TOC

Current Boards:

- ATCA-IO-CONTROL
- ATCA-IO-PROCESSOR
- ATCA-IO-PROCESSOR RTM
- ATCA-PTSW-AMC4
- ATCA-PTSW-AMC4_RTM
- ATCA-PTSW-AMC4_RTM844
- ATCA-PTSW-AMC4-RTMO
- MOD-IOP-ADC2C
- MOD-IOP-DAC2C
- MOD-ISOL-ADC
- MOD-ISOL-ADC-CHOP
- RMC-TMG-1588
- SR-TR-ATCA

Introduction

The PICMG 3.0 Advanced Telecommunications Architecture (ATCA) standard was designed from ground-up for high availability (redundant power supplies, shelf management of temperatures and fans …) and scalability.

The ATCA base specifications define Shelves (sub-rack), Boards (SBC, IO, Hub/switching, Mezzanines Carrier), Mezzanines (AMC, PMC) and Management interface sharing a common backplane with interconnections based on a full mesh of serial gigabit communication links.

Each slot can be interconnected to all others through x1, x2 and x4 links with a maximum throughput capacity of 800 MByte/s. By choosing the correct links, it is possible to have more than one controller on the ATCA shelf, each controlling a set of ATCA digitizer modules.

The ATCA redundancy scheme permits to have two equal sets of cards installed on the shelf and in case of failure of the operating set, the second one can take over its functions. ATCA is also capable of hot-plugging of cards thus allowing continuous operation and maintenance.

Supported communications protocols are the Advanced Switching Interconnect (ASI), PCI Express (PCIe), Gigabit Ethernet (GbE), Serial RapidIO (SRIO), Infiniband or other PICMG 3 compliant standards. Each slot is interconnected to all others through x1, x2 or x4 links with a maximum real throughput capacity of ~800 MByte/s (10 Gbit/s per link – 25 Gbit/s per link supported).

ATCA platform highlights

- Scalable shelf capacity to 2.5Tb/s
- Each slot is interconnected through up to four 2.5 Gb/s links with an actual throughput capacity of ~800 MByte/s per link
- Scalable system availability to 99.999%
- Multi-protocol support for interfaces up to 40 Gb/s
- Robust power infrastructure (distributed 48V power system) and large cooling capacity (cooling for 200W per board)
- High levels of modularity and configurability
- Ease of integration of multiple functions and new features
- The ability to host large pools of DSPs, NPs, processors and storage

- The ability to host multiple controllers and storage on a shelf (blade servers and DSP farms)
- Advanced software infrastructure providing APIs and OAM&P
- High security and regulatory conformance
- Supports 14 slots shelves in 19" cabinet
- Large enough board for low cost
- Reliable, full redundancy support
- Reliable mechanics (serviceability, shock and vibration)
- Hardware management interface

AdvancedTCA Standards

- PICMG 3.0: Base Specification wich covers mechanical, power, cooling, interconnect of the AdvancedTCA family of specifications
- PICMG 3.1: Ethernet and Fiberchannel Transport
- PICMG 3.2: InfiniBand Transport
- PICMG 3.3: StarFabric Transport
- PICMG 3.4: ASI and PCI Express Transport
- PICMG 3.5: Serial RapidIO Transport

Additional ATCA related specifications:

- Advanced Mezzanine Card (AMC)
- MicroTCA

IPFN ATCA dissemination

● Implemented /ongoing

● Discussion/ Pending

JET

W7-X

ESS-B

ASDEX-Up

COMPASS

ISTTOK

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xTCA interest
Group

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TCA-Br

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