

# Other Backplanes and Boards

## CompactPCI Express

- Complies to PICMG EXP.0 R1.0 specification
- PCI Express over 3U CompactPCI form factor
- System slot-two ZD and one enriched 2mm HM, power connector
- Type 2-one ZD and the one enriched 2mm HM
- The Type 2 slots can be converted to hybrid cPCI/PCIe
- Controlled-Impedance stripline design
- RoHS compliant versions also available
- 4-slot version uses power nuts, 6-slot version uses M4 power bolts

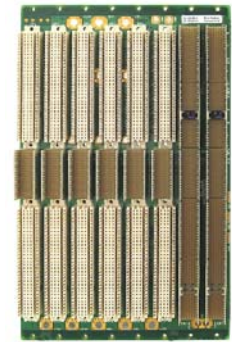
**Order Number:** 1900001476 (4-slot), 1900001737 (6-slot)



## VITA 31.1

- 10/100/1000BASE-T Ethernet switched network on a VME64x backplane
- 2 redundant VITA 31.1 Fabric Slots, right side of backplane
- 6 VITA 31.1 Node Slots
- Increase bandwidth and reliability
- Switches 100% compatible to PICMG 2.16
- Standard VME64x / cPCI connectors
- Automatic active Daisy Chain
- Passive inboard termination (basic current consumption 1.5A)
- Power input: M3/M4 power bolts (M3/M4 cable lugs, washer and nuts enclosed)
- 10-layer construction
- ANSI/VITA 1.1-1997 VME64x Standard compliant
- According to VITA 1.7 Increased Current Level For 96 Pin & 160 Pin DIN/IEC Connector

**Order Number:** 1900001484



## Miscellaneous Backplanes & Boards

- Backplanes in ISA, PXI, PCI-X, PCI, ISA and more
- ISA available in 4, 6, 8, 12 and 14 slots
- Busbar Kits – For VME, VXI, VME64x and custom applications. Can be cut to various sizes
- Daisy Chain Modules (Jumper Boards) – Fills unused slots in the system and deflects airflow. Available in various chassis depths and heights.
- VME J0 Connector Mounting Boards - in 2-21 slots. Completely user definable
- Terminators - VME J1 and J2 off-board terminators
- PXI, PCI-X Backplanes – See custom versions on PXI and PCI-X pages on Elma Bustronic's Web site



## Rear Transition Module (RTM)

- For VXS, VME/64x, cPCI, ATCA, VPX and other architectures
- Elma Bustronic offers unique rear I/O and RTM solutions VXS and VPX
- Design and contract assembly services available
- Sizes in 3U x 80mm, 6U x 80mm, 8U x 80mm and more

## Universal VPX RTM Breakout Board

- 6U x 80 mm RTM format
- Designed to meet VITA 46.10 for VPX RTM modules
- Supports 2 Level Maintenance per VITA 46.0 section 4.5
- 10-layer design
- Breakout for all signals possible depending upon connector configuration
- All the available RTM signals from connectors rJ0-rJ6 are broken out to .010" x .010" grids of solder pads
- Front panel and injector/ejector optional, with all necessary holes provided
- Strain relief holes provided directly behind the front panel mounting location for clamping bar or wire-ties



# Test Extender Boards - VME, VME64x, VPX, VXI, VXS



## Features

- Designed to meet mechanical and electrical connection requirements of latest ANSI/VITA standards
- All J1 (and J2) connector pins can be individually switch isolated
- Test points for all 96 or 160 pins of J1 and J2
- Optional J0 connector available for VME64x
- Designed for use in 160mm and 220mm chassis
- Rugged card guide handles most legacy VME products

## Board Specifications

VME, VXI - 8-layer stripline design  
 VME64x - 12-layer stripline design  
 PCB UL recognized 94V-0  
 PCB FR-4 or equivalent  
 PCB .062"

