

MicroTCA

Interconnect Solutions





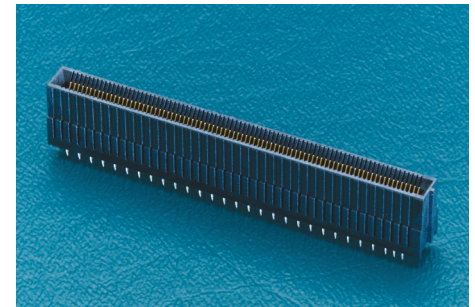
# MicroTCA Interconnect Solutions Backplane Connector

75594-0000

**Molex offers a 10 Gbps MicroTCA press-fit backplane connector**

Molex has completed extensive signal integrity evaluations and we have determined that it is possible to achieve 10 Gbps raw speed with a press-fit backplane connector if the connector geometry and the printed circuit board launch are very carefully designed. The Molex backplane connector design is based upon our extensive experience over the years in making high-speed, edge-card connectors for the computer marketplace.

The manufacturing technology of the connector is optimized not only for high speed electrical performance, but also for low-cost manufacturing. Contacts are stamped, selectively plated, and inserted into the housings using high-speed stitchers. This is considered to be faster and lower cost than using contacts that are overmolded into chocklets before insertion into the connector body. Our unique contact design allows us to use a common contact for power, grounds and signals, further simplifying the manufacturing process.

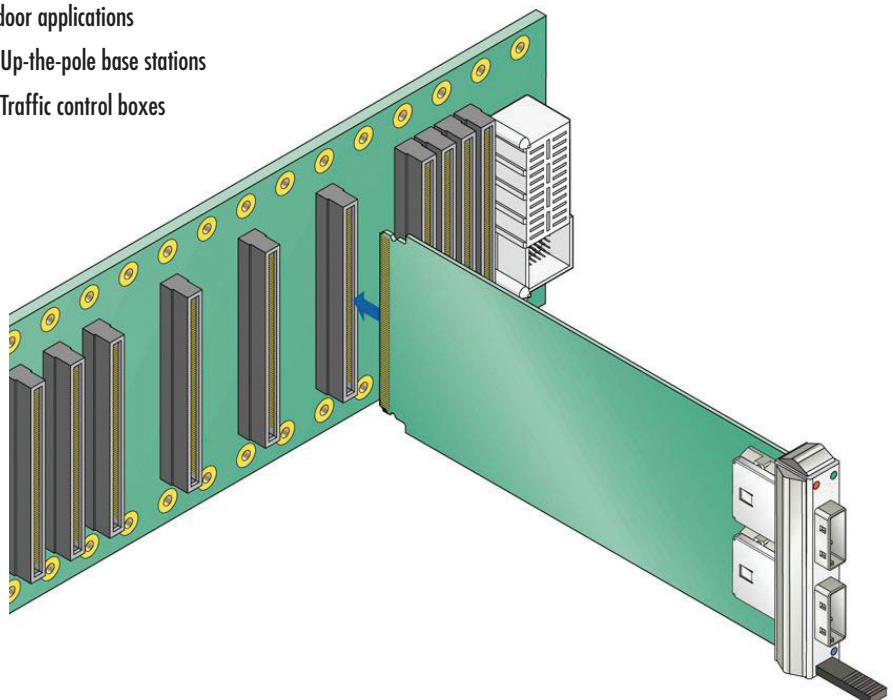


**Features and Benefits**

- 10 Gbps electrical design allows the system to run four times the current XAUI data rates, future proofing the system
- Press-fit pins with flat-rock insertion tooling which provides easy backplane assembly process
- Stitched contact design to optimize high-speed stitching, providing very high production capacity
- Footprint optimized for 10 Gbps performance allowing optimization of the backplane design and also for high-speed data rates
- JTAG connector part number 76262-0000. JTAG connector is configured with five signals to one ground, optimized for the JTAG switch card
- No mounting pegs are required to hold the press-fit connector to the board, providing an additional 10.00mm (.393") for routing channels under the connector
- Repairable – easy to remove and replace a press-fit connector should it become damaged
- Contacts are not insert molded, eliminating one connector production step and reducing cost
- Press-fit finished hole size is 0.46mm (.018") allowing efficient routing and better signal integrity
- Samtec is a licensed identical second source for the Molex design
- 170 circuit on 0.75mm (.030") pitch vertical connector
- 1.5A per contact current capacity, de-rate to 1.0A for parallel power applications
- Mating board thickness: 1.60mm (.063)
- Reduced size rack environment for AMC.0 modules:
  - Connector height 12.31mm (.485")
  - Connector width 7.30mm (.287")
  - Connector length 68.70mm (2.70")

