

iei®



Barebone

GRAND Series

High Reliability Storage Server

www.ieiworld.com



QNAP Certified

The Grand series is certified by the QNAP. QNAP Systems, Inc. was founded in 2004 as leading network attached storage provider and excelled at both hardware design & software engineering. QNAP provides a comprehensive range of cutting-edge Network-attached Storage (NAS) based on the principles of usability, high security, and flexible scalability leading to win the numerous international prizes. QNAP offers quality NAS products for home and business users, with approximately 4 million installation worldwide.

Software RAID Support

Grand Series is using pure software RAID created by operating system. Software RAID is default built-in function in Windows storage system and Windows 10. And it is also easy to access open source support from Linux operating system. The benefit of Software RAID is RAID array can be moved to a new computer with newer, faster CPU without capability constraint. Our powerful storage server system can enhance the read and write speeds incredibly.



10GbE Network Support Ready



A 10 Gigabit Ethernet (10GbE) network is the essential feature for business that demand high bandwidth for virtualization, fast backup and restoring ever growing database. IEI provides a series of affordable and reliable 10GbE ready storage server that user can be immediately upgraded by purchasing 10GbE network adapter to build a true 10GbE environments for enterprise.

Storage Expandable for Enterprise

The GRAND series storage server is a complete product line. The GRAND series created for enterprise storage supports processors from Celeron J3455 to Xeon E5 series, and all servers are compliant with standard rackmount from 1U to 3U. This product line can meet various storage needs and enterprise applications. Storage capacity options from 4 bays to 30 bays are available to achieve your demands. All of our servers are expandable, allowing you to expand storage via SAS 12Gbps expansion card or USB 3.0 connector depending on different product lines.

When expanding your total data storage capacity, deploying multiple storage server can increase both management complexity and costs. The expansion enclosures provide an economical solution for expanding the total storage space of your storage server while greatly streamlining management and maintenance tasks.

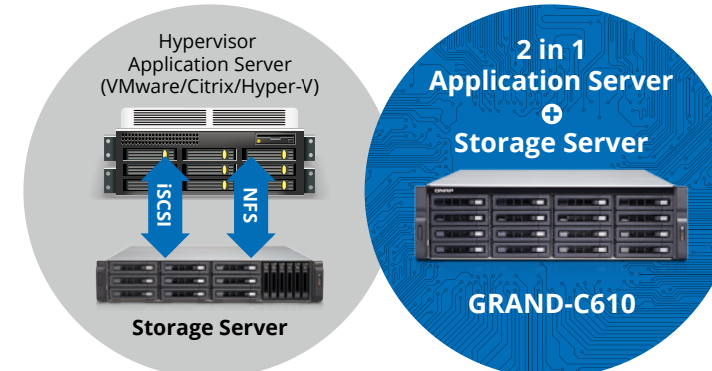


GRAND-C610

Big Data, Data Center

Hyper converged high-performance computing, virtualization, storage, and application server in one chassis for streamlined efficiency and manageability

- » Double Server, support Intel® Xeon® E5-2600 v3
- » 16 x DIMM Slots, up to 1TB memory with 16 x 64GB DIMMs
- » 4 x PCIe slot supporting 40GbE network card
- » Storage expandable, up to 1PB
- » IPMI Remote Management
- » 10GbE network card support ready



