



The Complete Solution for AdvancedTCA®



COMMUNICATIONS, COMPUTER & CONSUMER ELECTRONICS

Table of Contents

Need more information?

Call Technical Support at the numbers listed below.

Technical Support is staffed with specialists well versed in all Tyco Electronics products. They can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

Introduction to AdvancedTCA®	1
An AdvancedTCA® System	2
Products for AdvancedTCA® Systems	
Guide Modules	3
Zone 1 Power Connectors	3
Zone 2 High Speed Signal Connectors – Z-PACK HM-Zd	4
Zone 3 Connectors – Z-PACK HM-Zd RAM	4
Zone 3 Connectors – Z-PACK MAX	5
Power Connectors – Multi-Beam XL	5
High Speed Mezzanine Connectors – MICTOR	6
High Speed Mezzanine Connectors – MICTOR SB	6
High Speed Mezzanine Connectors – STEP-Z	7
Advanced Mezzanine Card (AMC) Connectors	7
Front & Rear I/O Connectors – RJ45 Modules	8
Front & Rear I/O Connectors – SFP Modules	8
Front & Rear I/O Connectors – XFP Modules	9
Front & Rear I/O Connectors – Mini RJ21	9
Front & Rear I/O Connectors – Slim I/O	10
Fiber Optic Connectors & Products	10
Thermal Products & Services	11
Cable Connectors & Cable Assemblies	11
Power Distribution & Management Modules	12
Backplane & Chassis Assemblies	14
Products for AdvancedTCA® Systems (Detail, according to ATCA Specification)	
Zone 1 Power Connectors	15
Zone 2 High Speed Signal Connectors – Z-PACK HM-Zd	16
Guide Modules	18
Zone 3 High Speed Signal Connectors – Z-PACK HM-Zd RAM	19
Web Site Information	20

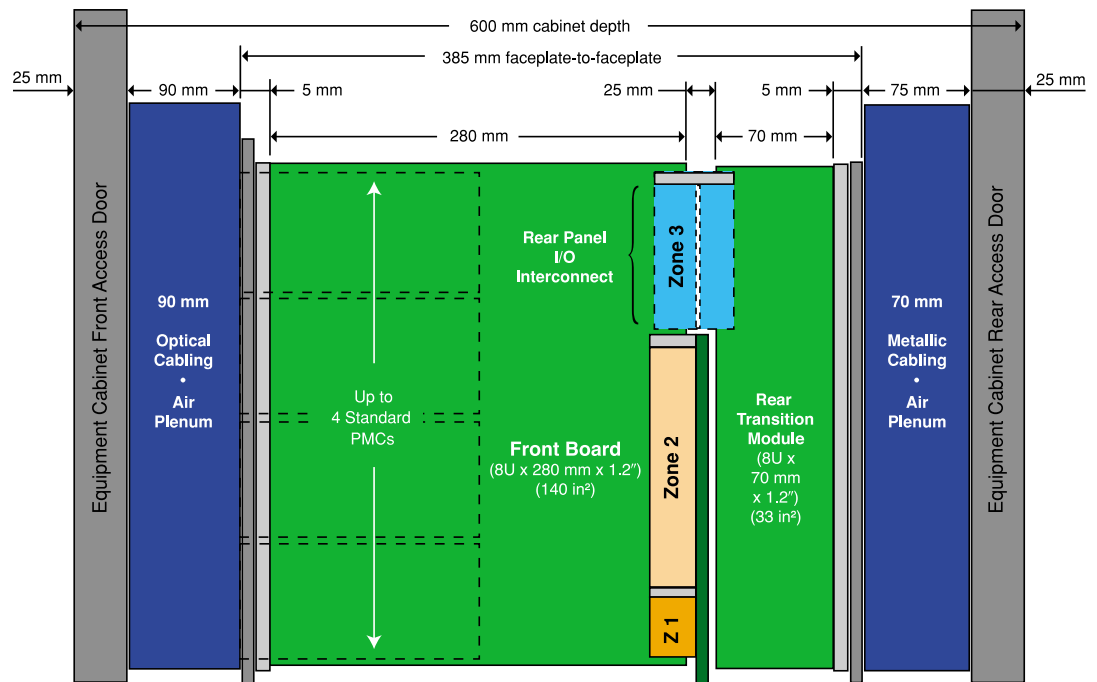
Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are U.S. equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 01-800-733-8926
C. America: 52-55-5-729-0425
South America: 55-11-3611-1514
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
Germany: 49-6251-133-0

www.tycoelectronics.com

Introduction



The Complete Solution For AdvancedTCA®

Hardware designers, particularly those working on blades or chassis, are currently faced with huge challenges. The needs of the communications network infrastructure, and next generation communication applications, are rapidly changing, which cannot be served by existing proprietary solutions.

Therefore AdvancedTCA® (Advanced Telecommunications Computing Architecture), an open industry standard, has been developed by PICMG® 3.0, to place high priority on cost effectiveness versus attempting to support a variety of potential future technologies, at the expense of cost and complexity.

This new standard is also supported by Tyco Electronics, which shows the full range of ATCA compliant components that can be offered suitable for the wide area of applications within telecommunication as well as data communication.

Why Is AdvancedTCA® Important?

ATCA provides a means for the telecommunications equipment market to take advantage of standardized, off-the-shelf hardware (enabling differentiation through application-layer and system-level software rather than hardware).

- Shorter time to market
- Increased vendor choice
- Increased flexibility
 - Multiple switch fabrics supported
 - User defined I/O
- Lower cost
 - (Acquisition CapEx/OpEx)

Examples of Telecom & Network Equipment Manufacturers' Related AdvancedTCA® Applications & Systems

Wireless Infrastructure Equipment

- Base Stations
 - 3G (IMT-2000) WCDMA
 - CDMA2000
 - TD-SCDMA
- Radio Network Controllers (RNC)
- Serving Gateway Support Node (SGSN)
- Gateway GPRS Support Node (GGSN)
- Home Location Register (HLR)
- IP Multimedia Subsystem (IMS) Servers
- Media and Application Servers
- Media Gateways and Soft Switches

Wireline Networking Equipment

- DSLAMs
- Multi-service switches
- Media servers
- Blade servers
- VOIP Session Controllers

Fiber Optic Networking Equipment



Introduction



What Is AdvancedTCA®?

AdvancedTCA® (Advanced Telecommunications Computing Architecture) is an open industry standard, developed by PICMG® 3.0, to create a new blade (board) and chassis (shelf) form factor, tailored to meet the needs of the rapidly changing communications network infrastructure, and next generation communication applications, which cannot be served by existing proprietary solutions. This architecture places high priority on cost effectiveness versus attempting to support a variety of potential future technologies, at the expense of cost and complexity.

While the specification is founded on the requirements of the communications infrastructure, it is extensible to a variety of applications and environments where highly available, highly scalable, cost effective and open architecture modular solutions are required.

The architecture is optimized around connectivity requirements of signaling and media gateways, while also providing headroom for higher performance computing elements @ a 99.999% availability rate. ATCA offers a scalable backplane environment that supports:

- A variety of standard and proprietary fabric interfaces
- Robust system management
- Superior power and cooling capabilities.

Each board in ATCA (up to 16 boards a shelf and 3 shelves a rack) may support up to 200 W in a single slot. The power is supplied to each board via redundant -48 VDC feeds. Front and rear cabling practice is supported for standard 600 mm total depth cabinet practice, prevalent in Central Office facilities.

AdvancedTCA® 300

What Is AdvancedTCA300®?

AdvancedTCA300® is an ATCA based equipment platform, but compliant with the ANSI and ETSI equipment practices requiring 300 mm total depth, front access included.



What Is AdvancedMC®?

The AMC® (Advanced Mezzanine Card) standard, also developed by PICMG®, defines the base-level requirements for a wide-range of high-speed mezzanine cards, optimized for, but not limited to, AdvancedTCA® and MicroTCA® carrier blades. AMC® defines a modular add-on or "child" card that extends the functionality of an ATCA carrier board. In an ATCA equipment practice, the AMC® modules lie parallel to and are integrated onto the ATCA carrier board. The AMC cards can also be equipped in MicroTCA® shelves.

µTCA™

What Is MicroTCA®?

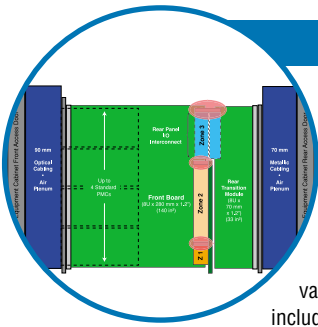
MicroTCA® is complementary to ATCA, but is optimized for smaller scale and more price sensitive applications. The basic premise of MicroTCA® is to support mezzanine boards, conforming to the AMC® standard, connected to the backplane, and so not using an additional carrier board. Like ATCA, the MicroTCA® equipment practice is a modular, open standards based shelf level platform. The MicroTCA® standard has not finished completion yet.

www.tycoelectronics.com/products/atca

An AdvancedTCA® System: where are components & modules typically used ?

Area of Application @ AdvancedTCA Tyco Products & Services	BP Backplane	LC @ Front Line Cards Blades Boards		LC @ Rear Line Cards Blades Boards	SMM Shelf Management Modules	PEM Power Entry Modules	FTM @ Bottom Top Fan Tray Modules	GCH Bottom Top General Chassis Hardware
		ATCA Front Blade	AMC Front Blade Advanced Mezzanine Card	RTM Rear Blade Rear Transition Module				
Guide Modules	X	X		X	(X)	(X)		X
Zone 1 Power Connectors	X	X						
Zone 2 High Speed Signal Connectors	X	X		X	X			
Zone 3 Connectors	(X)	X		X	(X)			
High Speed Mezzanine Connectors		X	X	X	(X)	(X)		
Advanced Mezzanine Card (AMC) Connectors		X						
Front & Rear I/O Connectors		X	X	X	X			
Fiber Optic Connectors & Products		X	X	X				
Thermal Products & Services		X	X	X	X	X		(X)
Power Distribution & Management Modules		X	X	(X)	(X)	(X)		
Backplane & Chassis Assemblies	X	X	X	X	X	X	X	X
Cable Connectors & Cable Assemblies		X	X	X	X	X		

AdvancedTCA® – Guide Modules



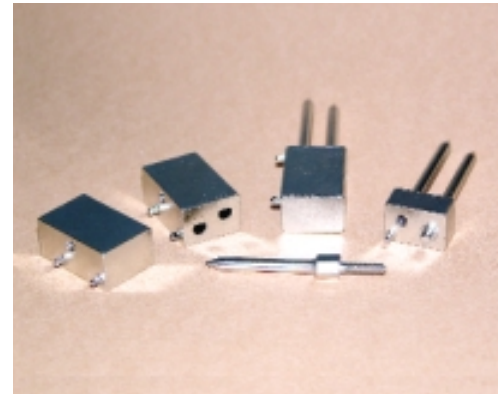
Tyco Electronics ATCA Guide Modules are available in various sizes and configurations and are suitable for use in a wide variety of applications including front board, mid plane, backplane, and a Rear Transition Module as specified in the AdvancedTCA specification. The guide hardware features improved locating features to ensure guidance is maintained across all component tolerances while the dual-keyed pin configuration allows for many different keying possibilities.

