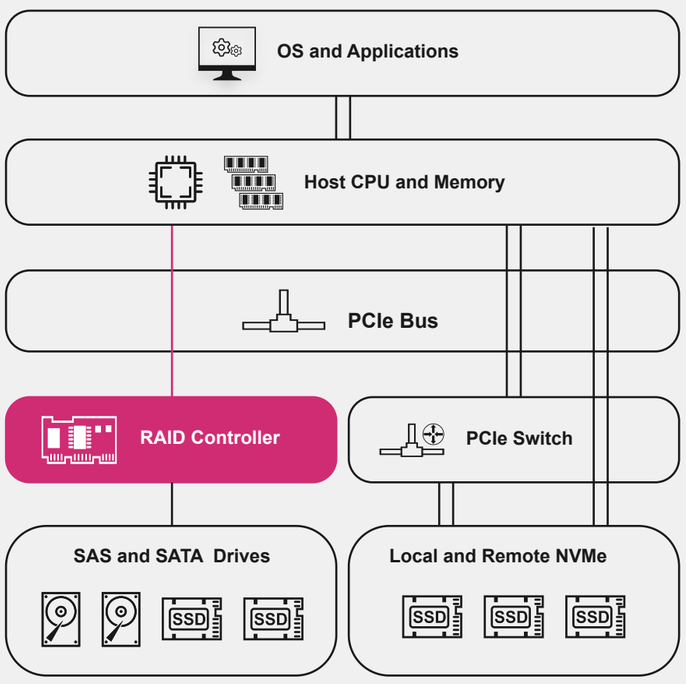
## Software-composable Infrastructure

In Software-Composable Infrastructure (SCI), compute, storage, and networking resources are abstracted from their physical locations and can be managed with software via a web-based interface. SCI makes data center resources as readily available as cloud services and is the foundation for private and hybrid cloud solutions.

Along with the emergence of NVMe SSD and NVMeoF technologies is the possibility for SCI to disaggregate storage resources without sacrificing performance and latency. As NVMe SSD technology rapidly evolves however, a major performance bottleneck is introduced — RAID data protection




## Performance Bottleneck




Traditionally, hardware RAID cards or software RAID systems have been used to protect data from disk failure. In the HDD era, a simple ASIC on a RAID card was capable enough to handle all I/O - after all, even with SAS HDD, maximum performance was only around 200 IOPS and 150MB/s of throughput. However, in the SSD era a single NVMe SSD can deliver around one million IOPS and 7GB/s of throughput. This results in a hardware RAID card or software RAID system that is unable to handle the massive performance leap of an SSD, and ends up being the biggest performance bottleneck of your storage infrastructure.

In addition, traditional hardware RAID cards require storage disks to be directly connected to the RAID card via cables, severely limiting their usefulness in modern Software-Composable Infrastructure.

## GRAID SupremeRAID™ - A Future Ready RAID Card

GRAID Technology has developed a disruptive software + hardware solution that can unlock the performance bottleneck of RAID protection for SSDs. It is also the world's first NVMeoF RAID solution that not only protects direct-attached SSDs but also those connected via NVMe over Fabrics (NVMeoF).

### Unbeatable Performance

The cutting edge technology of SupremeRAID™ unlocks bottlenecks to deliver 100% of available SSD performance. A single SupremeRAID™ card is capable of delivering 6 million IOPS and 100 GiB/s of throughput.

### Software-Composable Infrastructure Ready

Pulling SSD resources from a remote JBOF to provision a storage volume for your application is now possible with GRAID SupremeRAID™

### Free-Up CPU Resources for Other Applications

GRAID SupremeRAID™ shoulders all the IO processing and RAID computation burden, freeing-up your precious CPU resources for other applications, increasing your productivity and reducing costs.

### Plug & Play

Unlike traditional hardware RAID cards, GRAID SupremeRAID™ doesn't require extra cabling to connect SSD disks to the RAID card, eliminating the costs of refactoring your existing hardware system, and avoiding another potential point of failure.

## Ease of Management

Since traditional Hardware RAID cards use an ASIC with only limited processing power, they also require a memory caching module in order to reach satisfactory performance levels. And to maintain data integrity of the cache in the event of a power loss, a battery backup is also required. The RAID card will suffer a huge performance drop if the battery backup module is exhausted, as it will need to switch to write-through mode in order to preserve data integrity.

## Supports Various NVMe Interfaces

GRAID SupremeRAID™ can be used with U.2, M.2 and AIC NVMe interfaces or even SAS and SATA, making SupremeRAID™ the most versatile SSD RAID card in the world.


## Highly Extendable

Featuring a unique hardware and software architecture, SupremeRAID™ is the world's first RAID card that can add more features like compression, encryption and thin provisioning via software update.

## GRAID SupremeRAID™ SR-1000 Specifications

| | |
|---|---|
| **Host Interface** | x16 PCIe Gen 3.0 |
| **Max Power Consumption** | 75 W |
| **Form Factor** | 4.4” H x 7.9” L Single Slot |
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| **Max NVMe Drives Per Controller** | 32 |
| **RAID Features** | • RAID levels 0, 1, 10, 5, and 6<br>• Fast initialization for quick array setup<br>• 32 virtual drive support<br>• Global and dedicated Hot Spare support with automatic rebuild |
| **Management Utilities** | • graidctl (command-line interface) |
| **OS Support** | • Linux: CentOS 8.3, RHEL 8.4, Ubuntu 20.04, openSUSE Leap 15.2, SLES 15 SP2 |
| **RAID-5 4k Random IOPS** | • Read: 6.4M<br>• Write: 765k<br>• 70% Read 30% Write Mix: 1.8M |
| **RAID-5 Sequential Throughput** | • Read: 92 GiB/s<br>• Write: 10 GiB/s |
| **RAID-5 4k Random IOPS in Re-building** | • Read: 1.8M<br>• Write: 715k<br>• 70% Read 30% Write Mix: 1.1M |
| **RAID-10 Sequential Throughput** | • Read: 100 GiB/s<br>• Write: 33 GiB/s |
| **RAID-10 Sequential Throughput in Re-building** | • Read: 64 GiB/s<br>• Write: 34 GiB/s |

GRAID

For more information, please visit the GRAID web sites at: https://www.graidtech.com/