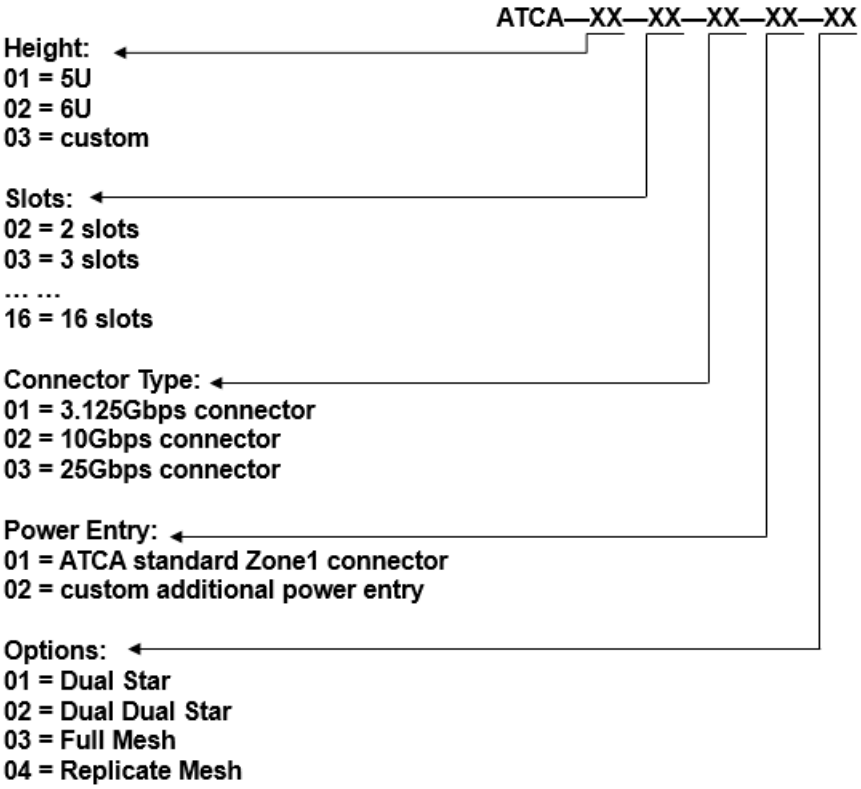
Amphenol-BSI ATCA Datasheet

Amphenol-BSI ATCA Backplanes
Amphenol-BSI's ATCA high performance backplanes are available in both 5U and any customized height based on chassis requirement. All ATCA backplanes are compliant to PCIMG ATCA specifications. ABSI can customize the ATCA backplane against our customer's specific requirements.

Amphenol-BSI ATCA backplane order configuration part number table.
The following configuration table provides the part numbering structure applicable to the full range of ATCA backplanes on offer from Amphenol-BSI. We can engage with you on any ATCA backplane requirement that you may have. Please contact us for further details.



Configuration part number example
ATCA-01-06-01-03-02 specifies a 5U 6 slot 3.125Gbps ATCA backplane, configured with replicate mesh

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Description

The Advanced TCA backplane provides point-to-point connections between the boards and does not use a data bus. The backplane definition is divided into three sections; Zone-1, Zone-2, and Zone-3. The connectors in Zone-1 provide redundant −48 VDC power and Shelf Management signals to the boards. The connectors in Zone-2 provide the connections to the Base Interface and Fabric Interface. All Fabric connections use point-to-point 100 Ω differential signals. Zone-2 is called "Fabric Agnostic" which means that any Fabric that can use 100 Ω differential signals can be used with an ATCA backplane.
The connectors in Zone-3 are user defined and are usually used to connect a front board to a Rear Transition Module. The Zone-3 area can also hold a special backplane to interconnect boards with signals that are not defined in the ATCA specification.

The Shelf Managers communicate with each slot board with IPMI (Intelligent Platform Management Interface) protocols running on redundant I²C buses on the Zone-1 connectors.
The Base Interface is the primary Fabric on the Zone-2 connectors and allocates 4 differential pairs per Base Channel.

The Fabric Interface on the backplane supports many different Fabrics and can be wired as a Dual-Star, Dual-Dual-Star, Mesh, Replicated-Mesh or other architectures. It allocates 8 differential pairs per Fabric Channel and each Channel can be divided into four 2-pair Ports. The Fabric Interface is typically used to move data between the boards and the outside network.