www.tycoelectronics.com/products/atca

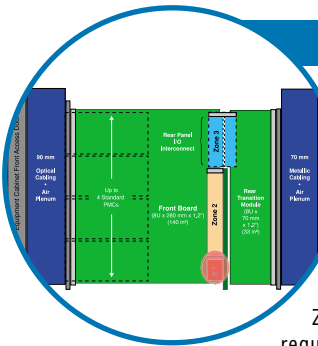
Catalog 1773095

FEATURES:

- Configurations for front board and backplane as well as mid-plane and coplanar applications in the RTM
- Vertical and right-angle pins to support right-angle and coplanar board configurations
- Guide pins are available in short or long lengths to accommodate various Tyco Electronics connectors



AdvancedTCA® – Zone 1 Power Connectors



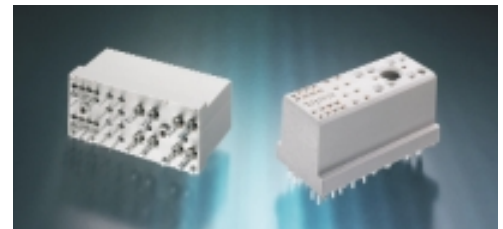
Tyco Electronics' ATCA Power Connector is designed to meet or exceed the PICMG 3.0 (AdvancedTCA) specification for Zone 1 connector requirements including four levels of sequential mating to ensure proper system functionality during live insertion or extraction of front boards. Integrated lead-in on the injection molded housing provides superior blind mate capability and is fully intermateable with competing connectors designed to meet the AdvancedTCA specification for power connectors.

www.tycoelectronics.com/products/atca
www.elconproducts.com

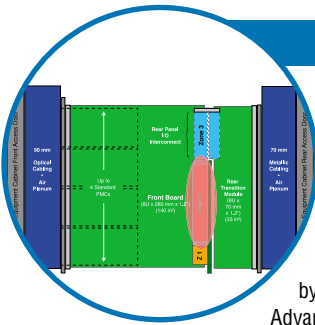
Catalog 1773096 / 1773095
Flyer 2-1773441-7

FEATURES:

- High conductivity, precision formed contacts
- Selective plating in compliance with RoHS requirements
- Precision formed compliant terminations offers excellent retention to ensure a reliable connection



AdvancedTCA® – Zone 2 High Speed Signal Connectors – Z-PACK HM-Zd



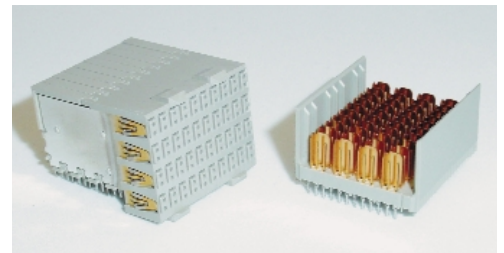
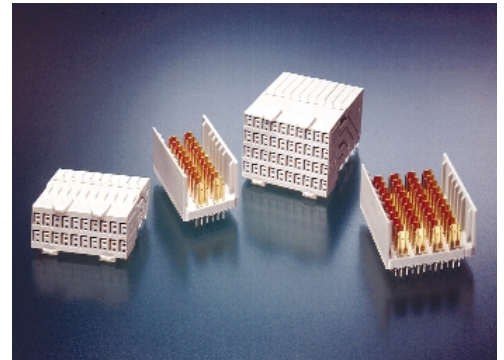
Z-PACK HM-Zd from Tyco Electronics is the high-speed, Advanced Differential Fabric Connector system specified by PICMG for use in AdvancedTCA Zone 2. The coplanar application version using the right-angled male and identical Zone 2 card connector (right-angled female), can be used in Zone 3. In addition to the four-pair connector modules specified for use in AdvancedTCA Zone 2, the product line includes two-pair and three-pair signal modules, coplanar connectors, and high-speed cable assemblies for use in Zone 3. A mezzanine style connector is also available in a four-pair version.

www.tycoelectronics.com/products/atca
www.hmzd.tycoelectronics.com

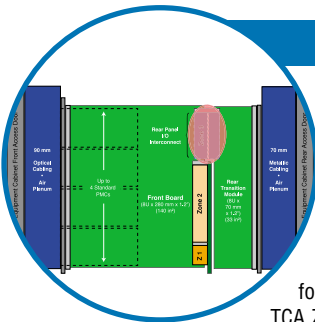
Catalog 1773095
Flyer 1308658

FEATURES

- Designed specifically for high-speed differential applications (3.125 Gb/s to 10+Gb/s)
- A modular connector system with a standard module size of 25.00 [.984]
- Z-PACK HM-Zd is an extension of the Z-PACK 2 mm HM product line
- Pin header and receptacle have the exact same footprint to simplify PC board layout
- Optimized footprint supports quad routing techniques for improved electrical performance, ease of trace routing, and significant PCB manufacturing cost reductions
- Designed to meet Telcordia requirements



AdvancedTCA® – Zone 3 Connectors – Z-PACK HM-Zd RAM



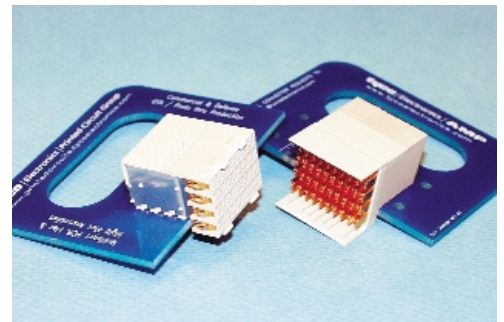
Z-PACK HM-Zd from Tyco Electronics is the high-speed, Advanced Differential Fabric Connector system specified by PICMG for use in AdvancedTCA Zone 2. The coplanar application version using the right-angled male and identical Zone 2 card connector (right-angled female), can be used in Zone 3. In addition to the four-pair connector modules specified for use in AdvancedTCA Zone 2, the product line includes two-pair and three-pair signal modules, coplanar connectors, and high-speed cable assemblies for use in Zone 3. A mezzanine style connector is also available in a four-pair version.

www.tycoelectronics.com/products/atca
www.hmzd.tycoelectronics.com

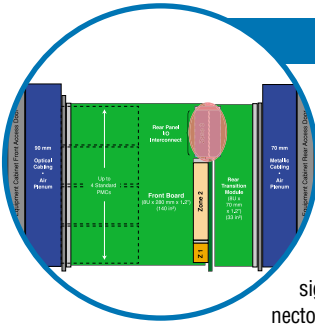
Catalog 1773095
Flyer 1308658

FEATURES

- Designed specifically for high-speed differential applications (3.125 Gb/s to 10+Gb/s)
- A modular connector system with a standard module size of 25.00 [.984]
- Z-PACK HM-Zd is an extension of the Z-PACK 2 mm HM product line
- Pin header and receptacle have the exact same footprint to simplify PC board layout
- Optimized footprint supports quad routing techniques for improved electrical performance, ease of trace routing, and significant PCB manufacturing cost reductions
- Designed to meet Telcordia requirements



AdvancedTCA® – Zone 3 Connectors – Z-PACK MAX



Z-PACK MAX, from Tyco Electronics, is a new high speed, 100-Ohm Impedance matched backplane connector with extreme signal density. This connector is designed without ground return shields and can be pinned out in for lower speed single ended lines too.

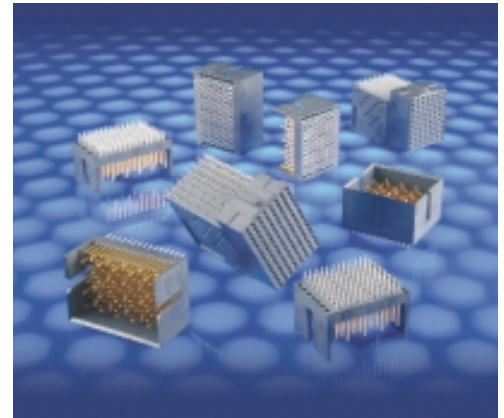
The connector exists in a 4 and 5 pair per column version for backplane applications. Currently a right-angled male connector is under development for coplanar applications such as Zone 3 in ATCA.

www.tycoelectronics.com/products/atca

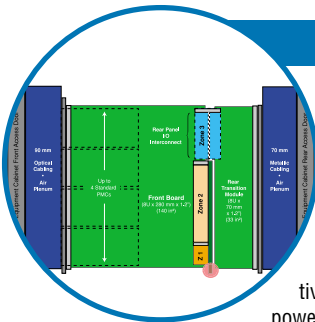
Flyer 2-1773441-5

FEATURES:

- High Speed: +10 Gbps
- High Density: 25 pairs/cm [66 pairs/inch]
- 4 and 5 pair per column
- Press-Fit termination
- Without ground blades
- Designed to meet Telcordia requirements



AdvancedTCA® – Power Connectors – Multi-Beam XL



Multi-Beam XL™ is a versatile power interconnection system with many features, offering Design Engineers the most cost effective solution to their power distribution requirements. The Multi-Beam XL

connector is a custom configurable modular design in single piece housing, available in right angle and straight versions for both headers and receptacles, solder tail or press fit termination.

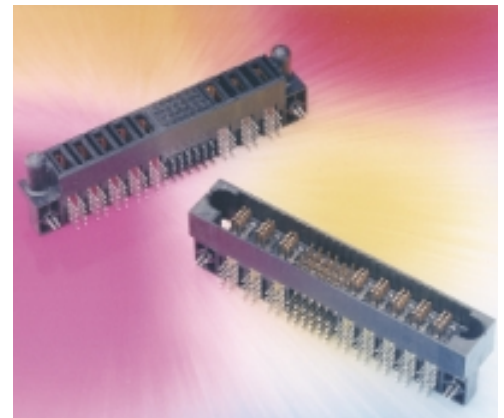
www.tycoelectronics.com/products/atca
www.mbxl.tycoelectronics.com

Catalog 1773096

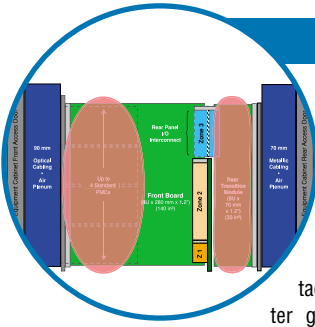
Flyer 1308662 / 1654850 / 1654497 / 2-1773441-6

FEATURES:

- AC, DC and Signal in same connector meeting UL safety requirements
- 30 amp rating for power and up to 3 Amps per signal contact
- Three levels of sequencing, Pwr/Grnd, Pwr & Signal, Trigger Signal
- Unique blade design with multiple points of contact giving reduced mating forces, contact resistance and temperature rise
- Floating panel mount and cable to board versions give added flexibility in wide variety of applications



AdvancedTCA® – High Speed Mezzanine Connectors – MICTOR



The MICTOR product family is based on the micro-strip construction concept, which utilizes two rows of signal contacts divided by a central ground plane to ensure optimal performance.

