Tyrone® GRANDIOS

Cloud-Scale Storage Array

Deliver Agility, Scalability and Eliminate Legacy Storage Complexity

Future-Proof Storage Infrastructure

Big Data proliferates at mind-boggling speed, business data such as files and presentations, video files from surveillance systems, analytics data, all of which needs to be stored somewhere, and has to be available to end users where they need it, when they need it. A storage solution for today should also take into consideration the volume and use scenarios in the future. That's why Tyrone puts industry leading dollars and time into R&D to engineer products that store more data in less space, while still delivering the features and functionality that make them fast, efficient, and cost-effective.

Tyrone Systems now introduces the Tyrone Grandios Storage Array to its growing fleet of enterprise-grade storage solutions. We applied the same groundbreaking technology innovation that made our lower density models the fastest in their industry price bands, to this new high density, high capacity model. Now, there's no need to choose between capacity and performance; we provide it in the same, feature-rich product.

This product allows for flexible AFA, HFA, and HDD configuration options, Now, using minimal SSDs and intelligent firmware that boasts advanced data tiering technology, Tyrone delivers a high density solution that is also high performance and feature rich.

Cost-Effective

Tyrone Grandios delivers a space-conscious storage model that packs up to 1.68PB of storage space into a single chassis, expertly designed to occupy only five data center rack units. With 84 drive bays rigorously tested to function fast and efficiently with 4, 8, 10, 12, 14, 16 & 20TB hard drive, this system delivers exceptional value for the dollar for customers, cloud service providers, privatecloud builders, and enterprise data centers.

✓ High density design stores more data in a smaller space, reducing the cost of floor space, heating and cooling, and maintenance.
✓ With high read and write throughput for demanding streaming applications, businesses are paying less for more.

PRODUCT HIGHLIGHTS

✓ 5U standard 1m rack-mount enclosure for up to 8PB of data per rack

✓ ADAPT data protection technology to make data constantly available

✓ Efficient power conversion and adaptive cooling technology

✓ Up to 84 3.5" SAS hard disk drives or Solid State Drives per 5U enclosure

✓ Drawer design provides extremely high density per rack unit

✓ Easy access to hot swap drives

✓ Expansion capability up to 336 drives

✓ Dual 12Gb SAS I/O modules with integral data path redundancy

✓ Dual redundant controllers for enhanced reliability

High Availability, High Performance

Areal density is important, but performance is the second half of the value equation. Powered by intelligent software, Tyrone Grandios has unique features to usher data in and out of the system seamlessly so that every resource is used to its maximum potential.
Exclusive ADAPT data protection eliminates 95% of performance degradation during disk rebuild when compared to traditional RAID solutions. The technology disperses data across many drives, allocating more resources to rebuild so data is available, and business is not interrupted.

✓ Throughput is delivered at 12GB/s sequential read and 10GB/s sequential write, so access by end users to business-critical data is virtually instantaneous.
✓ Tyrone's Intelligent Tiering technology automatically sorts hot and cold data to ensure highest performance dries are used only when they're needed.

Easy to Set-Up and Maintain

Tyrone Grandios Storage Array is five steps out-of-the box simple, reliable, and stores more per rack unit, so there is less overall equipment for administrators to manage.

✓ Tyrone designs every component in the system - from the fast controller to the precisely engineered chassis and high capacity drives, so the system functions more effectively and efficiently than higher priced models where performance and reliability is reduced because components are not optimized to function together.
✓ Our Systems are built with a uniquely modular architecture so many components, including I/O modules, controllers, and software, are interchangeable. This accelerates time-to-market of new technologies, and simplifies and reduces costs of upgrading for enterprises and clouds.

The Storage array enables uninterrupted business continuity with dual, hot-swappable, high availability controllers that contribute to the system's 99.999% uptime rating.

SPECIFICATIONS

	Controller Performance	12GB/s read throughput | 10GB/s write throughput
	Expansion BODs	Grandios | maximum of 4x Grandios boxesincluding Master
	Advanced Features	Thin Provisioning | Snapshots | Asynchronous | Replication| Auto-Tiering | Virtual Pools | Encryption
	High-Availability Features	Redundant Hot-Swap Controllers | Redundant Hot-Swap Disks, Fans, Power
		Dual Power Cords | Hot Standby Spare | Automatic Failover | Multi-Path Support
Models – Fibre Channel Based or iSCSI Based or SAS Based or Ethernet Based	With eighty-four 3.5" drives	Up to 84 drives per chassis | 1680 TB max capacity per chassis
	Physical	H: 8.75 in | W: 17.5 in | D: 38.63 in | Width w/ ear mounts: 19.01 in
		BOD weight: 82 kg | RBOD weight with drives: 135 kg | BOD weight: 82 kg
		BOD weight with drives: 287 lb / 130 kg
Hosts	External Ports	8 per system , 4 per Controller
	Fibre Channel Models	Host Speed: 32Gb, 16Gb Fibre Channel | Interface Type: SFP+ /SFP28
	iSCSI Models	Host Speed: 10Gb, 25Gb iSCSI | Interface Type: SFP+ /SFP28
	SAS I Models	Host speed: 12Gb/s, 6Gb/s SAS, Interface type: HD Mini-SAS
	Ethernet I Models	10GBASE-T (auto-negotiation to 1Gb)
Drive Support	Grandios	Nearline SAS
Data Protection	Default	ADAPT data protection technology
	Add Data Protection Options	0, 1, 5, 6, 10 And Self Healing (ADR) support
System Configuration	System Memory	48GB per system
	Volumes per System	1024
	Mirrored Cache	Yes
	Supercapacitor Cache Backup	Yes
	Cache Backup to Flash	Yes - Non-volatile
	SSD Read cache	Yes
Management	Interface Types	10/100/1000 Ethernet, Mini USB
	Protocols Supported	SNMP, SSL, SSH, SMTP, HTTP(S), REDFISH
	Management Consoles	Web GUI, CLI
	Management Software	Tyrone Storage Management Console
		Remote Diagnostics | Non-disruptive Updates | Volume Expansion
Power Requirements – AC Input	Input Power Requirements	200-240VAC 50-60Hz
	Max Power Output Per PSU	2200W
Temperature and Humidity Ranges	Operating Temperature	BOD: 5°C to 35°C (41°F to 95°F) | BOD: 5°C to 40°C (41°F to 104°F)
	Shipping Temperature	-40°C to +70°C (-40°F to +158°F)
	Operating Humidity	20% to 80% non-condensing
	Non-Operating Humidity	5% to 100% non-precipitating
Declared Acoustic Noise Levels	Sound Power	<L_{WAd} 6.6 Bels (re 1 pW) @ 23°C
Shock and Vibration	Shock, Operational	3.0 g, 11$_{ms}$, ½ sine pulses, Y-axis
	Shock, Non-Operational	15.0 g, 7$_{ms}$, ½ sine pulses (Z-axis); 20.0 g, 10 ms, ½ sine pulses (X- and Y-axes)
	Vibration, Operational	0.18 Grms 6 Hz to 500 Hz random
	Vibration, Non-Operational	0.25 Grms 6 Hz to 200 Hz random

Tyrone®

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Let's Talk

Press Inquiries
Email: info@tyronesystems.com

Support Inquiries
Email: tyronecare@tyronesystems.com

Partner Inquiries
Email: info@tyronesystems.com