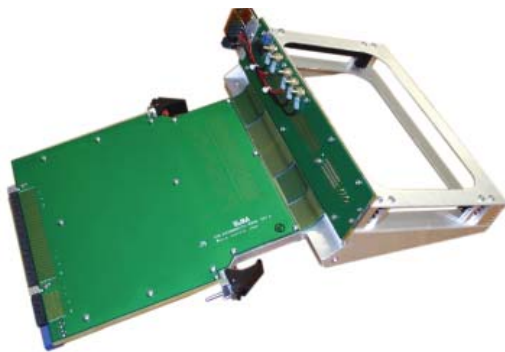
## Mechanical Specifications

VME64x - 6U x 220mm  
 VME - Can be assembled in any combination to make 3U, 6U, 9U, or 12U configurations  
 VXI - 6U x 340mm  
 All J1, J2 and J0 connectors are DIN, class II

Elma Bustronic test extender boards comply with the mechanical and signal connection requirements of the latest ANSI/VITA standards. The extender boards are designed to bring a circuit card completely out of a card cage or enclosure so that it can be tested or debugged. This provides access to both sides of the test board. There are test points for all of the lines on each 96 pin (VME, VXI) or 160-pin (VME64x) connector. Each signal, power, and ground line can be individually isolated with the DIP switches. The extender boards accommodate use in 160mm and 220mm chassis. The rugged card guide handles securely hold the test board, ensuring a reliable connection. The +5U, ±12V, 3.3V, and GND pins for VME64x are tied to their respective planes.

## ORDER INFORMATION

Type	Height	Length	Order Number
VME64x (no P0 connector)	6U	220mm	116EXT6122-012X
VME64x (with P0 connector)	6U	220mm	116EXT6122-0125
VME	3U	200mm	111EXT3122
VME	6U	200mm	111EXT6122
VME	9U	200mm	111EXT9122
VME	3U	400mm	111EXT3140
VME	6U	400mm	111EXT6140
VME	9U	400mm	111EXT9140
VXI	6U	340mm	113EXT6134-012X



## Features - VXS, VPX

- Conforms to VITA 41.0 VXS or VITA 46 VPX backplane specifications
- Controlled impedance rigid-flex-rigid design
- Alignment keying headers provided for extender and plug-in card
- 100 Ohm differential pair routing
- J1 signals are single-ended signals and run point-to-point across the extender (VPX version)
- Mechanical frame supports 6U, 160mm plug-in card
- Signal rate: 3.125 Gb/sec
- Current monitor on +5V power (VXS version)
- **Order Number:**
  - 118EXT6024-0XXX (Payload)
  - 115EXT6024-0XXX (Switch)
  - 119EXT6024-05XX (6U VPX)
  - 119EXT3024-07XXR (3U VPX)

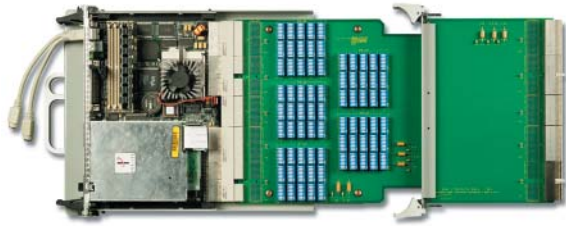
## Board Specifications

10-layer stripline design  
 PCB UL recognized 94V-0  
 PCB Material: FR4 rigid, polyimide flex  
 PCB .080" thick

## Mechanical Specifications

6U x 240mm

# Test Extender Boards - cPCI, ATCA, uTCA



Shown with cPCI board inserted into the extender

## Features - cPCI

- Designed to meet latest PICMG specification
- External ground planes for mechanical protection and EMI/RFI shielding
- IEEE 1101.10 compatible injector/ejector handles
- Test points for all lines on each 2mm HM connector in P1-P5 can be individually switch isolated
- Metal frame securely holds test board in place
- **Order Number:** 117EXT6116-0XXX

## Board Specifications

12-layer stripline design (cPCI)  
PCB UL recognized 94-V0  
PCB FR-4 or equivalent  
PCB .062" thick

## Mechanical Specifications

6U x 400mm

Elma Bustronic CompactPCI test extenders comply with the mechanical and signal connection requirements of PICMG 2.0 Rev. 3.0. The cPCI extender boards bring a circuit card completely out of a card cage or enclosure so that it can be tested or debugged. This provides access to both sides of the test board. There are test points for all of the lines on each 2mm HM connector in P1-P5. Each line in rows A-E of the 2mm HM connector can be individually isolated with the DIP switches. The cPCI extender board accommodates use in 6U x 400mm chassis. The secure metal frame firmly holds the extender board to the test board. It also has ejector/injector latches, allowing the extender board to lock into the chassis.