Previous Solution

New Solution

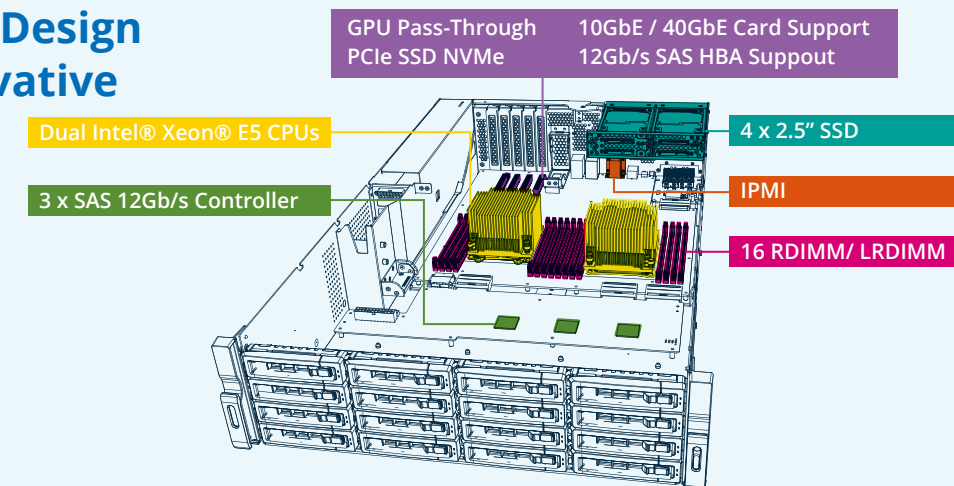
Hyperconverged Storage Server

High Computing and Storage Server

- » High-performance application server based on dual Intel® E5 CPU
- » Storage server: This component is used to mount storage using iSCSI/NFS for the application server
- » High-speed connection: 10GbE or 40GbE

Server-grade Hardware Design Robust, Reliable & Innovative

Suited for enterprise environments which demand the highest performance, simplified IT management, uninterrupted service, and optimized virtualization environments, the GRAND-C610 is designed with high-standard hardware specifications to meet those needs.

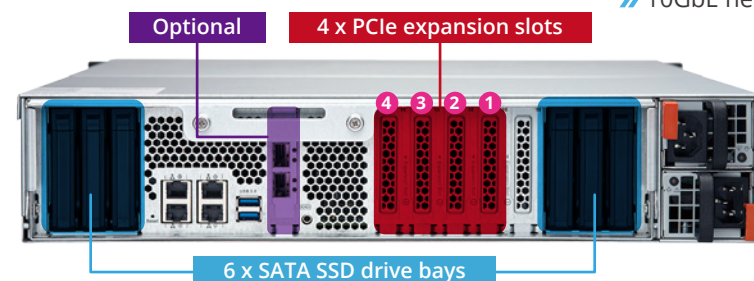


GRAND-BDE

Powered by an advanced 14nm Intel® Xeon® D 64-bit SoC processor, up to 128GB DDR4 ECC RDIMM RAM / 64GB DDR4 non-ECC UDIMM RAM, the 12Gb/s SAS-enabled GRAND-BDE delivers outstanding performance for data transmission and applications. With a thermal design power of only 20-65W, the GRAND-BDE fulfills demands for both performance and energy saving.



- » Intel® Xeon® D processor optimizes performance and efficiency
- » 4 x DIMM Slots, up to 128 GB memory with 4 x 32GB DIMMs
- » 4 x PCIe slot supporting 40GbE network card
- » Storage expandable, up to 1PB
- » 10GbE network card support ready