**APPLICATIONS**

- MicroTCA system development
- Access products and small base stations for cellular and WiMax protocols
- Fiber-to-the-premise applications
- Industry standard architectures requiring high-density performance in a small package:
  - InfiniBand\*
  - Gigabit Ethernet
  - PCI Express
  - Advanced Switching
- Medical applications
- Instrumentation and control systems
- Outdoor applications
  - Up-the-pole base stations
  - Traffic control boxes



\*InfiniBand is a trademark of the InfiniBand Trade Association.



# MicroTCA Interconnect Solutions Evaluation Backplane

79610-5007

*Fully redundant, 10Gbps MicroTCA backplane enables customers to exercise the broad range of capabilities of MicroTCA*

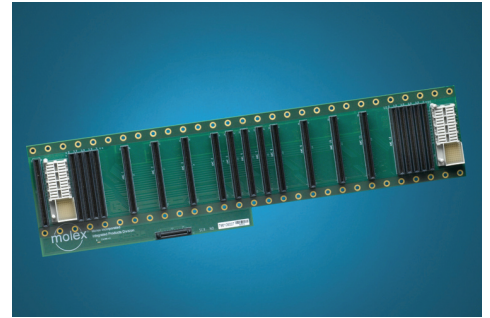
Molex's MicroTCA backplane is ideal to evaluate the performance of various AMC's (Advanced Mezzanine Cards), MCH modules (MicroTCA Carrier Hubs) and power supplies. This dual-star backplane is configured with two MCH modules that provide full redundancy for both control and switching functions. The 10 Gbps performance will facilitate the development of state-of-the-art MicroTCA systems.

The press-fit, MicroTCA backplane has connectors for redundant power supplies located to the left and right of the MCH modules. Each power module is routed radially to each AMC and MCH slot. This allows the MCH to power up or down any slot independently. There are 12 centrally located payload slots for industry standard AMC's. Ten of the AMC slots are suitable for full-height modules. Four payload slots in the center

of the backplane can handle compact AMC modules. A quarter-height slot outboard of the power supply is configured for Joint Test Action Group (JTAG) access to the backplane.

Fabric B on ports 2 and 3 is configured to support SATA drives in any of the slots, enabling customers to connect processor cards via the MCH to SATA storage drives. Molex has carefully designed the launch geometry to achieve 10 Gbps over each differential pair, handling up to four times the bandwidth of a backplane wired to meet XAUI specifications.

The MicroTCA Backplane also features EBBI™ 40-circuit fan tray connectors to mate to hot-swappable fan trays and ensure complete redundancy. The backplane design can be customized to meet customer layout and electrical specifications.



### Features and Benefits

- Backplane for single-wide AMC cards, 420.00 by 120.00mm (16.535 by 4.724") fits the Molex Evaluation Chassis
- Connectors for 2 power supplies and 2 MCHs facilitate testing of hand-off features when one power supply or MCH fails
- Designed with 4 compact slots to allow either 10 full-height (10 total) slots or 4 compact and 8 full-height slots (12 total)
- Designed with EBBI™ 40-circuit, fan-tray connectors with hot-swappable fan trays to ensure complete redundancy
- Connector interface with the backplane (launch geometry) has been carefully designed to minimize reflections for 10 Gbps performance
- Power system supports 80 Watts per slot, the maximum allowed by the MicroTCA 1.0 specification
- FRU ROM (Field Replaceable Unit Read Only Memory) on the backplane communicates with MCH all of the important backplane characteristics
- Design is easily scalable and flexible to minimize customization and time-to-market, to meet customer applications and requirements
- JTAG connections allow remote reprogramming of any programmable device on any board