Additional features include high and low frequency decoupling capacitors, five signal layers and seven power and ground planes. Elma Bustronic test extenders are designed to maximize performance, minimize noise and give the customer the most accurate test results possible.



## Features - ATCA

- Mechanical extension of boards outside the chassis for testing
- Metal frame securely holds test board in place
- Designed to meet mechanical and electrical connection requirement of PICMG Rev. 3.0
- External ground planes for mechanical protection and EMI/RFI shielding
- The injector/ejector handles provide a secure and reliable connection to the chassis
- **Order Number:** 114EXT8040-0XXX

## Board Specifications

10-layer stripline design  
PCB UL recognized 94-V0  
PCB FR-4 or equivalent  
PCB .062" thick

## Mechanical Specifications

8U x 711.2mm

The AdvancedTCA extender board extends both the power and IPMB (Intelligent Platform Management Bus) signals. With a 10-layer stripline design, the extender is designed for the full populated fabric slot (5 ZD connectors, P20 thru P24) and the power connector J10. The Zone 3 section is served by a blind board assembled to Zone 1+2 through the frame. The flexible design of the Zone 3 area allows for customization with minimum costs, by simply changing the blind board the required configuration. The complete keying system, including the Zone 3 area is assembled.



## Features - uTCA

- Complies with MicroTCA.0, AMC.1 R1.0, AMC.2 D0.96A
- Extends board outside of the card cage for easy test or de-bug
- Extends all fabric signals, 3 clock lines
- Virtually zero power consumption
- Metal frame securely holds test board in place
- Virtually zero power consumption
- Management and payload power can be individually switch isolated
- **Order Number:** 026-505

# Rear Extender Boards - cPCI



## Features

- Compliant to PICMG 2.0 Rev. 3.0 specifications
- 6U x 180mm form factor
- Extends rear I/O signal
- 12-layer controlled impedance stripline design
- Injector/ejector latches provide easy insertion and removal
- PCB FR-4 or equivalent, 0.125" thick

## Order Information

Type	Height	Length	Order Number
cPCI Rear	6U	180mm	117FFE6018-0XXX

# Form Factor Extenders



## Features

- Versions for VME, VME64x
- Allows boards of different depths to be used in the same depth card cage
- Outer ground planes for mechanical protection and EMI/RFI shielding
- Available in multiple sizes: 3U x 60mm, 6U x 60mm, 6U x 120mm, 6U x 180mm
- High performance stripline design

## Order Information

Type	Height	Length	Order Number
VME	3U	60mm	111FFE3006-01XX
VME	6U	60mm	111FFE6006-012X
VME	6U	120mm	111FFE6012-012X
VME	6U	180mm	111FFE6018-012X
VME64x	6U	60mm	116FFE6006-012X
VME64x	6U	180mm	116FFE6018-012X
VME64x (w/ P0 connector)	6U	180mm	116FFE6018-0125

# Load Boards - VME/VME64x, cPCI, AMC, VPX



## Features

- Conforms to electrical and mechanical connections latest VME, VME64x, cPCI, AMC or VPX specifications
- Verifies chassis can meet power requirement and specifications
- Aids in locating hot spots in the chassis
- Visual GO-NO GO indicators for +5V, +3.3V, +12V, -12V VME primary test points +V1, +V2, -V1, -V2, ACFAIL, SYSRESET, SYSFAIL, and GROUND
- cPCI primary voltage test points are V I/O, PRST#, FAIL#, and GND
- Power supply loading can be controlled with front panel switches