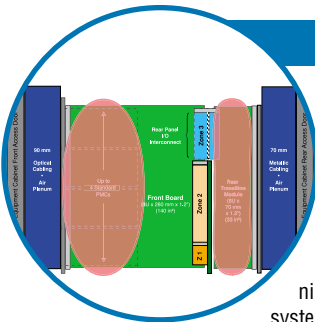
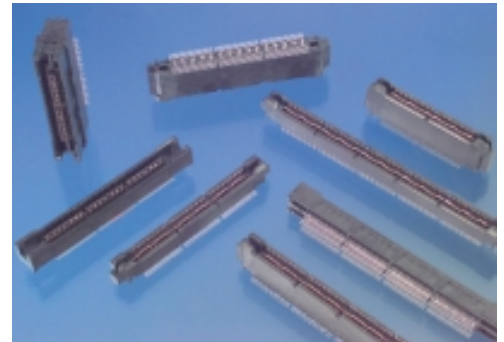
Designed for vertical stacking applications requiring high-speed electrical connections to smaller boards containing ASICs, CPUs, I/O devices, or memory. Suited for use as a high-speed connection between daughter cards. Mezzanine connectors can enable flexible and cost effective system design through modularization of I/Os, ASICs and other high cost components. A wide range of vertical stack heights facilitates flexibility for adding board real estate within a system.

www.tycoelectronics.com/products/atca

Catalog 65194

FEATURES:

- Designed specifically for high-speed applications with rise time as fast as 50 ps
- Controlled Impedance Design
- 38 to 266 positions, in increments of 38.
- 23 levels of stack height, from 5,00 to 31,90 mm.
- Surface mount design
- Redundant mating interface
- Polarized housings for correct mating
- Various packaging styles (Tube, Tape & Reel with or without vacuum cap)



AdvancedTCA® – High Speed Mezzanine Connectors – MICTOR SB

MICTOR SB's Connector micro-strip construction results in a cost effective, high-speed, matched impedance mezzanine interconnection with electrical performance to 6.5 GHz.

This latest addition to the MICTOR family of products uses a cost effective Single Beam signal contact. Surface mount lead termination eliminates the need for thru-hole connections. This product can be configured for single ended, differential, high density, or mixed configurations. Designed for vertical stacking applications requiring high-speed electrical connections to smaller boards containing ASICs, CPUs, I/O devices or memory. Suited for use as a high-speed connection between daughter cards. Mezzanine connectors can enable flexible and cost effective system design through modularisation of I/Os, ASICs and other high cost components. A wide range of vertical stack heights facilitates flexibility for adding board real estate within a system.

www.tycoelectronics.com/products/atca

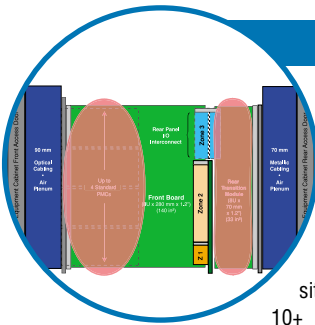
Catalog 65194
Flyer 1654710

FEATURES:

- Integral Ground Bus design
- Fully Surface Mountable
- Stack Heights: 5 mm to 30 mm
- 0.5 mm centerline: 60, 120, 180, 240 and 300 signals
- 0.8 mm centerline: 40, 80, 120, 160 and 200 signals
- Single Ended, Differential Pair, or mixed versions within a single connector
- 50 ohm Impedance
- Electrical performance to 6.5 GHz
- Location Pegs for placing product on PCB
- Available in Tray or Tape & Reel packaging
- High temperature plastic permits flexibility in reflow
- Caps available for use with vacuum pick & place
- Keyed Housing design
- Guides available on select versions



AdvancedTCA® – High Speed Mezzanine Connectors – STEP-Z



The new STEP-Z connector is a grid array mezzanine connector specifically designed for high-speed and high-density applications up to 10+ gigabits per second

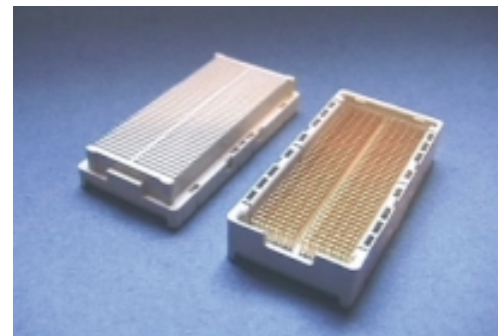
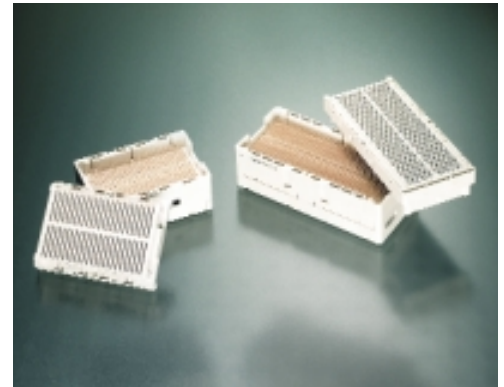
data rates. Pin out patterns for either differential pair or single ended applications provide excellent isolation of high-speed signals. Ground connections in close proximity to signal connections enable proper electrical coupling throughout the entire interconnect, dramatically reducing cross-talk. Ball Grid Array board attachment for both connector halves minimizes through hole effects and improves routing. The connector housing is polarized to ensure proper mating.

www.tycoelectronics.com/products/atca

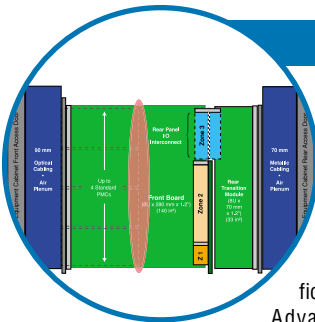
Catalog 65194
Flyer 1654776-1

FEATURES:

- Electrical performance to 10+ Gbps
- 50 ohm Impedance for Single Ended configuration
- 100 ohm Impedance for Differential Pair configuration
- Various Stack heights ranging from 15 mm through 35 mm
- Connector sizes include 104, 200, or 296 signal contacts
- SMT BGA board connection on both connector halves
- Receptacle contacts completely protected
- Reliable, redundant contact design on every signal contact
- Packaging for Trays or Tape & Reel
- High temperature plastic
- Caps for use with vacuum pick & place
- Polarized Housing design
- Lead free compatible design



AdvancedTCA® – Advanced Mezzanine Card (AMC) Connectors



Tyco Electronics is developing an Advanced Mezzanine Card (AMC) connector designed to meet the PICMG AMC specification for use with

AdvancedTCA carrier boards and other related applications. The AMC product family from Tyco Electronics will include single-part Z-Pluggable connectors in Extended (B+ and A+B+) styles as well as a unique A+ style for low-profile applications.

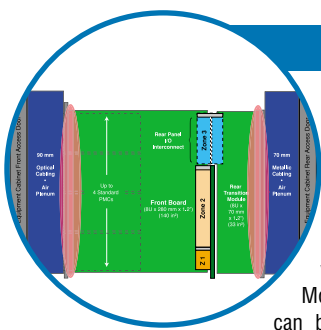
www.tycoelectronics.com/products/atca

FEATURES:

- A+, B+, A+B+ styles
- Targeted for high-speed differential applications (3.125 Gb/s to 10+ Gb/s):
- Precision formed compliant pin reduces stub effect and offers excellent retention to ensure a reliable connect
- Suitable for assembly processes using flat-rock tooling



AdvancedTCA® – Front & Rear I/O Connectors – RJ45 Modules



Tyco Electronics is developing a line of ATCA Offset Stacked Modular Jacks that will support Rear I/O via Rear Transition Modules (RTMs) and be used in Advanced 3. The low profile

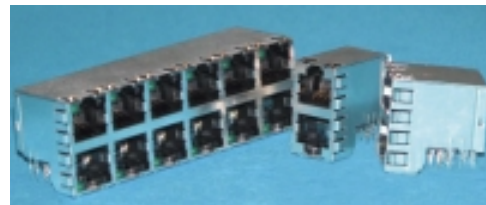
and narrow width design will allow more ports to be packed into less space. The contacts are insert molded for positive connection throughout the life of the equipment. The jacks are designed to be centered vertically on an ATCA panel faceplate. The complete ATCA offset stacked jack product family from Tyco Electronics will include the following configurations: 2x1, 2x4, 2x6, 2x8.

www.tycoelectronics.com/products/atca

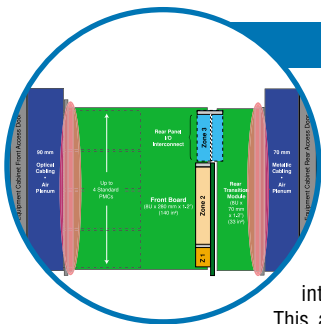
Catalog 82066
Flyer 1773411

FEATURES:

- Performance exceeds Near End Cross-talk (NEXT) requirements of -40 dB on all pair combinations at 100 MHz per EIA/TIA 568A
- All Offset Stacked Jacks have Category 5 performance
- Meets or exceeds FCC Part 68 rules and regulations with standard PC board footprints



AdvancedTCA® – Front & Rear I/O Connectors – SFP Modules



The SFP (Small Form-Factor Plugable) supports hot swap of various types of fiber optics and copper based transceivers to host equipment.

This allows the customer to have a flexible change between different protocols. The different applications are Fiber Channel, Ethernet, Infiniband. SFP board cages exist in multiple versions that fit ATCA systems.

The one port cages are available in a one piece design (press-fit or solder) and a two piece design (press-fit, solder or SMT). Ganged versions (available in 1x6; 1x4; 1x2) are available with or without light pipes. The ganged product has the option of integrated host connector. Tyco is currently developing stacked versions (2x4 as primary option) that fit ATCA requirements.

www.tycoelectronics.com/product/atca
www.sfp.tycoelectronics.com

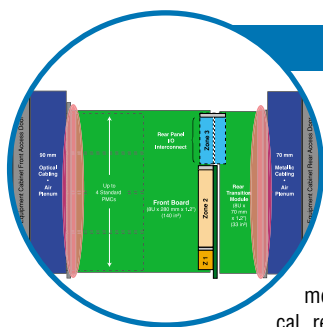
Catalog 1773408
Flyer 1654720 / 1654095 / 1773078

FEATURES:

- Products according to MSA
- Uses 20 positions PT connector
- Hot Swappable
- Three stage sequencing
- Supports data-rates up to 5 Gbps
- Chassis ground for pass through EMI protection to 12.5 Gbps
- Accepts copper and fiber optic transceivers
- Direct attach copper cable assemblies available with or without active equalization.