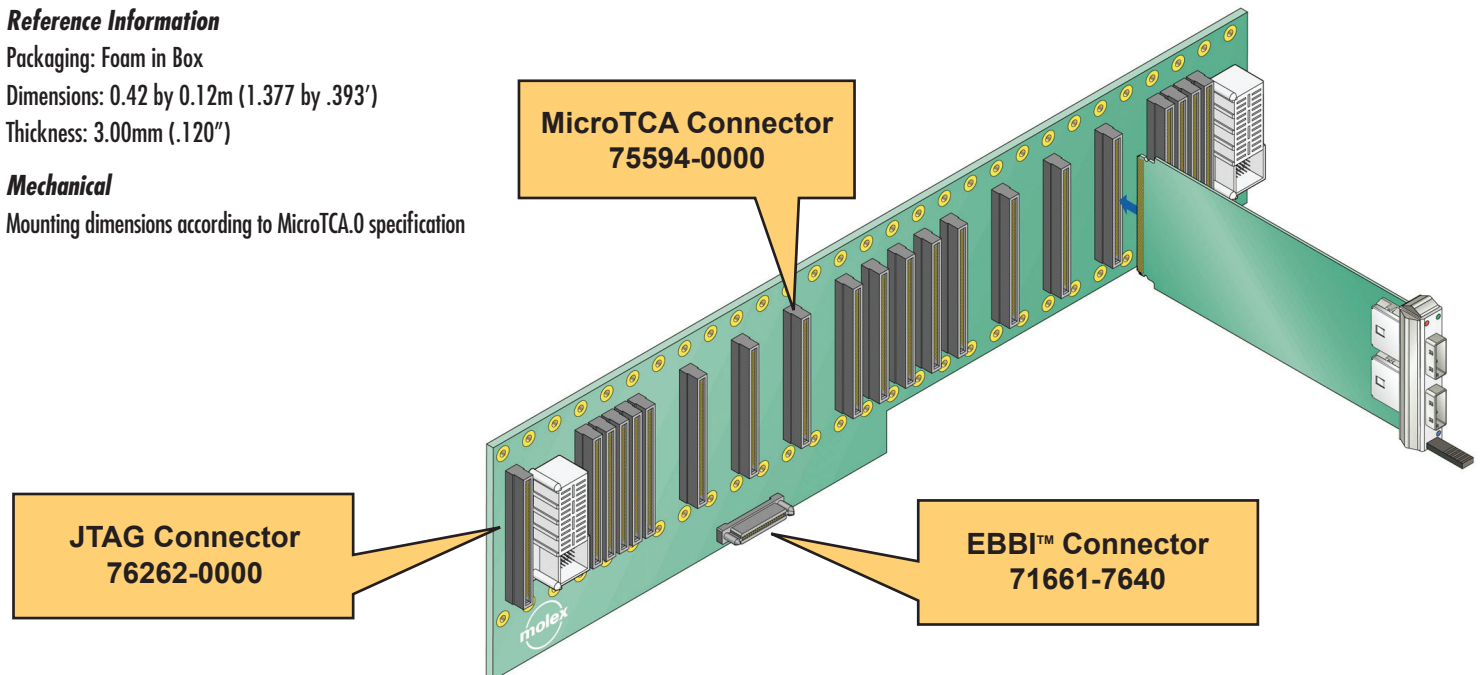
### SPECIFICATIONS

#### Reference Information

Packaging: Foam in Box  
Dimensions: 0.42 by 0.12m (1.377 by .393')  
Thickness: 3.00mm (.120")

#### Mechanical

Mounting dimensions according to MicroTCA.0 specification





# MicroTCA Interconnect Solutions Development Chassis

79610-5008

Fully redundant, 10 Gbps MicroTCA backplane and chassis provide customers an evaluation platform to exercise the range of capabilities MicroTCA

Fully redundant, 10 Gbps MicroTCA backplane and chassis provide customers an evaluation platform to exercise the range of capabilities of MicroTCA.

To enable customers to more quickly develop MicroTCA systems, Molex has collaborated with SIMON Industries to offer a small and sophisticated development chassis. The chassis is equipped with the Molex backplane and connector, as well as an AC-to-DC power supply

(mounted at the rear of the chassis). This makes the chassis ideal to place on the desk top or lab bench for development and testing of cards, software and middleware. The full-redundancy capability of this dual-star backplane chassis allows customers to test the functionality of their management chips as well as fail-over capability.