Developed to enhance testing of VME, VME64x, cPCI, AMC and VPX systems the load boards aid the system designer in assuring adequate chassis cooling and verifying that the chassis is capable of meeting the power requirements of the system (or VITA, PICMG specs). Predominantly used by chassis manufacturers and system developers, the load board provides significant time and expense savings by assuring a system's operating specifications. The load board functions to test a system's cooling capabilities by first applying the load to the power supply for verification and finally creating the necessary heat to confirm chassis cooling. By locating hot spots in the chassis, a system designer can verify where to optimally redirect the airflow to prevent overheating. The load board increases productivity by quickly and accurately characterizing systems at low cost. In addition, the cPCI load board offers power supply loading that utilizes binary switches to impose a load ranging from 0 to 7 amps of the primary load. This feature is also used for thermal characterization.

The AdvancedMC™ load board is dedicated for testing the cooling and power of MicroTCA systems. Single module/full size is standard with options for double modules and compact or mid sizes. The board is hot swap pluggable and has IPMI support. The load is configurable in to seven wattages: 0W, 20W, 30W, 40W, 50W, 60W and 70W. Six LEDs on the front panel indicate which power level is activated. If all LEDs are off, the power is 0W. Custom wattages and access management is available upon request.

## PCI Test Point Chart

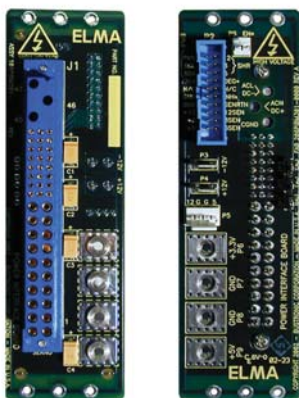
Switch	+5V	+3.3V	+12V	-12V	V I/O:+5V	V I/O:+3.3V
000	off	off	off	off	off	off
001	1 A	1 A	0.1 A	0.1 A	5.0 A	3.3 A
010	2 A	2 A	0.2 A	0.2 A	2.5 A	1.7 A
011	3 A	3 A	0.3 A	0.3 A	7.5 A	5.0 A
100	4 A	4 A	0.4 A	0.4 A	1.3 A	0.8 A
101	5 A	5 A	0.5 A	0.5 A	6.3 A	4.1 A
110	6 A	6 A	0.6 A	0.6 A	3.8 A	2.5 A
111	7 A	7 A	0.7 A	0.7 A	8.8 A	5.8 A

## VME Test Point Chart

Switch	+5V	+3.3V	+12V	-12V
000	off	off	off	off
001	1 A	1 A	0.1 A	0.1 A
010	2 A	2 A	0.2 A	0.2 A
011	3 A	3 A	0.3 A	0.3 A
100	4 A	4 A	0.4 A	0.4 A
101	5 A	5 A	0.5 A	0.5 A
110	6 A	6 A	0.6 A	0.6 A
111	7 A	7 A	0.7 A	0.7 A

## Order Information

Type	Height	Length	Order Number
AMC (uTCA)	3U	180mm	1940000264-0000
cPCI	6U	160mm	1940000135-0000
VME/VME64x	6U	160mm	1940000140-0000
VPX	3U	160mm	1940000345-0000R
VPX (convection-cooled)	6U	160mm	1940000355-0000R
VPX (conduction-cooled)	6U	160mm	1940000376-0000R



## Features

- Designed to comply with power interface specification PICMG 2.11 Rev. 1.0
- Designed to comply with IEEE 1101.10 mechanical specification
- 3U and 6U, one or two pluggable 47-pin power connectors
- Interface to backplane via power bugs with 6/32 screws
- Header for voltage sense, current share (2 ps connector version) and IPMB interface compliant to system management specification PICMG 2.9 Rev. 1.0
- Power taps for +5V, 3.3V, GND and faston blades for +12V, -12V
- Utility (20-pin), aux/disk drive, and power switch connectors
- Geographical Addressing on the power supply connector is selectable

