

AdvancedTCA® (ATCA®) Backgrounder

AdvancedTCA (ATCA), the Advanced Telecommunications Computing Architecture, is a modular platform developed by PICMG as the successor to CompactPCI for telecommunications applications. It is an attempt to move away from specialized and costly proprietary systems toward standards-based platforms that allow telecommunications providers to deliver new services with faster time-to-revenue at lower cost. The adoption of ATCA should lead to lower entry costs and reduced total cost of ownership for telecoms.

AdvancedTCA provides the features required to achieve the high-availability, high-reliability, scalability, and maintainability carriers need in their equipment. It allows for application processors, network processors, DSP boards, and storage boards to be hot-swapped on demand with guaranteed interoperability, maintainability, and reliability.

AdvancedTCA is based on the PICMG3.0 standard which specifies the electromechanical, interconnect, and management requirements for building a modular, reconfigurable shelf. Its large form factor provides ample space for next-generation chips and applications. Switched backplanes, agnostic of fabric technologies (e.g., InfiniBand, PCI Express, or StarFabric), facilitate extensive bandwidth scalability for a broad range of applications. The robust AdvancedTCA shelf management is based on the Intelligent Platform Management Interface (IPMI) specification. It enables hot swapping, inventory information management, power distribution, and management facilities. The ATCA specifications incorporate the latest trends in high-speed interconnect technologies, next-generation processors, and improved reliability, manageability, and serviceability. Companies participating in the AdvancedTCA effort have brought a wide range of knowledge of the industry. They include Telecommunications Equipment Manufacturers, (TEMs) board and system-level vendors, computer Original Equipment Manufacturers (OEMs), software companies, and chip, chassis, connector, component, accessory, and power supply vendors.

A key benefit of ATCA is that it allows the re-use of standard modular components across multiple applications. For example, the same components could be used in controllers, support nodes, VoIP equipment, switches, access devices, security systems, and routers. Thus ATCA provides equipment manufacturers with the cost benefits of volume manufacturing and purchasing, the cost savings of reusing components, and a reduction in R&D expenses for platform development and maintenance. It also provides carriers with reduced deployment and maintenance costs, through lower inventories and easier network deployment and maintenance. Standard common interfaces across network components—hardware and software—enhance automation and management of disparate systems through a single model. ATCA has the support of many vendors, including Intel and Motorola Computer Group, as well as many telecommunication equipment makers such as Alcatel, Avaya Communications, Ericsson, Fujitsu, Huawei, Lucent, NEC, Nokia, Nortel Networks, Samsung, Siemens, and Toshiba.

Keep up with latest ATCA developments by subscribing to the AdvancedTCA Newsletter at www.atcanewsletter.com/signup/

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