### Features and Benefits

- Small chassis 438.00 W by 177.00 H by 260.00mm D (17.244 by 6.968 by 10.236") is a convenient size for use on the desktop or lab bench
- Power supply on the rear converts 110 or 220V AC to 48V DC that is wired to the front; a short cable plugs into the MicroTCA power module which can easily be placed on the desk or workbench without special 48V power feed
- Air input from all 4 sides, exhaust from 3 sides and the top enables full cooling functionality in the very small 4U height
- Machined front-bottom guides provide ease in locating the slots
- Designed with 4 compact slots to allow either 10 full-height slots (10 total) or 4 compact and 8 full-height slots (12 total)
- Slide-out fan tray with 10 fans with fully-redundant fans in each slot, easy to repair
- Extra port allows a JTAG switch module for system level testing
- Molex 10 Gbps backplane installed allows direct comparison of the Molex solution against any other backplane solution in a similar card bay by functionally evaluating the systems and comparing results, especially when higher speeds are required
- Field Replaceable Unit Read Only Memory (FRU ROM) on the backplane communicates to the MCH all of the important backplane characteristics

### SPECIFICATIONS

#### Reference Information

Cabinet Construction: Painted steel cabinet with stamped-steel card guides

#### Size:

Standard 4U,

Height: 177.00mm (6.968")

Width: 438.00mm (17.244")

Depth without power supply: 208.00mm (8.188")

Depth with power supply: 260.00mm (10.236")

#### Cooling

Removable fan tray equipped with 10, high-performance 12V DC fans. These 60.00mm (2.362") fans provide optimized, uniformly-turbulent airflow to all slots.

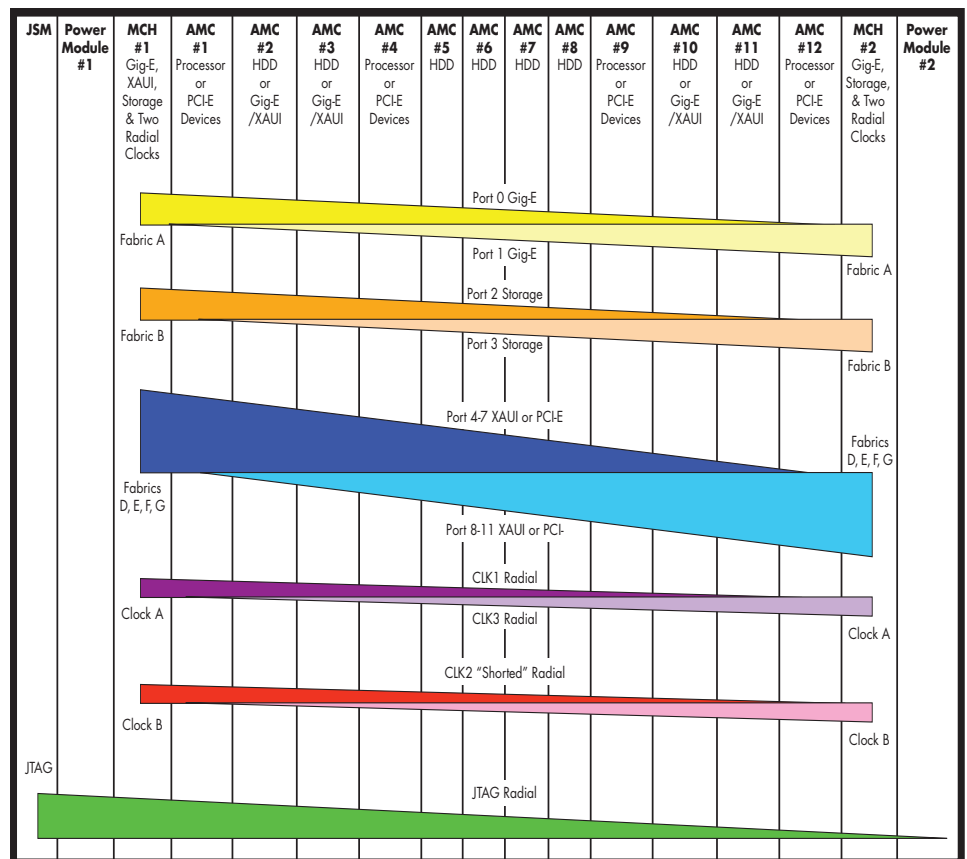
Rear-mounted power supply has its own cooling fans