AdvancedTCA® – Front & Rear I/O Connectors – XFP Modules



The XFP Multi-Source Agreement specifies the next generation pluggable transceiver. The MSA document specifies the mechanical and electrical requirements for the pluggable modules, cage hardware, thermal heat sinks and PCB connector. This technology converts serial electrical signals to external serial optical or electrical signals and is intended to be flexible enough to support OC192/STM-64, 10 G Fibre Channel, G.709, and 10 G Ethernet. The module design and forecasted volumes are expected to enable very low cost 10 Gb/s solutions.

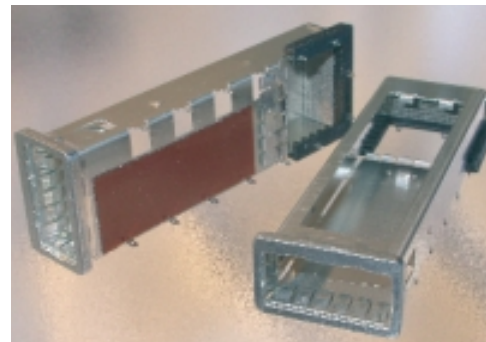
The XFP module is a hot pluggable, small footprint, serial-to-serial, optical transceiver. It's designed to be data-agnostic, providing multi-rate module support for SONET OC-192, 10 Gb/s Ethernet, 10 Gb/s Fibre Channel and G.709 links. Pluggable modules support all data encodings for the above technologies and are expected to be available in single mode or multi-mode serial optical interfaces at 850 nm, 1310 nm, or 1550 nm.

www.tycoelectronics.com/products/atca
www.xfp.tycoelectronics.com

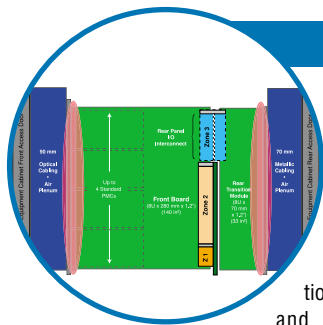
Flyer 1654713 / 1654716

FEATURES:

- Products according to MSA
- Uses 30 positions PT connector
- Hot Swappable
- Supports data-rates up to 10 Gbps
- EMI controlled by gaskets on the cage and bezel
- Heat sink designs are specified by the customer. Standard heat sinks available for SAN, PCI and Networking applications
- Accepts copper and fiber optic transceivers
- Direct attach copper cable assemblies available with or without active equalization.



AdvancedTCA® – Front & Rear I/O Connectors – Mini RJ21



Tyco Electronics has developed a high density I/O interconnect, the MRJ 21, which will support Rear I/O via Rear Transition Modules (RTMs) and can be used in AdvancedTCA Zone 3. The connector is fully shielded and provides density savings for current 10/100 or GbE RJ45/RJ21 applications. The low profile and narrow width design will allow more ports to be packed into less space. Tyco offers a full end user solution with cleaner cabling solutions over RJ45s and patch panels for plug and play environment including data centers and zone cabled or open office environments. Future configurations include the 1x2 and 1x4, both of which have integrated magnetics and options for POE enabling pins. This further reduces board space and offers the user a fully integrated, high density solution.

www.tycoelectronics.com/products/atca

Catalog 82066

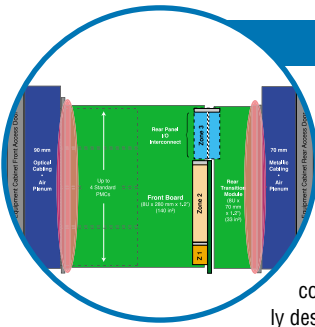
Flyer 1654566 / 1674775

FEATURES:

- 1.5 to 4 times the port density of 2 x 6 stacked Mod Jack (RJ45). 3 times the port density of RJ21
- Contact layout and footprint for differential pairs creates reduced cross-talk and built in compensation
- Connector is designed to meet or exceed Cat 5e cross-talk
- Fully shielded system to control EMI
- Robust die cast cable covers provide 45 degrees left or right cable exit for ease of routing
- 1 mm pair spacing, 1.5 mm pair to pair spacing



AdvancedTCA® – Front & Rear I/O Connectors – Slim I/O

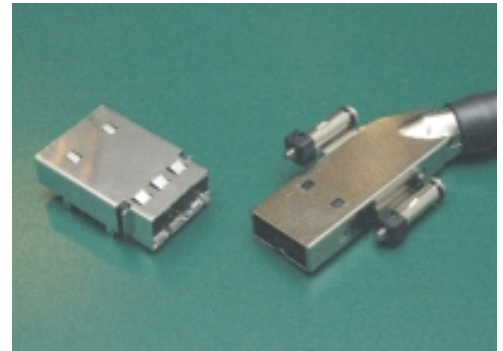


Tyco Electronics is pleased to introduce a newly designed "SLIM I/O" cable connector for panel applications. The "Slim I/O" connector is specifically designed to enhance the I/O flexibility product line for Base Transmission Stations (BTS) and other communication applications. The "Slim I/O" connector enables the designer to incorporate Hard Metric packaging practice, in Telecommunication and Computer systems as well as instrumentation applications with slot pitch as narrow as 15 mm, giving excellent electrical performance and mechanical characteristics at an economical price. The "Slim I/O" connector complies with IEC 917 and IEC 61076-4-101. It supports applications at data rates of up to 2.5 Gbps (differential signaling) with edge rates of 100 psec. Combined with slow signals and power.

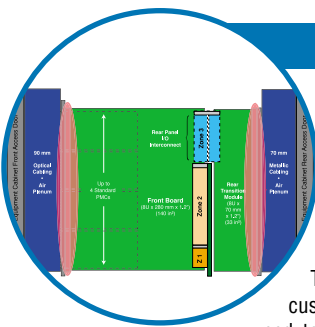
www.tycoelectronics.com/products/atca

FEATURES:

- Slim I/O is a hybrid cable connector designed for I/O applications such as:
 - Power & Signals in one Connector
 - High-Speed Long-Reach Cable Connector
 - Small Form Factor, Slim and Simple
 - Flexible Signal Assignment
 - Optional Passive Equalized Signals
- Designed specifically to fit into 15 mm slot pitch and/or wider
- Design in accordance with IEC 917-2-2 and IEC 61076-4-101 specs
- Perform well in the Gigabit speeds
- Right Angle Header:
 - Robust with Good EMI provision for panel cutout
 - Through Hole/Lead Free soldering
 - Safe Design
- Plug:
 - Retention – 100 N min.
 - It has polarization features
 - Accepts cable outer diameters in the range of 6 – 9 mm
 - Terminate STP, UTP, Coax and Power cable types



AdvancedTCA® – Fiber Optic Connectors & Products



Fiber Optic Splitter Modules, for monitoring purposes, can be supplied by Tyco Electronics.

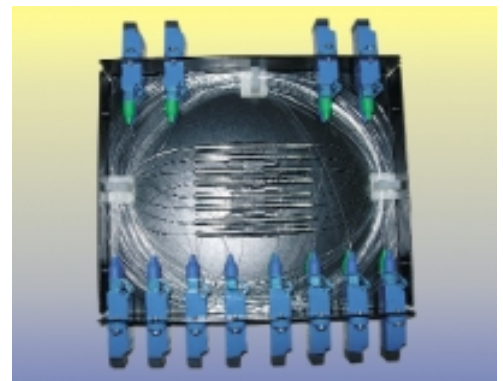
These cassettes are customized and can be used to provide a monitoring function on the fiber optic lines of ATCA Racks.

www.tycoelectronics.com/products/atca
www.tycoelectronics.com/fiberoptics

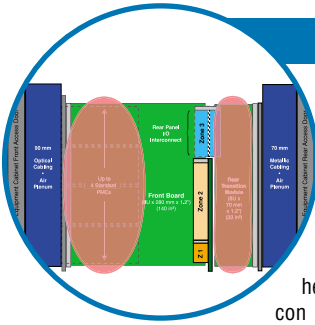
Catalog 1307895
Flyer 1773338 / 1773080

FEATURES:

- Telcordia 1209 and 1221 compliant passive components
- Customized products
- Use of high quality industry standard components in a robust design
- Plug and play
- Module tested to IEC standards



AdvancedTCA® – Thermal Products & Services



Thermal Interface Products are mandatory for reducing the waste heat and cooling the system in the most efficient way. Waste heat reduces the silicon chip reliability and performance. Besides the

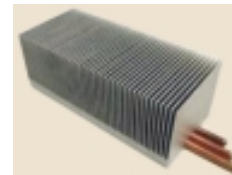
products Tyco Electronics is offering such as Heat Sinks, Heat Pipes and Chip Coolers, in all shapes and sizes, Tyco Electronics offers state of the art Thermal Management Services. Thermal Management is the design practice of moving waste heat to locations that do not affect the equipment or overall device performance. Each Thermal Product can be fully customized to fulfill the specific requested system cooling requirements.

www.tycoelectronics.com/products/atca
www.thermal.tycoelectronics.com

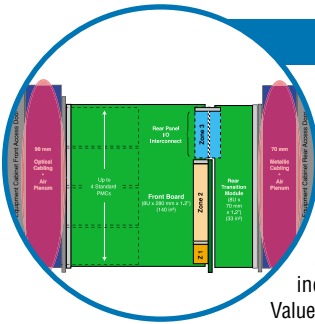
Catalog 1309431
Flyer 1308225

FEATURES:

- Tyco thermal solutions provide optimum cooling for active components like BGA, MCM modules, optical modules and power devices
- Compatible to most ATCA connector form factors, low profile solutions
- Off the shelf as well as customized products
- Heat pipe technology in combination with passive heat sinks
- Advanced thermal conductive polymer for weight and cost reduction
- Full CFD (Computational Fluid Dynamics) simulation and analysis, optimum Thermal design numerical and analytical approaches



AdvancedTCA® – Cable Connectors & Cable Assemblies



Tyco Electronics produces a wide range of standard and custom Cable Assemblies for use in an endless list of applications in every industry we serve.

Value-Added Cable Assemblies can be custom designed to

meet customer requirements. To better serve our customers, we offer global manufacturing capabilities for demand fulfillment based on our customers needs.

Tyco Electronics manufactures a number of components, which makes it a truly vertically integrated cable assembly manufacturer.

With the design and production of bulk cable, connectors, labels, shrink tubes, application machines,... Tyco Electronics has its supply chain firmly under control and can supply the most diverse types of Cable Assemblies.

Tyco Electronics CCCE Cable Systems Group (CSG) also strives to support its customer with a tailored logistics solution anywhere in the world. Like this lead-times are reduced to a minimum. With the regionally set-up engineering centers, customer specific Cable Assemblies can be designed in close co-operation with the customer, reducing the time-to-market and production start-up.

The High Speed and RF Coaxial Cable Assemblies are designed in co-operation with the connector teams to fine-tune the design for optimum performance. The local Circuit & Design centers contribute to this by supporting the engineering teams. The C&D centers will simulate the designs and feed back the information so designs can be changed for better High Speed characteristics before going into sampling or production. Once samples are available, the C&D team will conduct validation tests to ensure the performance requirements are met. With this set-up, the design of customer specific High Speed solutions is in good hands with Tyco Electronics.

