EonStor® A24U-G2421

The EonStor A24U-G2421 provides unprecedented performance through full utilization of its 640MB/s host bandwidth with the computing power managing a massive capacity of 24 SATA disk drives. The subsystem handles the 12TB of raw capacity with ease, using the dual PCI-X, custom-built ASIC266 architecture that is renowned for its ample margins, flexible load-balancing, and multi-pathing algorithms. Boasting a 2GB internal bandwidth, the dedicated ASIC architecture makes the subsystem ideal for a wide range of applications such as data archiving, backup and restore, near-line DAS, and any environment where cost-effective, mass storage is required.

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Reliable Storage
Networking Solution Provider

The EonStor A24U combines two SCSI-320 host channels with 24 drive bays in a smartly managed enclosure. This scalable, fault-tolerant storage subsystem is well-suited for clustered or direct-attached storage applications and has the flexibility to serve applications running different I/O characteristics.

Highlights

- Market leading I/O performance
  Sustained RAID5 Read/Write: 465/348 (MB/sec)
  RAID5 IOPS: 24K
- Ultra-high-density, 4U-profile, 24-bay enclosure
- Optional, hot-swappable battery backup unit (BBU)
- Up to 12TB of storage capacity
- One DDR RAM DIMM module with capacities up to 2GB
- Two (2) SCSI-320 host channels
- Designed for 3Gbps SATA-II disk drives
- Ease of maintenance with hot-swappable FRUs
- Cable-less enclosure design
- "Installed Once, Runs Anywhere" manageability by RAIDWatch software

Reliability

In addition to RAID protection against drive failure, the subsystem has ingenious means to deal with other challenges that may jeopardize data integrity. For example, hard disk drives wear down over time and drives may arrive from the manufacturer with inherent defects. Media Scan and Task Scheduler are among the DrvSmart utilities designed for mending these problems.

The subsystem is also equipped with error containment algorithms, known as the SysSmart functions. If a critical component fails, e.g., a battery module, the subsystem automatically disables write-back caching and assumes the conservative write-through mode. If the fault condition persists for an extended period of time, the subsystem enters an idle state. All of these precautions help ensure safe operation and distribution of data.

Availability

The EonStor A24U is powered by field-proven technologies that ensure data protection and performance to meet your various storage needs. Your data is secured by sophisticated, redundant components and advanced firmware developed through a decade of experience in RAID technology design. In addition to the choice of RAID levels, 0, 1(0+1), 3, 5, 6, 10, 30, and 50, 60, the subsystem protects your data with various high-availability algorithms ranging from predictive checking and self-healing rebuilds to system self-diagnostics.

To ensure a high level of system availability, critical components such as disk drives, power supplies, and cooling fans are all redundant and hot-swappable. Modules are integrated with the passive backplane via board-to-board connectors to eliminate points of failure. Assisted by GUI management software, system administrators can constantly monitor the operating status of all components through a console locally or remotely situated. The subsystem guarantees data integrity with selected, high MTBF components; a modular, fault-tolerant design; and a complete set of environmental monitoring and fault protection capabilities built in the firmware.

Serviceability

All critical modules are housed in separate, retrievable canisters. In the event of component failure, a hard disk drive, power supply, battery module, RAID controller, or cooling fan can be replaced within seconds. The modules are closely monitored using self-diagnostic features and the help of runtime utilities such as RAIDWatch. Spring screws, securing latches, and key-locks all provide easier access to the modules.

A variety of configuration and monitoring methods are available, either locally via the LCD keypad panel and the text-mode RS-232C terminal, or remotely through the Java-based GUI manager. All faulty conditions, including RAID configuration events, module failure, voltage and temperature readings, are instantly reported. A system administrator can select from the following notification methods to receive reports when away from the installation site: LAN broadcast, SNMP traps, email, fax, SMS, ICQ, and MSN Messenger. Even the notification utility can be installed redundantly on two different machines to avoid the chance of blind time.

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Infortrend Smart Technologies

Derived from more than ten years of experience in RAID storage design, Infortrend's firmware features extremely compact protocol and rich varieties of algorithms to deal with the stringent requirements of storage applications. The technologies enhance I/O processing, drive handling, and system management.

IOSmart

The IOSmart technologies consist of specific functions and configuration options that control various I/O characteristics in order to meet the rapidly increasing requirements of today's applications. These functions include adaptable stripe size; write policy; optimizations modes; Guaranteed Latency I/O; and automatically adjusted, multi-threaded, predictive read-ahead, sorted, or group writes.

DrvSmart

DrvSmart is comprised of fault-preventive algorithms that ensure data integrity when hard drive imperfections occur. These mechanisms correct minor defects, increase reaction time, allow more time to prepare a rebuild, and help minimize performance impact. DrvSmart functions include Media Scan and Task Scheduler, hot-spare, drive roaming, SMART and manual cloning options, and more.