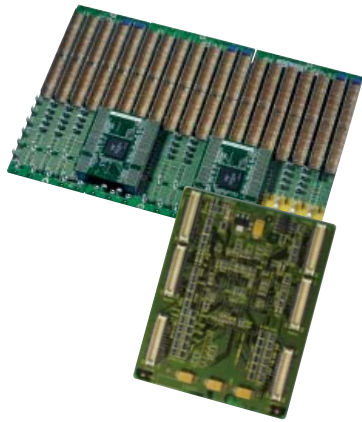
The Power Interface Boards are separate boards for the power section of the backplane. They are used to facilitate pluggable power supplies, headers, and utility connectors. Elma Bustronic's standard backplane lines utilize power taps and power studs, which are wired to the power supplies. With the PIBs, customers will be able to choose between Elma Bustronic's standard power interface and pluggable modules. The power boards come in standard 3U and 6U heights and contain one or two 47-pin Positronic hot-pluggable power supply connectors (Positronic PCIH47F9300A1-246.0), and a 20-pin header for voltage sense and IPMB interface (Thomas & Betts 609-2037 or equivalent). Two power taps are for +5V, two for 3.3V, and four for GND. There are also four Fast-on blades each for -12V and +12V (AMP 63650-1 or equivalent). (For the 1 ps connector version, reduce the number of power taps and faston blades listed above in half.) The PIB interfaces to the backplane via power bugs with 6/32 screws. The design also includes mounting holes, allowing the PIB to be securely fixed to the chassis.

Other features include an auxiliary/disk drive connector (TYCO 350424-1 or equivalent), and a power switch header (AMP/TYCO 640456-2 or equivalent). The sense lines help the power supply better regulate the power at the load end. The function header allows remote or local sense. For optimal power regulation, remote sense is recommended. The current share lines allow multiple power supplies to share current, either on one PIB (with two power supply connectors) or between multiple PIBs. The current share lines have to be connected if using more than one PIB. The Geographical Addressing is configurable through jumpers, with GAO, GA1, and GA2. (The 2 ps version has two sets of these jumpers.) The IPMB interface is compliant to system management specification PICMG 2.9 Rev. 1.0. The PIB is also designed to comply with the power interface specification PICMG 2.11 Rev. 1.0 and with the IEEE 1101.10 mechanical specification.

## Order Information

Height	Width	Power Supply Connectors	Order Number
3U	1.54"	single	106PIMB301-0000
3U(w/ AC pins)	1.54"	single	106PIMB301-9001
3U	3.13"	dual	106PIMB302-0000
3U(w/ AC pins)	3.13"	dual	106PIMB302-9001
6U	1.54"	single	106PIMB601-0000
6U(w/ AC pins)	1.54"	single	106PIMB601-9001
6U	1.54"	dual	106PIMB602-0000
6U(w/ AC pins)	1.54"	dual	106PIMB602-9001

# Bridges and Monitors



## Bridges - cPCI

- Low profile bridge enables the use of off-the-shelf rear transition modules
- Based on the Pericom P17C8154 PCI to PCI Bridge
- Compatible with the Intel 21154BE/AC/AE/BE and P21150 drivers
- Allows concurrent bus transfers on both PCI bus segments
- Accepts 32-bit or 64-bit, automatic detection of bus widths
- Accepts 33MHz or 66MHz bus frequencies
- Supports 3.3V or 5V input for bridge driver (onboard voltage regulator)
- Provides 7 clock signals for the secondary backplane
- Arbitration for 7 devices on the secondary backplane possible
- Version available for right or left-justified system slot

## System Configuration

- The bridge spans 4 slots
- System configurations with one bridge: 7 slot (primary) + 3-7 slot (secondary) backplane
- System configurations with one bridge: 7 slot (primary) + 7 slot (middle) +3-7 slot (tertiary) backplane. The configurations are for 33 MHz operation-fewer slots are supported with 66 MHz operation.