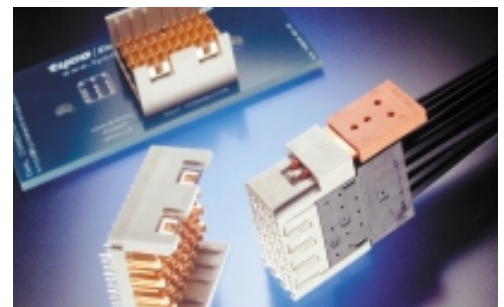
Cable Assemblies for interconnecting the multiple ATCA shelves in a rack, or rack to rack, also can be supplied by Tyco Electronics. Front or Rear I/O Cable Assemblies, interconnecting to an ATCA Blade or RTM, make the ATCA product offering more than complete.

FEATURES:

Being the world largest Cable Assembly manufacturer*, Tyco has one of the broadest portfolios on Cable Assemblies for the Telecom and Data Communications Market:

- RF Coaxial Cable Assemblies (e.g. SMA, SMC, TNC, QMA, N, 7/16, ...)
- High Speed Cable Assemblies (e.g. HSSDC, SFP, HM-Zd, XFP, ...)
- High Density Cable Assemblies (e.g. MRJ21, ...)
- Power Cable Assemblies (e.g. Multi Beam XL, ...)
- Fiber Optic Cable Assemblies (e.g. LC, SC, MT-RJ, MPO, ...)
- Standardized Cable Assembly types (e.g. IEE1394, USB2.x, S-ATA, ...)
- Customer / Application Specific Cable Assemblies

* Fleck Research 'Analysis of World-wide Cable Assemblies' R-1350/05

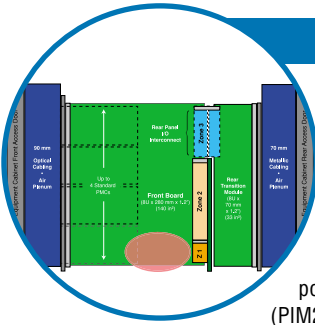


www.tycoelectronics.com/products/atca

Flyer 1773079 / 1654713 / 1654850 / 2-1773441-6 / 1654566 / 1654926

Power Systems (PS)

AdvancedTCA® – Power Distribution & Management Modules



Tyco Electronics Power Systems introduces industry's first power input management solution for ATCA boards. The ATCA power input module (PIM200) is designed in collaboration with industry leading ATCA board manufacturers and provides innovative features and compact design. PIM200 modules incorporate all the features required by ATCA specifications (PICMG 3.0) and enable designers to save valuable board real estate and reduce overall board cost and time to market compared to discrete solutions.

A Complete Power Architecture

PIM200 series along with Tyco's isolated DC/DC and bus converters and point of load modules, provide a complete and low-cost power architectural solution while complying with AdvancedTCA board power requirements.

www.tycoelectronics.com/products/atca
www.power.tycoelectronics.com

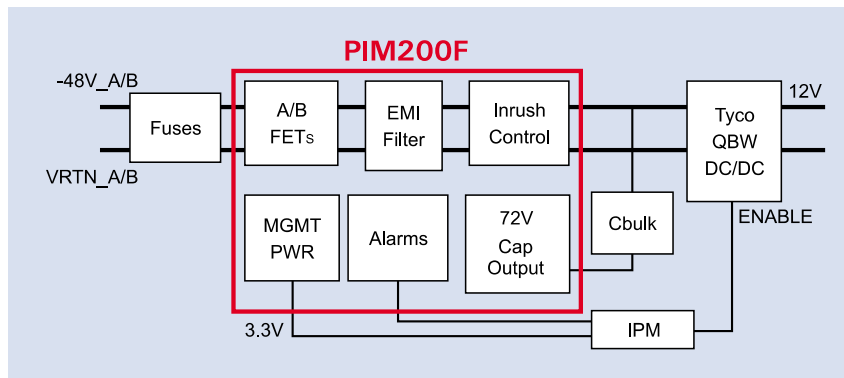
Flyer PIM05-001

FEATURES:

- 200 W of power (per PICMG 3.0)
- Inrush control protection
- Integrated EMI filter designed to meet CISPR Class B Limits
- Directive 2002/95/EC RoHS compliant
- 8 W of Isolated auxiliary power supply for IPMI (3.3 V or 5 V)
- O-Ring FETs for -48 V A&B feeds
- A/B feed loss alarm
- Hot-swap control
- 72 V charging voltage for holdup/bulk capacitors
- Through-hole and surface mount (SMT) versions
- Input under-voltage and over-voltage protections
- Over current and thermal protections
- UL/CSA/CE/VDE approved (pending)



	PIM200	Discrete
PICMG 3.0 compliant	Yes	Board level
Fully tested & burned-in	Yes	Board level
Fully qualified	Yes	Board level
Parts count	1	> 100
Design-in time	Lower	Higher
Assembly cost	Lower	Higher
Yield/Repair cost	Lower	Higher
Time to market	Lower	Higher
Second sourced	Yes	No
Standard off-shelf part	Yes	No



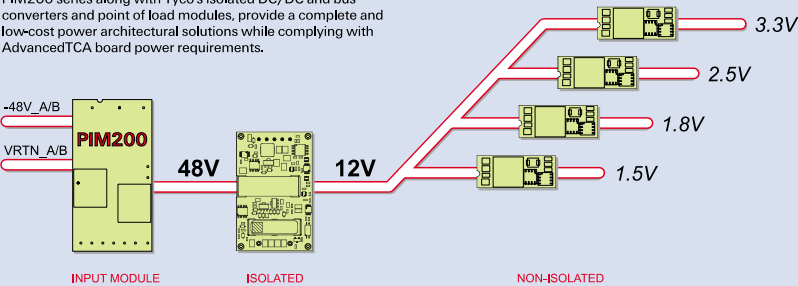
Device Code	Input Voltage	Output Power	V _{mg/mt} Output	Connector Type	Comcode	Options*
PIM200F	-48 V (-38 to -75 V DC)	200 W	-3.3 V DC	Thru Hole	108994471	-S (SMT)
PIM200A	-48 V (-38 to -75 V DC)	200 W	-5.0 V DC	Thru Hole	108996288	-S (SMT)

Power Systems (PS)

AdvancedTCA® – Power Distribution & Management Modules (continued)

A Complete Power Architecture

PIM200 series along with Tyco's isolated DC/DC and bus converters and point of load modules, provide a complete and low-cost power architectural solutions while complying with AdvancedTCA board power requirements.



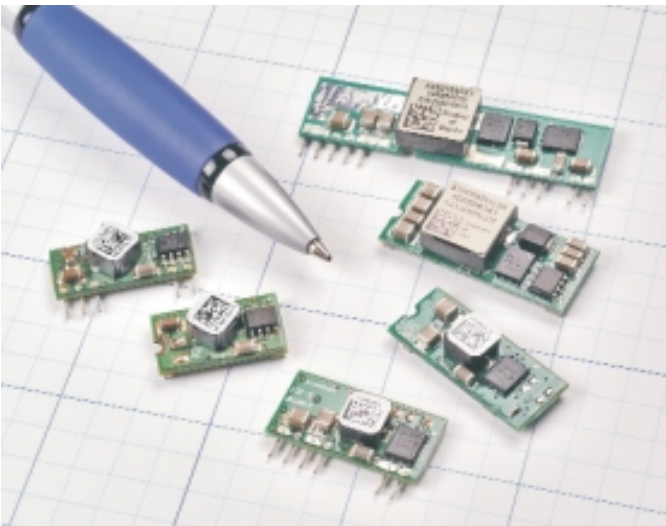
Isolated Bus Converters

Full Featured DC-DC Converter Series	Output Power (W)	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Efficiency (%)	Current Share	Form Factor	Connection Type	Base Plate
EQW006A0B	72 W	6 A	48 V (36 – 75)	12 V (11.6 – 12.4)	92 %	No	Eight-Brick	TH/SMT	No
QRW010A0B	120 W	10 A	48 V (36 – 75)	12 V (11.7 – 12.3)	93 %	No	Qtr-Brick	TH	Yes
QBW018A0B	200 W	18 A	48 V (36 – 75)	12 V (11.4 – 12.6)	94 %	Yes	Qtr-Brick	TH	Yes
JRB017A0B	200 W	17 A	48 V (36 – 75)	12 V (11.7 – 12.3)	92 %	Yes	Half-Brick	TH	Yes

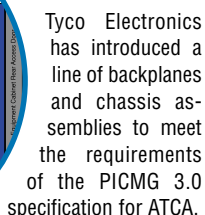
Non-Isolated DC-DC Converters

Austin Lynx Series	Output Current (A)	Input Voltage Range (V)	Output Voltage Range (V)	Efficiency (%)	Output Programmable	Remote On/Off	Remote Sense	EZ-Sequence	Connector Type
Austin MiniLynx	3 A	8.3 – 14 V	0.75 – 5.0 V	91 %	Yes	Yes	No	No	SIP/SMT
Austin MicroLynx	5 A	10 – 14 V	0.75 – 5.0 V	89 %	Yes	Yes	No	No	SIP/SMT
Austin Lynx	10 A	10 – 14 V	0.75 – 5.0 V	93 %	Yes	Yes	Yes	No	SIP/SMT
Austin SuperLynx	16 A	10 – 14 V	0.75 – 5.0 V	92 %	Yes	Yes	Yes	No	SIP/SMT

Austin Lynx II Series	Output Current (A)	Input Voltage Range (V)	Output Voltage Range (V)	Efficiency (%)	Output Programmable	Remote On/Off	Remote Sense	EZ-Sequence	Connector Type
Austin MicroLynx II	6 A	8.3 – 14 V	0.75 – 5.0 V	89 %	Yes	Yes	No	Yes	SIP/SMT
Austin Lynx II	10 A	8.3 – 14 V	0.75 – 5.0 V	93 %	Yes	Yes	Yes	Yes	SIP/SMT
Austin SuperLynx II	16 A	8.3 – 14 V	0.75 – 5.0 V	92 %	Yes	Yes	Yes	Yes	SIP/SMT
Austin MegaLynx II	25 A	6.0 – 14 V	0.75 – 5.0 V	92.5 %	Yes	Yes	Yes	Yes	SIP/SMT



AdvancedTCA® – Backplane & Chassis Assemblies



Our next-generation chassis is 13U high and features a 14-slot "Dual Star" backplane using Tyco Electronics HM-Zd connectors and power connectors. Other features include 200 watts/slot cooling, push-pull fan trays with speed control, -48 V Power Entry Modules, internal or external shelf management, and front/rear cabling provisions. "Full Mesh" backplanes complete the Tyco ATCA-Shelf product offering.