The Synchronization Clock Interface routes MLVDS (Multipoint Low-voltage differential signaling) clock signals over multiple 130 Ω buses.
Update Channel Interface is a set of 10 differential signal pairs that interconnect two slots. Which slots are interconnected depends on the particular backplane design. These are signals commonly used to interconnect two hub boards, or redundant processor boards.

ATCA improve the network bandwidth by using TE HMZD 4 pairs X 10 position connectors which can be upgrade from 3.125Gbps to 25Gbps.

The maximum form factor expands to a 16slot backplane.
ATCA backplane normally at 5U height. For some special case from custom, we can offer backplane at 6U, 7U or any customized size.

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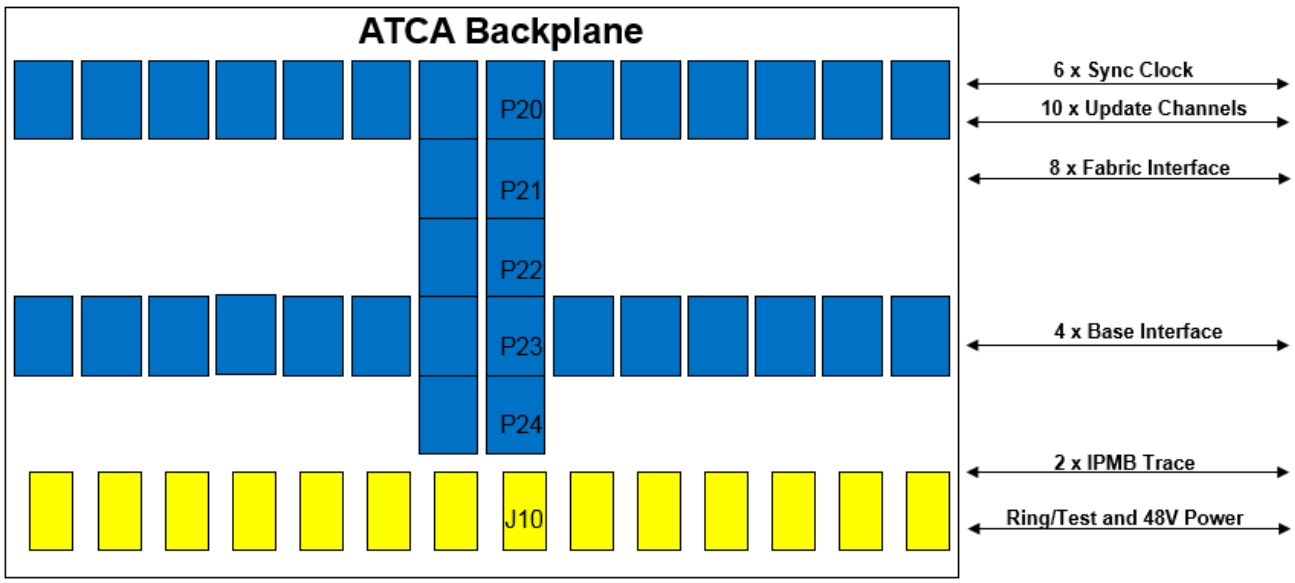
Amphenol-BSI ATCA Features:
Compliant to PICMG 3.0 Rev 3.0 specification
Normal 5U height backplane
Two switch slots (centered two slots)
Twelve node slots
Dual Star topology
Data rate support: up to 4x10Gbps
Zone 2 TE HMZD plus connector
Zone 1 VPB Connector
System management interface
Professional press-fit process
RoHS compliant

PCB information:
- 18 Layer board
- Slot pitch 1.2”
- Independent power and ground layers for power distribution
- Signal impedance Z0 SE 50 Ohms +/-10%, DIFF 100Ohms +/-10%, clock 130ohms



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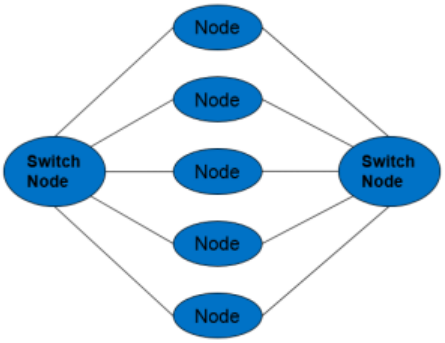
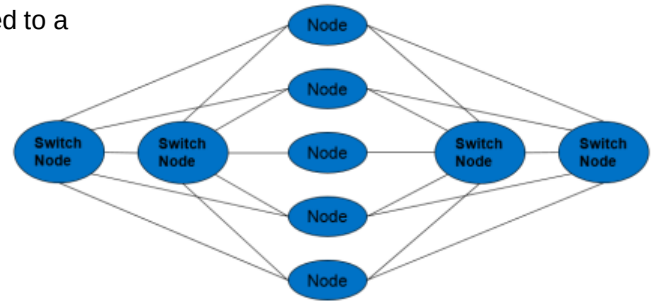
Routing Topology
ATCA supports 3 Routing Topologies: Dual Star, Dual Dual Star and Full (replicated) Mesh.

