NS-2500 Fibre Channel Storage Subsystem

Alliance's NEBS-certified NS-2500 2U Fibre Channel (FC) storage subsystem makes a perfect complement to the Alliance A-Series ATCA platforms. Providing up to 3.6 TB of storage per unit and able to connect up to eight NS-2500 arrays together, Telco-grade storage intensive applications have met their match.

Tested and certified with Alliance platforms, the NS-2500 provides the key element for IMS and host media storage, home location register applications, and other carrier communications requirements.

- Fully-redundant FC RAID architecture
- 12 hot-swap FC or SATA drives
- Dual hot-swap power supplies
- Hot-swap fans, hard drives and RAID HBAs
- Multiple RAID levels support, mirrored cache, and automatic failover
- Fully NEBS Level 3 and MIL-STD-810 certified
- Serial, Ethernet, FC interfaces

NS-2500 and A-5000

Alliance MicroTCA Platforms

MicroTCA enables more precise deployment of custom technology in smaller form factors. Alliance MicroTCA platforms are high-reliability systems providing superior performance and availability.

U-3000 3U Platform. The U-3000 supplies 12 single AMC slots or eight single AMC slots and four double-wide AMC slots with a fully-passive MicroTCA 1.0 backplane. Alliance MicroTCA platforms include two hot-swap redundant cooling fans and two hot-swap redundant 600W AC or DC power supplies and feature a best-in-class real-time Linux operating system. The U-3000 platform can leverage WiMAX baseband modules to create a fully operational WiMAX base station.

ATCA Blades and MicroTCA Cards

Alliance Systems has certified the following ATCA board products and continues to broaden ATCA offerings in blades, AMC/PMC cards, and other products for ATCA platforms.

Single Board Computers. Alliance has certified several SBCs featuring low-voltage to dual-core technologies. Several SBCs have direct connection for AMC/PMC cards and feature PCI-Express technology that delivers higher bandwidth and fewer I/O bottlenecks than older PCI. With Intelligent Platform Management Controller (IPMC) monitoring and performing diagnostic functions, the SBC provides top-of-the-line ATCA computing power and reliability for communications applications.

Gigabit Ethernet Switches. Each Alliance ATCA platform contains premium redundant Gigabit Ethernet switch blades with 16-port ATCA base fabric. These switches are geared for high-traffic communications applications that require managed IP routing and open-standards switch management.

Storage Products. Alliance storage offerings include ATCA storage blades, external arrays, and AMC and PMC cards that enable the storage interface from the SBC to the external arrays.

Network Processing Products. Network processing and interfaces provide superior connection and transmission speeds to traditional infrastructure equipment.

VoIP Communications and Multimedia Products. AudioCodes provides a complete ATCA VoIP media gateway and media processing blade that offloads the media processing from the SBCs and is ideal for deploying advanced high-density, high-availability Voice over Packet systems. Dialogic also provides a multimedia platform for ATCA used to deliver multimedia applications over IP and PSTN interfaces in wireline and wireless environments using standard protocols for session and media control.

AMC and PMC Products. Alliance works with partners and vendors to provide customized enabling technologies in AMC and PMC form factors such as processors, storage connectivity, and legacy interface connectivity. AMC clocks are available for MicroTCA systems for AMC processors or WiMAX baseband modules to be synchronized.

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Alliance Systems ATCA Offerings

Advanced Telecommunications Architecture (ATCA) provides the optimum open-standards architecture for high availability, high throughput, and scalability, and is quickly emerging as the architecture of choice for carrier-grade next-generation communications applications. ATCA's popularity continues to grow due to the inherent benefits of standardization, performance, and 99.999% availability.

Early adopters of ATCA modular technology have realized many of the following benefits:

- **Faster time to market**
- **New service deployments**
- **Ten times packet-transmission capability**
- **50% operating expense reduction**
- **50% to 66% reduction in development time**
- **80% infrastructure footprint reduction**

As the premier solutions integrator for ATCA, Alliance Systems performs extensive interoperability testing between components to ensure compatibility. As a result, Alliance offers fully-integrated ATCA Application Ready Platforms (ARP) to enable an even shorter time to market and shorter time to revenue.