#### Power

Rear-mounted power supply to provide

48V DC to one or two MicroTCA specified, in-rack supplies

Auto-ranging for 120V AC or 240V AC operation  
1200 Watts at 120V and 1800 Watts at 240V





**MicroTCA  
Interconnect Solutions**

- 79610-5007** Evaluation Backplane
- 79610-5008** Development Chassis
- 75594-0000** Backplane Connector

*MicroTCA delivers a low-cost, flexible and scaleable solution, providing 10 Gbps data rates for a wide variety of low-to-mid range telecom applications*

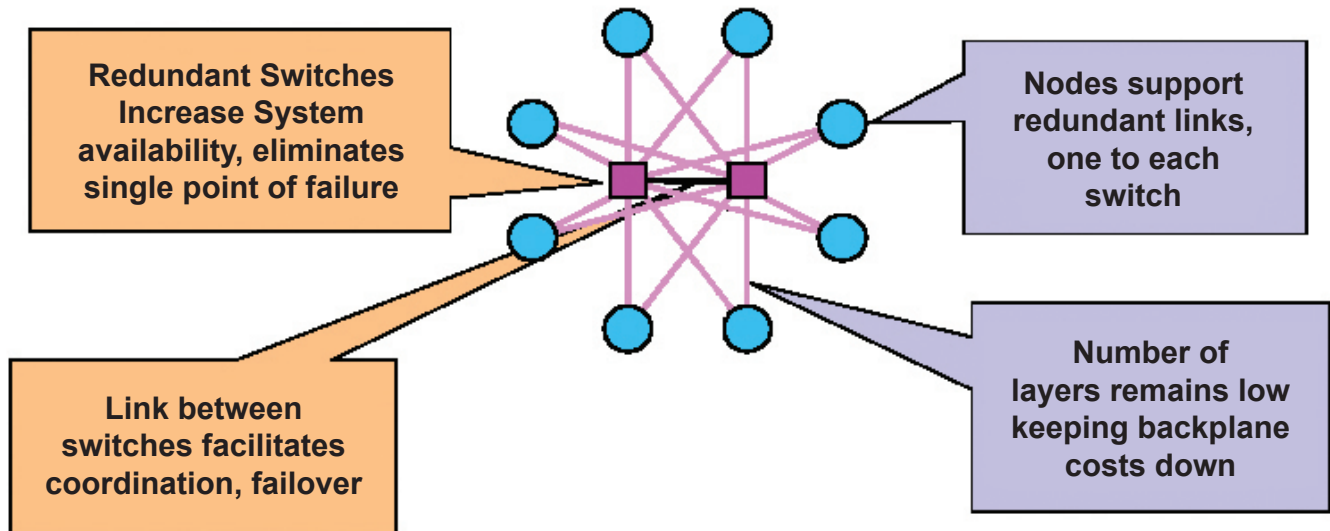
The Micro Telecommunications and Computing Architecture (MicroTCA) is emerging as an attractive form factor for low-end equipment such as cellular base stations and access equipment. MicroTCA uses many of the features found in Advanced TCA (ATCA) such as high-speed serial signaling, a robust command and control architecture and redundancy features that allow it to achieve 99.999% availability.

MicroTCA uses Advanced Mezzanine Cards (AMCs) with a passive backplane. One or more MicroTCA control hubs (MCHs) provide the chassis management as well as switching functionality. The small size and simplicity of MicroTCA systems keep the cost down, making the system a good alternative for cost-sensitive applications in access, base stations and other similar systems. It is possible to remotely access a MicroTCA chassis via an Ethernet port for system reconfiguration and updating.



**BENEFITS OF A DUAL-STAR BACKPLANE**

## Fabric Topologies – Dual Star



**Application Target**  
Carrier Grade applications with non-latency sensitive data requirements (e.g. modular server). Unified approach reduces cost, complexity.



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