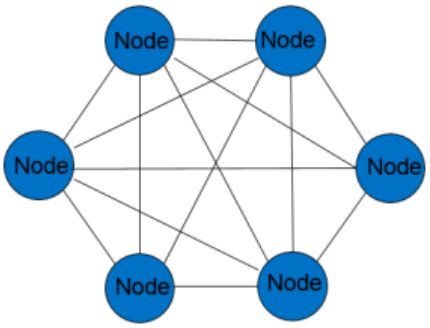
Dual Star topology:
The Dual Star topology contains 2 central switch slots.
In Dual Star topology, the node slot is connected to a central 2 switch slots with point-to-point connections.
All nodes connect to the switch through differential pairs on the ATCA backplane.



Dual Daul Star topology:
In Dual Daul star topology, each node slot is connected to a central 4 switch slots with point-to-point connections.
All nodes connect to the switch through differential pairs on the ATCA backplane.



Full Mesh
In some applications, nodes require full connections between each other. In this case, each node makes connection with each node in the system.
In the full mesh ATCA backplane, each node has DIFF pairs to connect to the other node.
For backplane slot number under 6,
ABSI can offer 3X replicated mesh topology.



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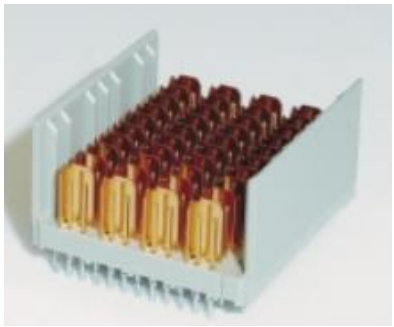
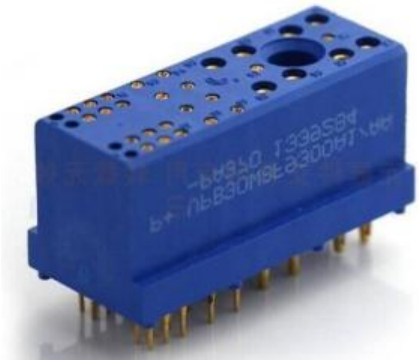
Connector Type:
TE HMZD 4 pairs 10 positions connectors are used in the ATCA interconnect. The HMZD connector is used in backplane zone 2. TE (second source ERNI) will have 3 different connector solutions for backplane interconnect update to 25Gbps.



Power entry solution
ATCA have specified the zone 1 connector for power entry and management bus. The connector is available from Positronic, Harting, ERNI, ept, etc.



Custom
Our customers can also specify a custom power entry solution which can be used in the area under zone 1.

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5U Dimension Table

Slot Numbers	Height in Inch	Height in mm	Length in Inch	Length in mm
2	8.149	206.98	2.294	58.27
3	8.149	206.98	3.494	88.75
4	8.149	206.98	4.694	119.23
5	8.149	206.98	5.894	149.70
6	8.149	206.98	7.094	180.19
7	8.149	206.98	8.294	210.67
8	8.149	206.98	9.494	241.15
9	8.149	206.98	10.694	271.63
10	8.149	206.98	11.894	302.11
11	8.149	206.98	13.094	332.59
12	8.149	206.98	14.294	363.07
13	8.149	206.98	15.494	393.55
14	8.149	206.98	16.694	424.03

For 6U or custom height, please contact ABSI Support team

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Amphenol-BSI
Amphenol-BSI is an industry leader in backplane and system solutions. Amphenol-BSI has been a leading designer and manufacture of backplanes for more than 30 years.

Amphenol-BSI delivers:
- Industry leading interconnect technology
- Advanced printed circuit capabilities and partnerships
- Innovative backplane system design and manufacturing
- Integrated design / applications engineering services
- Flexible, global support and supply chain management
- Most extensively tooled Backplane Supplier in the industry
- Industry leading Mechanical and SI test solutions
- Lowest cost solution on highest performance backplane

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