SysSmart

SysSmart combines enclosure monitoring and firmware management capabilities designed to minimize the chance of downtime caused by hardware failures. With SysSmart, Infortrend's subsystems are smartly managed and guarded against extreme operating conditions.

SysSmart functions include the event-triggered, adaptive write policy, auto-shutdown, dual-speed fan control, and the various monitoring utilities and approaches included in the powerful RAIDWatch Manager software.

Specifications

Subsystem Characteristics
· 600MHz RISC CPU, 512KB L2 cache
· ASIC266 RAID engine
· DDR cache memory   512MB
· BBUs per controller   1
· LCD keypad panel
· Serial COM ports per controller   2
· Ethernet ports per controller   1
· Diagnostic LEDs on all FRUs

Drive Interface
· Number of disk trays   24
· Serial ATA II/I drive support

Host Interface
· VHDCI SCSI ports   4
· Single channel bandwidth   320MBps
· Tag command queuing
· Multiple target IDs

RAID Configurations
· RAID levels 0, 1(0+1), 3, 5, 6, 10, 30, 50, 60, JBOD
· Max. 16 logical drives
· Max. 128 LUNs
· Multiple array configurations
· Automatic background rebuild
· Intelligent drive handling

High Availability
· Redundant, and hot-swappable FRUs
· System self-diagnostics
· Dedicated and Global hot spare
· Li-ION battery backup module
· UPS support

Management Software
· RAIDWatch Manager software
· Terminal via RS-232C
· Telnet over Ethernet
· LCD keypad panel
· Event notification methods:
    Email
    Fax
    LAN broadcast
    SNMP traps
    Cell phone message
    Instant messages   MSN/ICQ

OS Support
· Microsoft Windows NT
· Microsoft Windows 2000 Server
· Microsoft Windows 2003 Server
· Sun Solaris ver. 8/9
· Red Hat Linux ver. 8/9, Enterprise ver. 3
· SUSE Linux ver. 8/9

Requirements
· Input Voltage:
   90AC at 8A; 264VAC at 4A with PFC
   (auto-switching)
· DC Output:
   12V-24A; 5V-36A; 3.3V-20A
· Relative Humidity:
   5% to 95% non-condensing
· Operating Temperature:
   $0^{o}C$ to $40^{o}C$

Dimensions
· 4U, 19-inch rackmount chassis
· Chassis without handles:
   445(W) x 174.4(H) x 498(D) mm
   (17.6 x 6.86 x 19.6 inches)
· Chassis with handles:
   482(W) x 174.4(H) x 514(D) mm
   (18.97 x 6.86 x 20.23 inches)

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▩ Major Markets and Uses

Infortrend products are used in disk-to-disk backup, server-attached and network data storage and in major industries such as medical imaging, security/CCTV, and digital media including video-on-demand, stream editing and more.

▩ Spare Parts

Description	Part Number
Drive tray, Type-III bezel and Type-II LED lightpipe	IFT-9273CDTray
Power supply module, ES 4U 24-bay subsystems, 405W (N+1) capacity	IFT-9274CPSU
Cooling fan module for ES 4U 24-bay subsystems	IFT-9274CFanMod
Right-side forearm handle for ES 4U 24-bay subsystems	IFT-9274CHandR
Left-side forearm handle for ES 4U 24-bay RAID subsystems, LCD panel included	IFT-9274CHandLLCD
SCSI to SATA RAID controller module for ES A24U-G2421, 4 SCSI-320 VHDCI host connectors, 512MB DDR RAM, RAID 6	IFT-84AU24GD24EM5
512MB DDR RAM DIMM module, for ASIC266 platform	DDRESCM5
1GB DDR RAM DIMM module, for ASIC266 platform	DDRESCMA
2GB DDR RAM DIMM module, for ASIC266 platform	DDRESCMB

▩ Accessories

Description	Part Number
Dummy Drive tray, Type-II bezel	IFT-9272CDTrayDmy
Battery cell pack, Li-Ion, ES 4U 24-bay subsystems	IFT-9274CBTC
SCSI external round cable, DB68 to VHDCI	IFT-9270UHSTCAB
SCSI external round cable, VHDCI to VHDCI	IFT-9270UJBODCAB
RS-232C serial cable, audio-jack to DB9	IFT-9270ASCab
UPS cable, audio-jack to DB9	IFT-9270CUPSCab
Null Modem, DB9 female to DB9 male, wires swapped	IFT-9011
Slide rail assembly for ES 4U enclosures, 23"~32" rack depth	IFT-9274CSlider32
Slide rail assembly for ES 4U enclosures, 23"~36" rack depth	IFT-9274CSlider36

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