Tyco Electronics is a recognized leader in the design and assembly of state-of-the-art backplane systems. Our CompactPCI designs are currently incorporated in two of the industry-leading wireless base station systems. This capability is available to meet your specialized ATCA requirements. Our engineering group can design and model a system to meet your specifications. Our unique Quad-Routing technique offers the capability to design 5+ Gbps backplanes with reduced layer count and reduced cost.

www.tycoelectronics.com/products/atca
www.printedcircuits.tycoelectronics.com

- Electronic packaging solution specialist
- 13U 14-slot rack-mount (19" & 23") ready systems
- Standard and customized ATCA systems:
 - Dual Star, Full Mesh, and Dual-Dual Star backplanes
 - Redundant, hot-pluggable "push-pull" fan trays
 - Redundant, hot-pluggable -48 V Power Entry Modules
 - Redundant, hot-pluggable Shelf Management Modules
- Alternate configurations available for onboard shelf management
- Cable management schemes for front/rear
- Design services available worldwide:
 - Unique Quad-Routing technique
 - System modeling and simulation services
 - Complete thermal simulation and testing services
 - System qualification to industry standards
 - Printed circuits for line cards and backplanes
 - Complete chassis assembly services
 - ISO qualified assembly facilities in North America and Asia
 - Total system support from Tyco Electronics



AdvancedTCA Zone 1

Front Board Connector Right Angle Header Part Number 1766500-1*

Backplane Connector Vertical Receptacle Part Number 1766501-1*

Front Board Connector Right Angle, Compliant Press Fit Part Number 1766500-1*

Material and Finish

Insulators — Thermoplastic, glass reinforced, black, UL94V-0

Signal Pins — Copper alloy

Power Contacts — High conductivity copper alloy, plated 0.00076 [0.00030] min. gold in mating area per Tyco Electronics Specification 112-162-5, over 0.00130 [0.00050] min. nickel per Tyco Electronics Specification 112-25-2

Solder Tails — 0.0030 - 0.0043 [0.00120 - .000170] tin plated per lead free Tyco Electronics Specification 112-65-1, matt finish

Notes:

1. Mounting Holes (Ø 2.00 [0.79] x 5.00 [.197] DP) for use with self tapping screw (customer supplied).
2. Positions 1-4 not populated and reserved for future use.

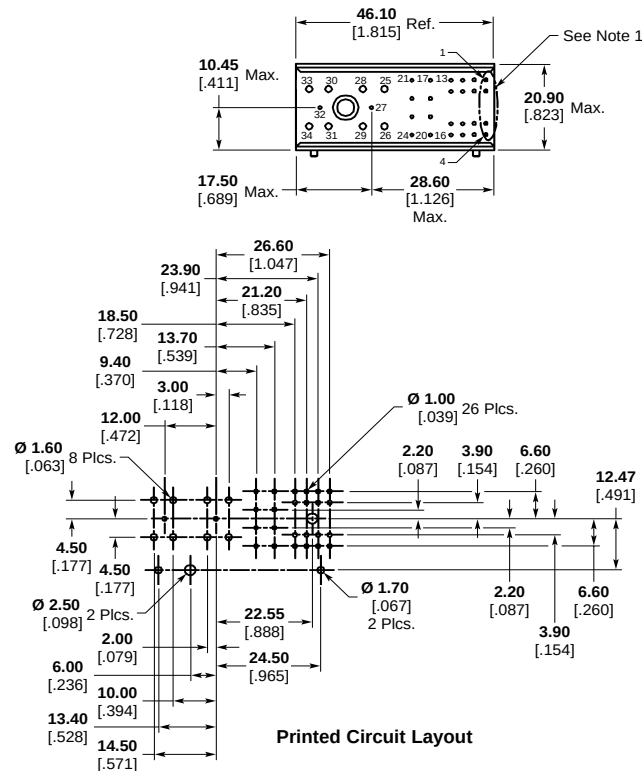
*RoHS Compliant



Front Board Connector



Backplane Connector



Printed Circuit Layout

Backplane Connector Straight, Compliant Press Fit, Part Number 1766501-1*

Material and Finish

Insulators — Thermoplastic, glass reinforced, black, UL94V-0

Signal Pins — Copper alloy

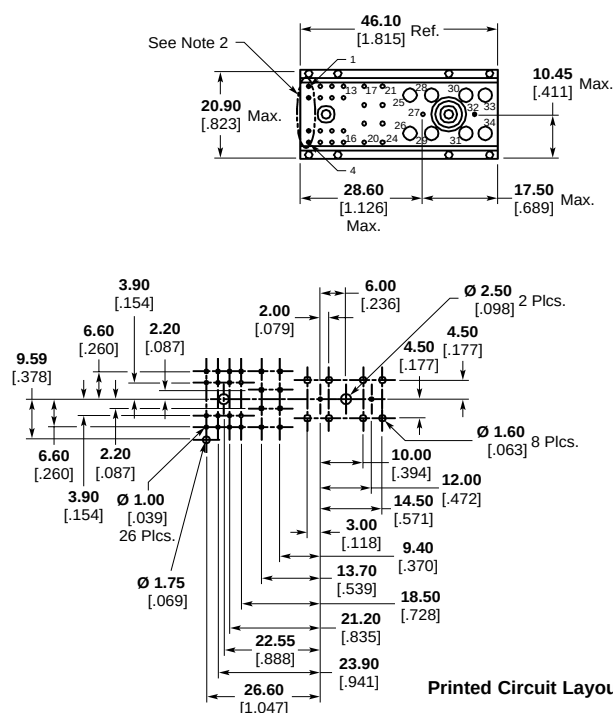
Power Contacts — High conductivity copper alloy, plated 0.0076 [0.00030] min. gold in mating area per Tyco Electronics Specification 112-162-5, over 0.00130 [0.00050] min. nickel per Tyco Electronics Specification 112-25-2

Solder tails — 0.0030 - 0.0043 [0.00120 - .000170] tin plated per lead free Tyco Electronics Specification 112-65-1, matt finish

Notes:

1. Mounting Holes (Ø2.00 [0.79] x 5.00 [.197] DP) for use with self tapping screw (customer supplied).
2. Positions 1-4 not populated and reserved for future use.

*RoHS Compliant

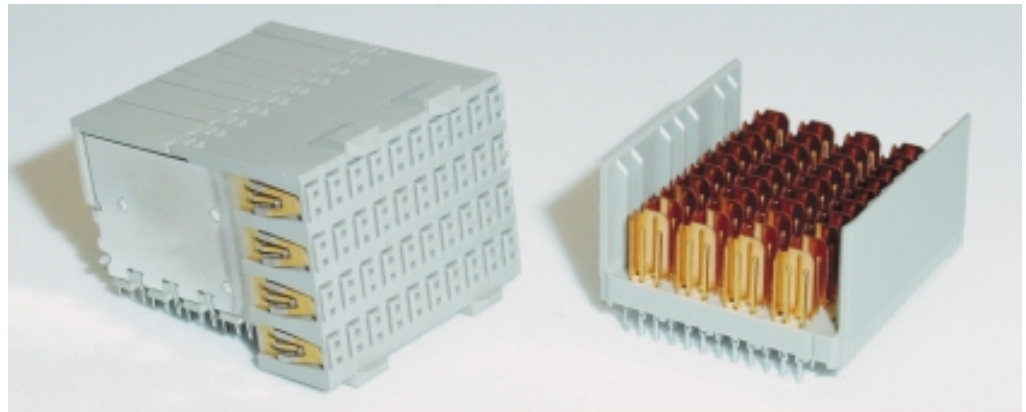


Printed Circuit Layout

AdvancedTCA Zone 2

Front Board Connector
4 Pair Right Angle Receptacle
Part Number 6469001-1*

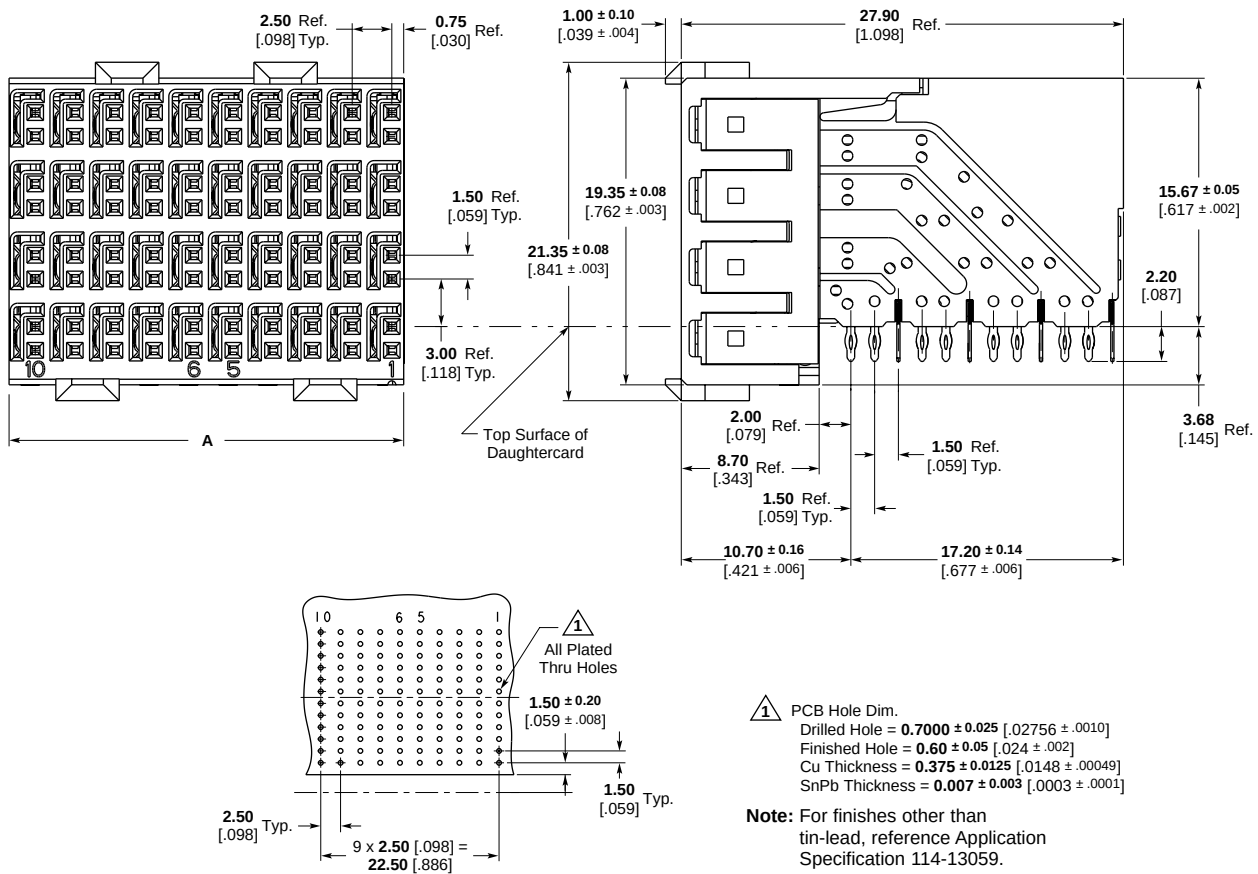
Backplane Connector
4 Pair Vertical Header
Part Number 6469002-1*