ARP Target Applications

Alliance's ARP is an ideal solution for IP Multimedia Subsystem (IMS) application vendors because all the functionality required for deployment is available in the system immediately. Many IMS applications require dedicated transcoding blades that offload the transcoding elements from the single board computers (SBCs) and the media overhead from the system. Integrated real-time failover software enables the application to continue functioning on a backup component or a backup ATCA system in the event of a failure.

Media Processing Application vendors benefit as well from Alliance's ARP solution because Alliance has integrated the distributed database software with the failover software and dual SBCs, enabling the database software to rebuild on the secondary SBC when the primary fails. Vendors developing wireless applications such as Home Location Registers benefit from Alliance's ARP because Alliance has performed exhaustive testing to validate interoperability and performance standards in multiple configurations. Many other communications applications are being testing in Alliance's facilities to enable rapid time to market and lower development costs.

Failover & Database Software

Alliance's ARP uses real-time failover software that enables mission-critical applications to remain uninterrupted when any system-level component fails because it reinitializes SBCs, the database software, or other components when necessary. In addition, its carrier-grade real-time database management software provides high-performance distributed applications the ability to scale transparently during upgrades and appear invisible in the event of system or component failure.

ATCA Solution Architecture

ATCA is comprised of many components that enable functionality for access and wireless applications, core networking applications, transport and server applications, and even media and IMS applications. The building blocks of a complete ATCA solution include many hardware and software components that require a great deal of integration and interoperability testing:

- PICMG v3.x compliant chassis platforms
- Processing boards
- Media boards
- Switching boards
- Chassis management modules
- I/O boards
- Carrier boards with Advanced Mezzanine Cards (AMC) slots
- AMC cards: digital signal processing, CPU, and network processing
- Middleware software solutions that enable failover functionality
- Database and management software
- Carrier-grade operating systems
- The communications application

ATCA solutions typically require several layers of hardware, operating system, and middleware software be integrated and tested for interoperability and functionality prior to developers porting their application software onto the platform. Alliance plays a significant role in assisting not only the application developers but the carriers, service providers, and ISVs in making the ATCA platform ready for application deployment — Alliance's ATCA Application Ready Platform (ARP).

Software

Media Processing Application	
Failover Software	Database
Linux Operating System	

Hardware

Shelf Manager	Shelf Manager

Single Board Computer	Single Board Computer	IXP Interface	Gigabit Ethernet Switch	Gigabit Ethernet Switch

Software

Media Processing Application	
Failover Software	Database
Linux Operating System	

Hardware

Shelf Manager	Shelf Manager

Single Board Computer	Single Board Computer	IXP Interface	Gigabit Ethernet Switch	Gigabit Ethernet Switch

Application Ready Platforms

Alliance Systems' newly designed ATCA ARP enables application vendors to quickly go to market with fully-redundant carrier-class solutions based on open-standards ATCA architecture. Alliance's ARP provides a tremendous value to OEMs, ISVs, and application developers by minimizing system integration costs, development costs, and maximizing return on investment, by providing a platform ready for application deployment.