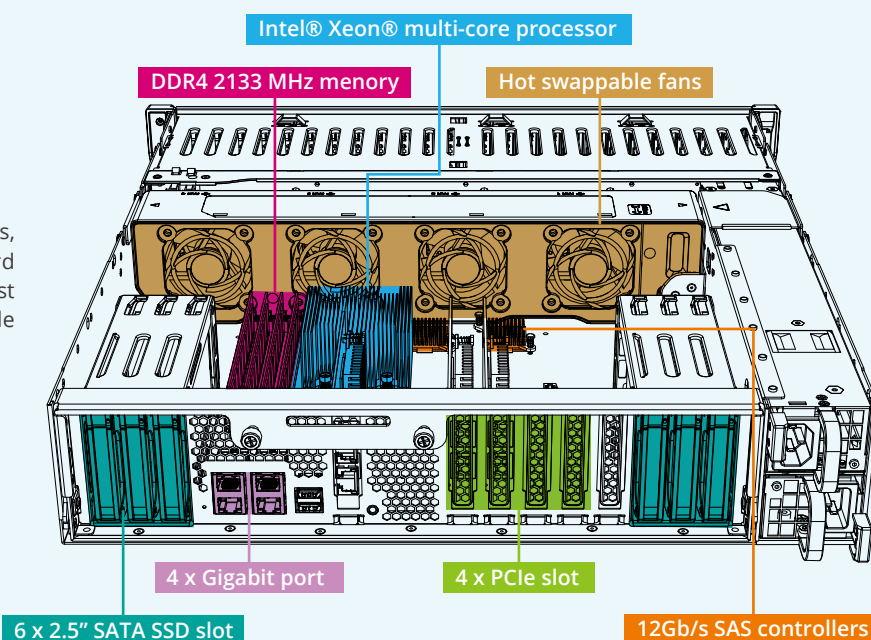
Expansion Capability

The GRAND-BDE has five built-in PCIe 3.0 expansion slots, providing great expandability options for 10GbE/40GbE network adapters, USB 3.1 and 12Gb/s SAS expansion cards, PCIe NVMe SSD, or even a graphics card.

Excellent Hardware

Immense, Durable & Compact

The GRAND-BDE supports SAS 12Gb/s 2.5" drives, allowing for SAS 12Gb/s and SATA 6Gb/s hard drives and SSDs. Businesses can create the most cost-effective storage by implementing suitable drives based on their needs.



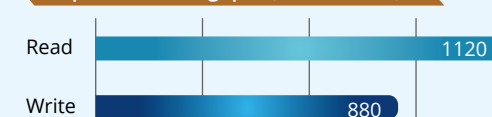
GRAND-MF

Powered by a high-performance AMD R-Series quad-core processor with up to 64GB DDR4 RAM, the GRAND-MF provides two M.2 SATA 6Gb/s SSD slots that allow the greatest flexibility in tiered storage configuration and enables cache acceleration. This powerful hardware can also double the encrypted file transfer performance with AES-NI encryption acceleration. The GRAND-MF is designed for small and medium-sized businesses looking for private cloud, cross-platform file sharing and collaboration, efficient backup/restoration, storage for virtualization, and to future-proof their IT infrastructure with maximized ROI.

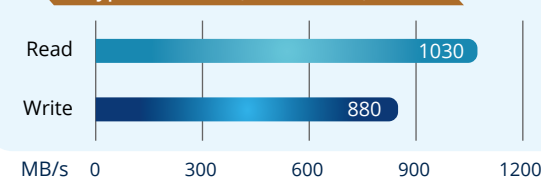


- » AMD R Series RX-421ND quad-core 2.1 GHz CPU (Turbo Core up to 3.4 GHz)
- » 4 x DIMM Slots, up to 64 GB memory with 4 x 16GB DIMMs
- » Ready to support 10GbE network card
- » Storage expandable, up to 1PB

Sequential Throughput (10GbE, 64KB)



Sequential Throughput via Encrypted Volume (10GbE, 64KB)



AMD R-Series Quad-core CPU, up to 64GB RAM, and AES-NI Encryption Acceleration

The GRAND-MF is equipped with a next-gen AMD R-Series RX-421ND quadcore 2.1GHz processor (burst up to 3.4GHz), dual channel 8GB/16GB/64GB DDR4 RAM (upgradable to 64GB), and four Gigabit LAN ports for lightning-fast multi-tasking with low power consumption and the ability to deliver up to 1531MB/s throughput with a 10GbE configuration. The GRAND-MF's accelerated encryption engine with AES-NI provides unmatched encryption performance in its class (up to 1315MB/s with AES 256-bit full storage server volume encryption) to boost system performance, security, and ensure the safety of sensitive business data stored in the storage server.

M.2 SSD Support

The GRAND-MF supports 2.5" SSD for caching to increase IOPS performance, and provides higher transfer speeds and reliability with support for two additional M.2 2280/2260 SATA 6Gb/s SSDs. Using an SSD cache boosts overall system performance, and is perfect for improving the overall workflow of random IOPS demanding applications such as virtualization. The GRAND-MF combines M.2 SATA SSD, 2.5" SATA SSD and high-capacity 3.5" HDD in one box to effectively realize tiered storage for exceptional application performance and lower TCO of storage at the same time.