## Order Information

Height (mm)	Width (mm)	Thickness (mm)	Order Number
95.13	74.81	1.8	1940000260-0000R (Left)
95.13	74.81	1.8	1940000260-0001R (Right)



## System Monitor OnlinePro

- Up to 8 voltages
- Monitors up to 14 temperature sensors
- Monitor and control up to 12 fans
- Ethernet interface: TCP/IP HTTP, Telnet protocol supported
- RS232 interface
- User configurable I/O pins

The SysMon OnlinePro is a platform independent system monitor for monitoring internal system conditions including temperature, voltage, fan rotation or power supply. The system monitor uses a 16-bit microcontroller with integrated 12-bit A/D converter. It has also a built-in web page allowing the user to monitor the system operation from any place with Internet connectivity. For fans with PWM regulation only!

## Order Information

Height	Width	Order Number
3U	TBD	024-974



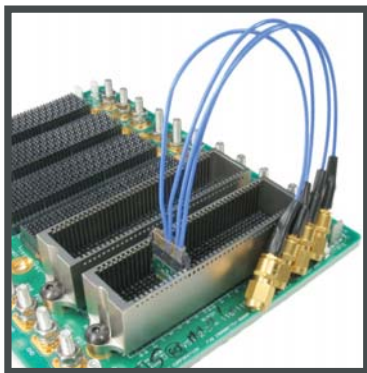
## Voltage Monitor - VME, VXI

- Monitors the status of +5V, +12V, -12V Remote
- LED display board with ribbon cable
- Over/Under voltage display format
- Compact size (approx. 4.0" x 1.5")
- Out-of-tolerance "FAIL" output

## Order Information

Height	Width	Order Number
4.0 in	1.5 in	1940000009

# VPX Cabling System



## VPX Cabling System

- Direct connection alternative to RTM solutions for VPX
- Compatible with the latest VITA 46.0 specifications
- For use in deployed or development/test applications
- Pulls signals from slot to slot and/or chassis to chassis with virtually zero signal degradation
- Fully scalable & stackable to meet application needs
- Versions for either front or rear backplane plugging
- Plug directly into backplane to SMA or other contacts for signal test setups
- Resistant to shock and vibration
- Can be used for out-of-band communication

The VPX cabling system is the industry's first direct cabling system for the VPX architecture. Compliant to the latest VITA 46 and VITA 65 specifications, the cabling system can be used for I/O to bulkhead connectors, slot-to-slot connections, and out-of-band communication. The cabling solution can also be used for system development. The direct cabling system also has front-plug versions, which allow testing across the backplane or full interconnect path.

### Order Information

Contact factory for order information.

# SerDes Test Devices



## SerDes Test Devices

- Multilane differential serial fabric test unit
- Flexible design allows signal analysis for various architectures (VPX, ATCA, VXS, etc.)
- Lab-on-board eliminates need for acquiring a whole rack of equipment
- Directly evaluate true Gbps serial link BER performance
- Test and characterize entire multi-lane serial fabric (PCIe, sRIO, GigE) with one device
- Achieve lowest cost of test and fastest time to market
- Can be used for testing both line cards and backplanes
- Test up to 16 channels at once, up to 6.4 Gbps
- Perform pre-emphasis tuning

The adoption of serial link technology in VPX and ATCA poses significant debug, characterization, and test challenges. The BTSD16 is an ultra low cost multi-lane Gbps serial test device that achieves unprecedented density and performance. With the BTSD16, you do not need to purchase equipment such as oscilloscopes, pattern generators, jitter analyzers, BERTs, clock generators, and analog function generators for higher speed testing. The device allows the user to characterize the PCIe, Gig E, sRIO, XAUI, or SATA ports quickly and efficiently. Speeds to KX and KX-4 are currently covered by the module, with a roadmap to KR levels. The BTSD16 uses cabling in the VPX, ATCA or other architectures. The unit is connected to a VPX backplane using a 24" VPX cable (full fat pipe connection wafer to SMA contacts and SMA adapter).

### Order Information

Description	Channels	Order Number
BTSD16 Test Module with 2x VPX Cables (24", wafer to SMA & SMA adapter)	16	1940000511-0000
BTSD16 Test Module without cables	16	1940000508-0000
VPX Test Cables (1 set)	n/a	Contact Factory