Front Board Connector

Backplane Connector

4 Pair Right Angle Receptacle Assemblies



Recommended PC Board Layout
Daughter Board, Component Side Shown

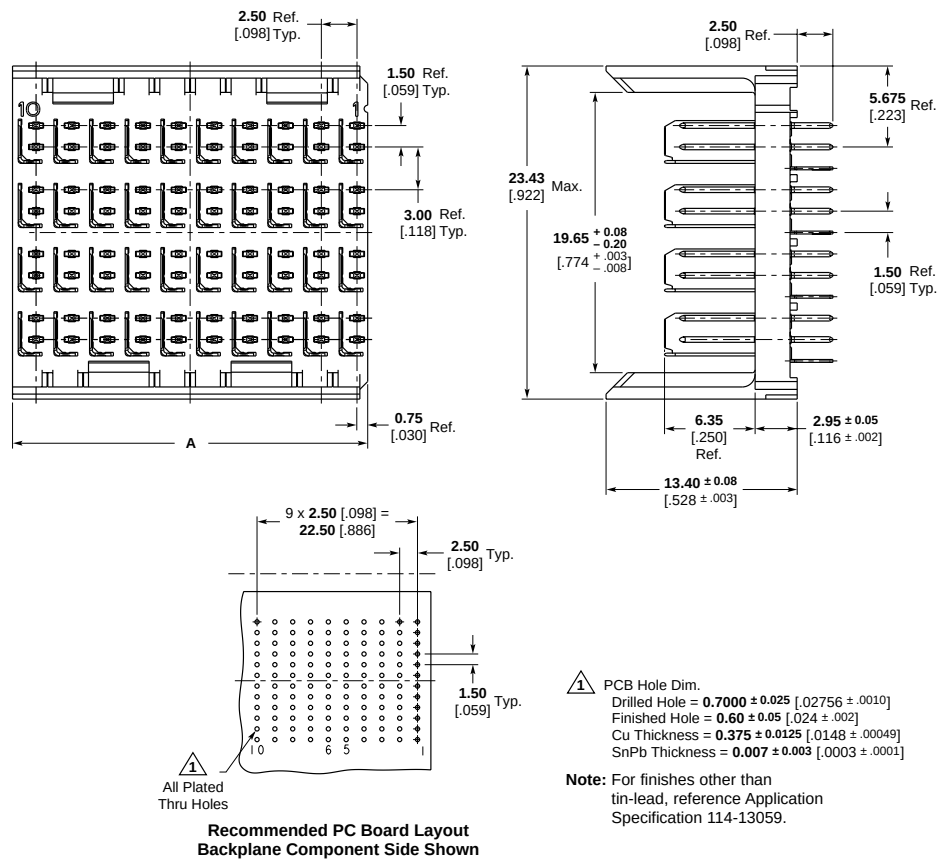
Part Number	Column Count	Module Length (Dim. A)	Signals	Grounds	Application Tooling		
					Insertion	Repair	
					Receptacle	Housing Removal	Chiclet Removal
6469001-1 ^{1*}	10	25.00 .984	80	40	91347-1	1583224-1	1583248-1
6469286-1*	12	30.00 1.181	96	48	91347-3	1583224-2	1583248-1
6469294-1*	15	37.50 1.476	120	60	91347-2	1583224-3	1583248-1
6469061-1*	20	50.00 1.969	160	80	91347-4	1583224-4	1583248-1

¹ AdvancedTCA Zone 2 Daughtercard Connector.

* RoHS Compliant

Communications, Computer & Consumer Electronics (CC&CE)

**4 Pair
Vertical Pin Header
Assemblies**



Part Number	Tail Length	Mating Pin Length	Column Count	Module Length (Dim. A)	Signals	Grounds	Application Tooling			
							Insertion	Pin Header	Pin Removal	Repair
6469002-1 ^{1*}	2.50 .098	5.30 .209	10	25.00 .984	80	40	91349-1	1583237-1	1583220-1	1583255-1
6469046-1 ^{2*}	2.50 .098	5.30 .209	10	25.00 .984	80	40	91349-1	1583237-1	1583220-1	1583255-1
6469074-1 [*]	1.80 .071	5.30 .209	10	25.00 .984	80	40	91349-1	1583237-1	1583220-1	1583255-1
6469287-1 [*]	2.50 .098	5.30 .209	12	30.00 1.181	96	48	91349-3	1583237-1	1583220-1	1583255-1
6469296-1 [*]	2.50 .098	5.30 .209	15	37.50 1.476	120	60	91349-2	1583237-1	1583220-1	1583255-1
6469062-1 [*]	2.50 .098	5.30 .209	20	50.00 1.969	160	80	91349-4	1583237-1	1583220-1	1583255-1
6469099-1 [*]	1.80 .071	5.30 .209	20	50.00 1.969	160	80	91349-4	1583237-1	1583220-1	1583255-1

¹ AdvancedTCA Zone 2 Backplane Connector.

² Shallow Wall for Daughtercards thicker than 3.50 [.138].

* RoHS Compliant

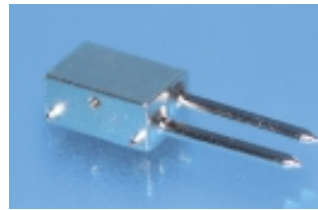
Communications, Computer & Consumer Electronics (CC&CE)

**AdvancedTCA Guide/
Keying Modules**

The AdvancedTCA Guide Modules can be used in a wide variety of applications. For *motherboard-to-daughtercard applications* the vertical pin and right angle socket are used. This popular configuration is further supported by our wide offering of available keying positions. Each of the two keyed guide pins and guide sockets per module can be produced in a variety of different key positions. For *co-planar applications*, the right angle guide pins are used along with the right angle guide sockets. Both vertical and right angle guide pins are available in short or long sizes, to accommodate being used with different Tyco Electronics connectors.



rA1



A2 (RTM)



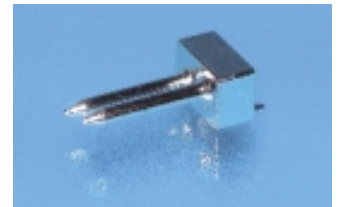
K1/K2



rK1



A1



A2

ATCA Name	ATCA Location	Description	Part Number
rA1	Backplane	Rear Alignment Post 3.00 – 4.00 [.118 – .157] PCB Thickness	1469269-2*
rA1	Backplane	Rear Alignment Post 4.10 – 6.00 [.161 – .236] PCB Thickness	1469269-4*
rA1	Backplane	Rear Alignment Post 6.10 – 8.00 [.240 – .315] PCB Thickness	1469269-6*
A2 (RTM)	Rear Transition Module	Right Angle Male, Keyed	1-1469372-1*
K1/K2	Front Board	Right Angle Female, Keyed	1-1469373-1*
K1/K2	Front Board	Right Angle Female, Unkeyed Dummy	9-1469373-9*
rK1	Rear Transition	Right Angle Female	1469374-1*
A1	Backplane	Vertical Male, Keyed, Short	1-1469387-1*
A2	Mid-Plane	Vertical Male, Keyed, Long	1-1469388-1*

* RoHS Compliant

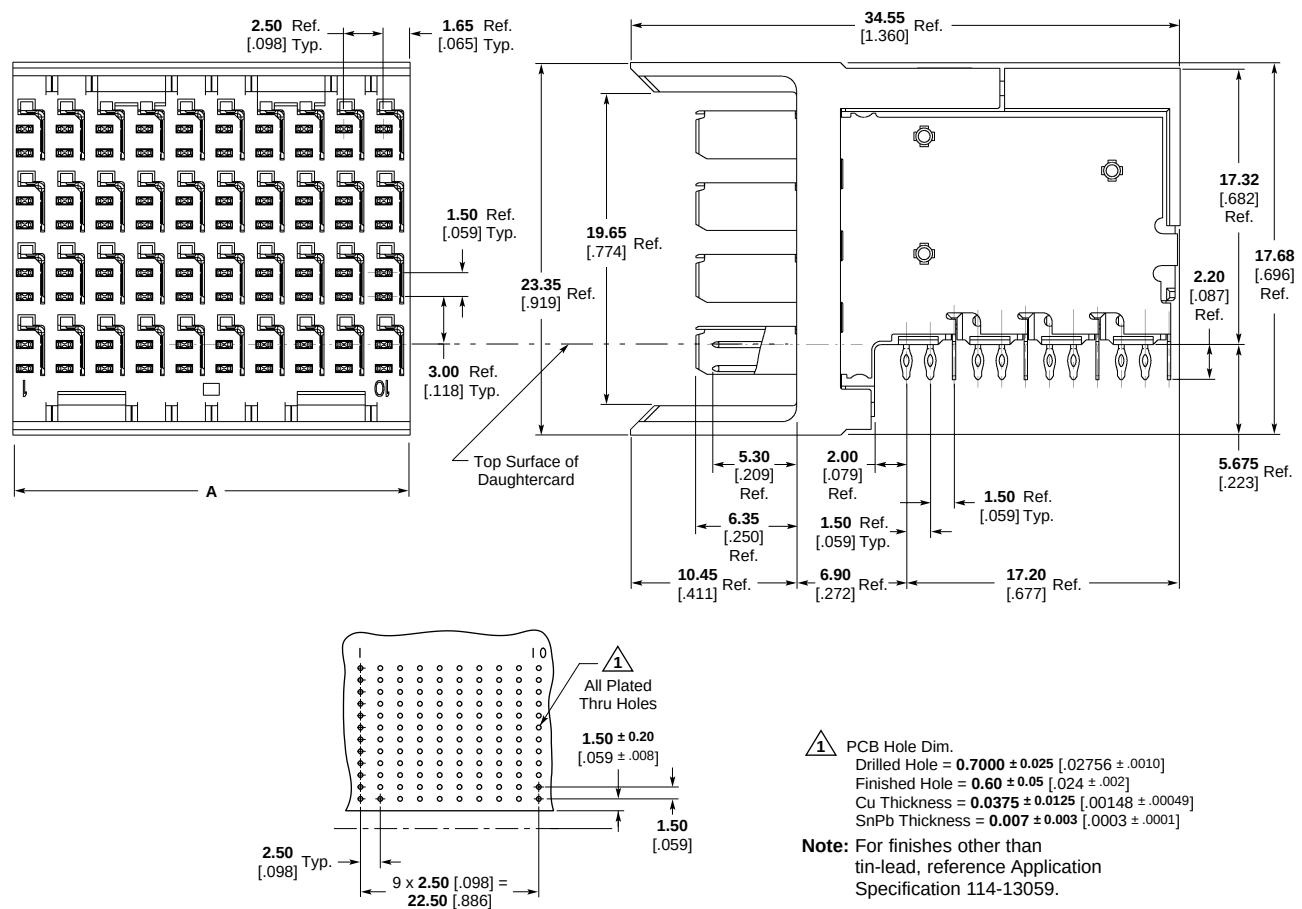
AdvancedTCA Zone 3

RTM Board Connector
4 Pair Right Angle Header
Part Number 6469048-1*

Front Board Connector
4 Pair Right Angle Receptacle
Part Number 6469001-1*
(see page 16)



4 Pair Right Angle Pin Header Assemblies



Part Number	Tail Length	Mating Pin Length	Column Count	Module Length (Dim. A)	Signals	Grounds	Application Tooling		
							Insertion Pin Header	Repair Housing Removal	Chiclet Removal
6469048-1*	2.20 .087	5.30 .209	10	25.00 .984	80	40	91378-1	1804174-1	1804177-1
6469375-1*	2.20 .087	5.30 .209	12	30.00 1.181	96	48	91378-3	1804174-1	1804177-1

* RoHS Compliant

TYCO ELECTRONICS "AT YOUR SERVICE"

Need more information?