M.2

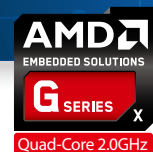
SSD

HDD

GRAND-SE

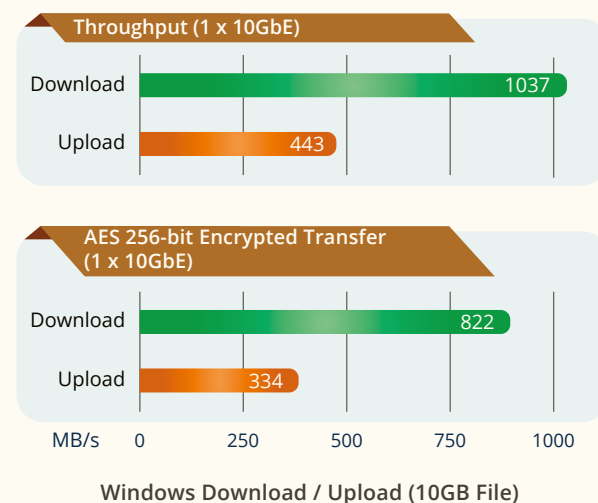
The GRAND-SE is a powerful network storage system powered by a high-performance AMD quad-core processor. It can support 10GbE network card, and doubles the encrypted file transfer performance with the AES-NI hardware-accelerated encryption engine to over 800 MB/s. The GRAND-SE is designed for small and medium-sized businesses looking for backup, restoration, private cloud, storage for virtualization, and to future-proof their IT infrastructure for 10GbE networks.

- » The power of 64-bit quad-core processor with AES-NI support
- » 2 x SO-DIMM slot, up to 16 GB memory with 2 x 8GB DIMMs
- » Ready to support 10GbE network card
- » Storage expandable via USB 3.0, up to 200TB



Speedy Transfer and Hardware-accelerated Encryption with AES-NI

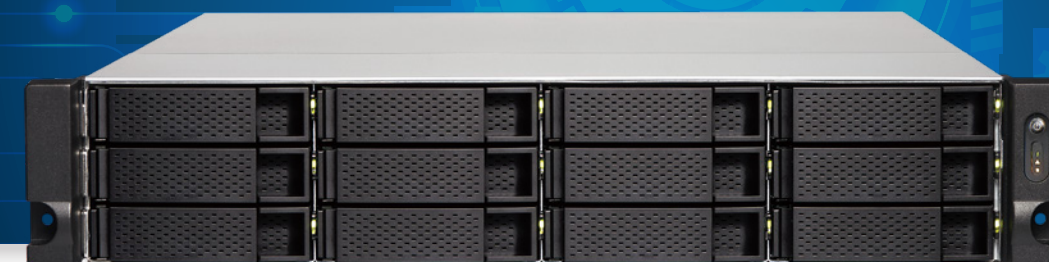
The GRAND-SE is equipped with an energy-efficient 64-bit AMD quad-core 2.0GHz processor, and supports up to 16GB of memory, SATA 6Gb/s, one SFP+ 10GbE and four Gigabit LAN ports for lightning-fast multitasking performance with SSD cache support. The GRAND-SE is a powerful storage server that delivers up to 1,059MB/s sequential read throughput with expanding one 10GbE configuration. The GRAND-SE's hardware-accelerated encryption engine provides unmatched encryption performance in its class, up to 822MB/s with 256-bit AES full storage server volume encryption, boosting system performance & security while ensuring the safety of sensitive business data stored in the GRAND-SE.