Alliance has developed this fully-integrated solution by bringing together best-of-breed building technology blocks. Alliance ARP includes platform hardware, media processing and IXP network processing, shelf managers and processing boards, failover software, real-time database software, and real-time operating system. This platform is developed and tested for full redundancy and automatic failover, immediately switching over to backup components to keep mission-critical applications operational. Components and boards are fully hot-swappable so maintenance and upgrades do not affect mission-critical operations.
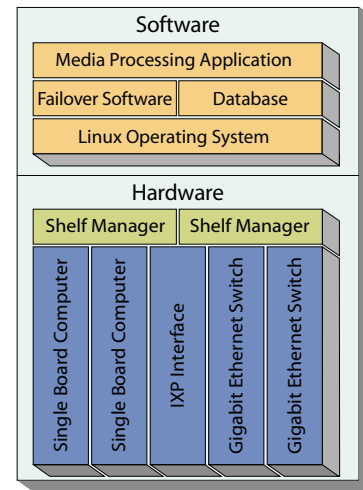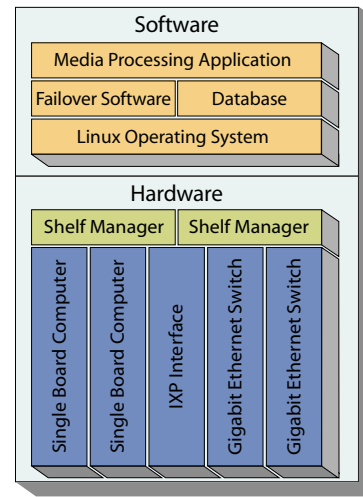
Alliance ATCA Platform Choices

Alliance Systems ATCA platforms are high-reliability designed to meet the growing demand of the communications industry's triple and quadruple play technologies. Many carrier-class solutions require fully-redundant smaller form factors and Alliance provides 5U and 14U ATCA platforms designed and tested with management blades for best-in-class carrier-grade local and remote management.

The standard configuration of the Alliance ATCA platform includes two shelf managers, two 16-port PICMG 3.0 Gigabit Ethernet base fabric switches installed in full-mesh slots for redundancy, and feature best-in-class real-time Linux operating system specifically required for carrier-class communications solutions. Expansion slots range from three to 12 node slots for single board computers, storage, switches, media server blades, or other specialty blades.

A-5000 5U Platform. The A-5000 features a five-slot full-mesh backplane with three node slots, dual redundant 16-port PICMG 3.0 Gigabit Ethernet base fabric switches, dual shelf managers in active and standby mode and is supplied with dual -48V DC with power indicators or optional AC 750W power supply. The A-5000 provides cooling for up to 200W per board with a front hot-swap fan tray housing two 290 CFM fans and a hot-swap fan filter unit.

A-13000 13U Platform. The A-13000 is a 14-slot ATCA platform with dual-star or full-mesh routing topology. The A-13000 includes two shelf managers, two base fabric switches for redundancy, and supplies 12 node slots for SBCs and other application specific blades. For ultra-reliable cooling, the A-13000 provides redundant negative pressure cooling for even air distribution in the event of a fan failure. Superior dual redundant power features -48VDC PEMs with quad 25A feeds each.

A-14000 14U Platform. The A-14000 is a 14-slot, fully-passive PICMG 3.0 backplane with dual star routing topology with 12 node slots for single board computers (SBCs), storage, switches, media server blades, or other specialty blades. The cooling system uses six 120 mm fans and ATCA front air management blade backed with redundant -48V DC power.

Alliance A-14000 platforms include two shelf managers, two 16-port PICMG 3.0 Gigabit Ethernet base fabric switches installed in full-mesh slots for redundancy, and features a best-in-class real-time Linux operating system specifically required for carrier-class communications solutions.

ATCA Growth Opportunity

xTCA revenue growth worldwide is expected to be $805 million in 2008, $1.4 billion in 2009, and $5.0 billion in 2012 with more than 90% ATCA platforms and components (IDC).

ATCA is geared towards I/O-intensive carrier applications primarily because of the distributed architecture that enables data transfers up to 2.5 Tb/sec in a single ATCA shelf.

Alliance helps ATCA application vendors optimize their business opportunities through reduced development time and resources, enhanced profitability, and faster time to market.

About Alliance

Alliance Systems designs, builds, ships, and supports communications and computing equipment. Alliance offers engineering, manufacturing, and value-added services as listed below.

Design
Alliance offers a comprehensive range of design and engineering services to support initial product development and pre-production requirements.

Build
Build-to-order and configure-to-order services provide manufactured products according to customers' needs.

Ship
Global logistics solutions include distribution, transportation, trade compliance, and returns management.

Support
End-to-end support solutions are customized to meet customers' needs including 24x7x365 hardware support, software support, and managed services.

Alliance Systems