Call Technical Support at the numbers listed next page.

Technical Support is staffed with specialists well versed in all Tyco Electronics products. They can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

Website

At www.tycoelectronics.com you'll find many useful applications and plenty of product information

- **Product News –**
The latest information on new developments from various Tyco Electronics brands.
- **Industries –**
Use our industry pages to quickly find the right product for your application.
- **Products –**
Discover information on our vast array of products ranging from Amplifiers to Wire & Cable.
- **Customer Service and Support –**
Find contact numbers for Customer Service and Product Information Help Desks plus FAQs and online technical assistance.

Product Websites

www.tycoelectronics.com/products/atca
www.tycoelectronics.com
www.elastomerictech.com
www.power.tycoelectronics.com
www.antenna.tycoelectronics.com
www.zdok.tycoelectronics.com
www.hmzd.tycoelectronics.com
www.infiniband.tycoelectronics.com
www.mpi.tycoelectronics.com
www.thermal.tycoelectronics.com
www.zfpio.tycoelectronics.com
www.multigigrt.tycoelectronics.com
www.sfp.tycoelectronics.com
www.xfp.tycoelectronics.com
www.dvi.tycoelectronics.com
www.elconproducts.com
www.expresscard.tycoelectronics.com
www.terminators.tycoelectronics.com
www.wavecrimp.tycoelectronics.com
www.tycoelectronics.com/fiberoptics
www.printedcircuits.tycoelectronics.com
www.mbxl.tycoelectronics.com

Trademarks

AMP, AMP NETCONNECT, Austin Lynx, Chip Coolers, Elcon, Mag45, MICTOR, MRJ21, MT-RJ Secure, Multi-Beam XL, Multigig RT, Step-Z, TYCO, Z-DOK, Z-PACK and Z-PACK MAX are trademarks.

PICMG (PICMG 3.0), AdvancedMC (AMC), AdvancedTCA (ATCA), AdvancedTCA300 (ATCA300), MicroTCA (μTCA) and CompactPCI are trademarks of PICMG-PCI Industrial Computer Manufacturers Group Incorporated.

Infiniband is a trademark of Infiniband Trade Association.

© Copyright 2005 by Tyco Electronics Corporation. All International Rights Reserved.
Other products, logos, and company names mentioned herein may be trademarks of their respective owners.

Disclaimer

While Tyco Electronics Corporation and its affiliates referenced herein ("Tyco Electronics") have made every reasonable effort to ensure the accuracy of the information in this catalog, Tyco Electronics does not guarantee that it is error-free, nor does Tyco Electronics make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current.

Tyco Electronics reserves the right to make any adjustments to the information contained herein at any time without notice. Tyco Electronics expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics' only obligations are those in the Tyco Electronics Standard Terms and Conditions of Sale, and in no case will Tyco Electronics be responsible for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of its products. Users should independently evaluate the suitability of, and test each product for, their application.

The dimensions, specifications, designs, construction, materials and processes in this catalog are for reference purposes only and are subject to change without notice. Please consult Tyco Electronics for the most current product information.

The export of certain Tyco Electronics products is restricted by the Arms Export Control Act (Title 22, U.S.C. Sec 2751, et seq.) or the Export Administration Act of 1979, as amended (Title 50, U.S.C., App. 2401 et seq.). Orders may be subject to export approval by the U.S. Government. Buyer must comply with all applicable export laws of all applicable jurisdictions.

Americas

Argentina – Buenos Aires
Phone: +54-1-733-2000
Fax: +54-1-717-0988

Brasil – São Paulo
Phone: +55-11-2103-6000
Fax: +55-11-2103-6200

Canada – Toronto
Phone: +905-475-6222
Fax: +905-474-5520

Chile – Santiago
Phone: +56-2-739-1230
Fax: +56-2-739-1227

Colombia – Bogotá
Phone: +57-1-231-9398
Fax: +57-1-240-3769

Mexico – Mexico City
Phone: +52-5-729-0400
Fax: +52-5-361-8545

United States
Harrisburg, PA
Phone: +1-717-564-0100
Fax: +1-717-986-7575

Troy, MI
Phone: +1-248-273-3359
Fax: +1-248-273-3322

Customer Service:
Phone: +1-800-522-6752

Venezuela – Caracas
Phone: +58-2-986-7774
Fax: +58-2-986-9739

For Latin/South American Countries not shown
Phone: +54-11-4733-2015
Fax: +54-11-4733-2083

Asia/Pacific

Australia – Sydney
Phone: +61-2-9554-2600
Fax: +61-2-9502-2556

India – Bangalore
Phone: +91-80-2854-0800
Fax: +91-80-2854-0820

Indonesia – Jakarta
Phone: +62-21-526-7852
Fax: +62-21-526-7856

Japan – Kawasaki, Kanagawa
Phone: +81-44-844-8111
Fax: +81-44-812-3207

Korea – Seoul
Phone: +82-2-3415-4500
Fax: +82-2-3486-3810

Malaysia – Selangor
Phone: +60-3-7805-3055
Fax: +60-3-7805-3066

New Zealand – Auckland
Phone: +64-9-634-4580
Fax: +64-9-634-4586

Philippines – Makati City
Phone: +632-867-8641
Fax: +632-867-8661

People's Republic of China
Hong Kong
Phone: +852-2735-1628
Fax: +852-2735-0243

Shanghai
Phone: +86-21-6485-7333
Fax: +86-21-6485-6222

Singapore – Singapore
Phone: +65-480-4525
Fax: +65-482-1012

Taiwan – Taipei
Phone: +886-2-2664-9977
Fax: +886-2-2664-9900

Thailand – Bangkok
Phone: +66-2-955-0500
Fax: +66-2-955-0505

Vietnam – Ho Chi Minh City
Phone: +84-8-930-4547
Fax: +84-8-930-3443

Europe/Middle East/Africa

Austria – Vienna
Phone: +43-1-905-60-0
Fax: +43-1-905-60-1333
Product Information Center:
Phone: +43-1-905-60-1249
Fax: +43-1-905-60-1251

Belgium – Kessel-Lo
Phone: +32-16-352-300
Fax: +32-16-352-352

Bulgaria – Sofia
Phone: +359-2-971-2152
Fax: +359-2-971-2153

Czech Republic – Kurim
Phone: +420-5-41-162-111
Fax: +420-5-41-162-223
Product Information Center:
Phone: +420-5-41-162-113
Fax: +420-5-41-162-132

Denmark – Glostrup
Phone: +45-43-480-452
Fax: +45-43-441-414

Egypt – Cairo
Phone: +20-2-417-76-47
Fax: +20-2-419-23-34

Finland – Helsinki
Phone: +358-95-12-34-20
Fax: +358-95-12-34-250

France – Cergy-Pontoise Cedex
Phone: +33-1-3420-8888
Fax: +33-1-3420-8600
Product Information Center:
Phone: +33-1-3420-8686
Fax: +33-1-3420-8623

France Export Divisions –
Cergy-Pontoise Cedex
Phone: +33-1-3420-8866
Fax: +33-1-3420-8300

Germany – Bensheim
Tyco Electronics AMP GmbH
Phone: +49-6251-133-0
Fax: +49-6251-133-1600
Product Information Center:
Phone: +49-6251-133-1999
Fax: +49-6251-133-1988

Germany – Niefern
Tyco Electronics pretema GmbH & Co. KG
Phone: +49-7233-69-0
Fax: +49-7233-69-100

Germany – Ottobrunn
Tyco Electronics Raychem GmbH
Phone: +49-89-6089-0
Fax: +49-89-6096-345

Great Britain –
Stanmore Middlesex
Phone: +44-8706-080-208
Fax: +44-208-954-6234
Product Information Center:
Freephone GB: 0800-267-666
Phone: +44-208-420-8341
+44-208-420-8343
Fax: +44-208-420-8081

Greece – Athens
Phone: +30-210-9370-396/397
Fax: +30-210-9370-655

Hungary – Budapest
Phone: +36-1-289-1000
Fax: +36-1-289-1010
Product Information Center:
Phone: +36-1-289-1016
Fax: +36-1-289-1017

Ireland – Dublin
Phone: +353-1-820-3000
Fax: +353-1-820-9790

Israel – Yokneam
Phone: +972-4-959-0508
Fax: +972-4-959-0506

Italy – Collegno (Torino)
Phone: +39-011-4012-111
Fax: +39-011-4031116
Product Information Center:
Phone: +39-011-4012-360
Fax: +39-011-40287360

Lithuania – Vilnius
Phone: +370-5-2131-402
Fax: +370-5-2131-403

Netherlands – 's-Hertogenbosch
Phone: +31-73-6246-246
Fax: +31-73-6212-365
Product Information Center:
Phone: +31-73-6246-999
Fax: +31-73-6246-998

Norway – Nesbru
Phone: +47-66-77-88-86
Fax: +47-66-77-88-55

Poland – Warsaw
Phone: +48-22-4576-700
Fax: +48-22-4576-720
Product Information Center:
Phone: +48-22-4576-704
Fax: +48-22-4576-720

Romania – Bucharest
Phone: +40-21-311-3479 + 3596
Fax: +40-21-312-0574

Russia – Moscow
Phone: +7-095-926-55-06...09
Fax: +7-095-926-55-05

Russia – St. Petersburg
Phone: +7-812-718-8192
Fax: +7-812-718-8193

Slovenia – Ljubljana
Phone: +386-1561-3270
Fax: +386-1561-3240

South Africa – Port Elizabeth
Phone: +2741-503-4500
Fax: +2741-581-0440

Spain – Barcelona
Phone: +34-93-291-0330
Fax: +34-93-201-7879

Sweden – Upplands Väsby
Phone: +46-8-50-72-50-00
Fax: +46-8-50-72-50-01

Switzerland – Steinach
Phone: +41-71-447-0447
Fax: +41-71-447-0444

Turkey – Istanbul
Phone: +90-212-281-8181...3
+90-212-282-5130/5430
Fax: +90-212-281-8184

Ukraine – Kiev
Phone: +380-44-206-2265
Fax: +380-44-206-2264



tyco

Electronics

Tyco Electronics AMP GmbH
AMPèstr. 12-14 • 64625 Bensheim
Phone: +49-(0)6251-133-0
Fax: +49-(0)6251-133-1600
www.tycoelectronics.com

a vital part of your world

© 2005 Tyco International
1654260-1 Issued 10-2005 7M ST