GRAND-AL

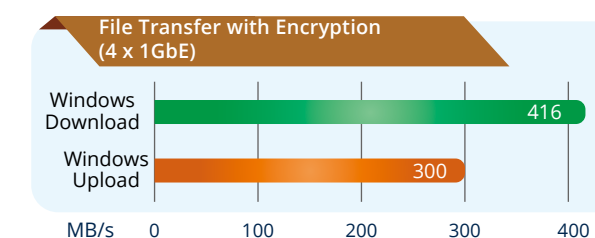
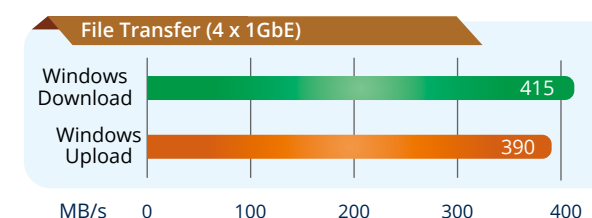
The GRAND-AL is a rackmount storage server that easily fits into a standard 19-inch rack, providing an ideal storage solution in the server room for small and medium businesses. The GRAND-AL also provides a wide range of value-added features: 4K video playback and real-time transcoding; and web automation services with IFTTT.

- » Intel® Celeron® J3455 quad-core 1.5GHz CPU with AES-NI Encryption
- » 2 x SO-DIMM slot, up to 8GB memory with 2 x 4GB DIMMs
- » Storage expandable via USB 3.0, up to 200TB



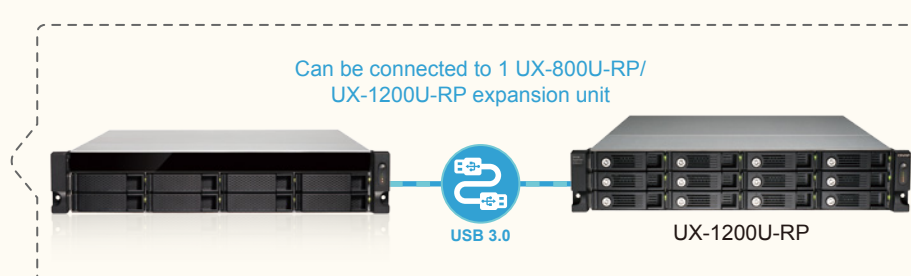
Intel® Celeron® J3455 Quad-core 1.5GHz CPU with AES-NI Encryption

Powered by the latest 14 nm Intel® Celeron® J3455 quad-core 1.5GHz processor (burst up to 2.3 GHz), up to 8GB DDR3L RAM, four Gigabit LAN ports, and SATA 6Gb/s, the GRAND-AL runs tasks smoothly and quickly with up to 415 MB/s read/write speeds. The GRAND-AL features Intel® AES-NI accelerated encryption to drive transfer speeds of up to 416 MB/s with AES 256-bit encryption for both full storage server volumes and shared folders, boosting system performance while ensuring the confidentiality of sensitive business data stored in the storage server.



Low-cost, Flexible Storage Expansion

The GRAND-AL can be connected to a QNAP expansion enclosure to scale up the storage capacity (Raw Capacity) online without downtime and easily managed with Storage Manager. You can connect a GRAND-AL to a suitable QNAP expansion enclosure (UX-1200U-RP) to quickly transfer data to another storage expansion device without going through a network.



Selection Guide



Model		GRAND-C610	GRAND-BDE	GRAND-MF	GRAND-SE	GRAND-AL
Chassis	Dimensions (H x W x D)	88 x 442.5 x 530.5 mm	18-bay: 88 x 442.5 x 530.5 mm 30-bay: 88.3 x 439 x 484.5 mm	8-bay/12-bay: 89 x 482 x 534 mm 16-bay: 130 x 481 x 536 mm	4-bay: 44 x 439 x 499 mm 8-bay/12-bay: 89 x 482 x 534 mm	4-bay: 44 x 439 x 499 mm 8-bay/12-bay: 89 x 482 x 534 mm
	System Fan	4 x 60 mm, 12V DC	4 x 60 mm, 12V DC	4 x 92 mm, 12V DC	2 x 70mm, 12V DC	2 x 70mm, 12V DC
	Chassis Construction	Rackmount	Rackmount	Rackmount	Rackmount	Rackmount
Motherboard	CPU	Dual sockets	On-board	On-board	On-board	On-board
		2 x FCLGA2011-3 sockets-support Xeon® E5-2600 v3 family	Intel® Xeon® D-1500 processor family	AMD R-Series RX-421ND quad-core 2.1 GHz processor, turbo core up to 3.4 GHz	AMD G-Series 64-bit quad-core 2.0GHz	Intel® Celeron® J3455 quad core 1.5GHz (burst up to 2.3GHz)
	Chipest	C610	NA	NA	NA	NA
Memory	Memory	Total slots: 16 RDIMM/LRDIMM; Memory expandable up to 1TB DDR4 (64GB x 16)	Total slots: 4 RDIMM; Memory expandable up to 128GB DDR4 (32GB x 4)	Total slots: 4 UDIMM; Memory expandable up to 64GB DDR4 (16GB x 4)	Total slots: 2 SODIMM; Memory expandable up to 16GB DDR3L (8GB x 2)	Total slots: 2 SODIMM; Memory expandable up to 8GB DDR3L (4GB x 2)
IPMI	IPMI Solution	IPMI LAN port, IPMI VGA, IPMI console	NA	NA	NA	NA
Storage	Hard Drive	Front: 16 x 2.5"/3.5" drive bay Rear: 4 x 2.5" drive bay	18-bay Front: 12 x 2.5"/3.5" drive bay 30-bay Front: 24 x 2.5" drive bay Rear: 6 x 2.5" drive bay	8-bay Front: 8 x 2.5"/3.5" drive bay 12-bay Front: 12 x 2.5"/3.5" drive bay 16-bay Front: 16 x 2.5"/3.5" drive bay	4-bay Front: 4 x 2.5"/3.5" drive bay 8-bay Front: 8 x 2.5"/3.5" drive bay 12-bay Front: 12 x 2.5"/3.5" drive bay	4-bay Front: 4 x 2.5"/3.5" drive bay 8-bay Front: 8 x 2.5"/3.5" drive bay 12-bay Front: 12 x 2.5"/3.5" drive bay
I/O Interface	M.2	2	NA	2	NA	NA
	USB 3.0	4	2	2	2	4
	USB 2.0	NA	NA	4	2	NA
	Ethernet	2 x GbE	4 x GbE	4 x GbE	4 x GbE	4 x GbE
	Display	1 x VGA	NA	NA	NA	1 x HDMI 1.4
	LEDs	10 GbE, Status, LAN, Storage Expansion Port Status	10 GbE, Status, LAN, Drive	Status/Power, LAN, USB, Drive	Status/Power, LAN, USB, Drive	Status, LAN, Drive, Expansion
Buttons	Buttons	Power button	Power button Reset button	Power button Reset button	Power button Reset button	Power button Reset button
Expansion	PCIe	4 (3 x PCIe Gen 3 x8, 1 x PCIe Gen 3 x16)	Slot 1: PCIe 3.0 x8 Slot 2: PCIe 2.0 x4 Slot 3: PCIe 3.0 x4 Slot 4: PCIe 3.0 x4 or PCIe 3.0 x8* Note: Slot 4 provides the bandwidth of PCIe 3.0 x8 when Slot 3 is not in use. Slot 4 then provides the bandwidth of PCIe 3.0 x4 only when an expansion board is installed in Slot 3.	1 x PCIe Gen 3 x4	1 x PCIe 2.0 x4	NA
Power	Power Input	100-240V AC, 50/60Hz	100-240V AC, 50/60Hz	100-240V AC, 50/60Hz	100-240V AC, 50/60Hz	100-240V AC, 50/60Hz
Reliability	Operating Temperature	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C
	Relative Humidity	5~95% non-condensing, wet bulb: 27°C	5~95% non-condensing, wet bulb: 27°C	5~95% non-condensing, wet bulb: 27°C	5~95% non-condensing, wet bulb: 27°C	5~95% non-condensing, wet bulb: 27°C
	Weight	22.42 kg	15.1 kg	15.42 kg	16.14 kg	16.14 kg
OS	Supported OS	Windows server 2016 Windows 10 Linux	Windows server 2016 Windows 10 Linux	Windows 10 Linux	Windows 10 Linux	Windows 10 Linux

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