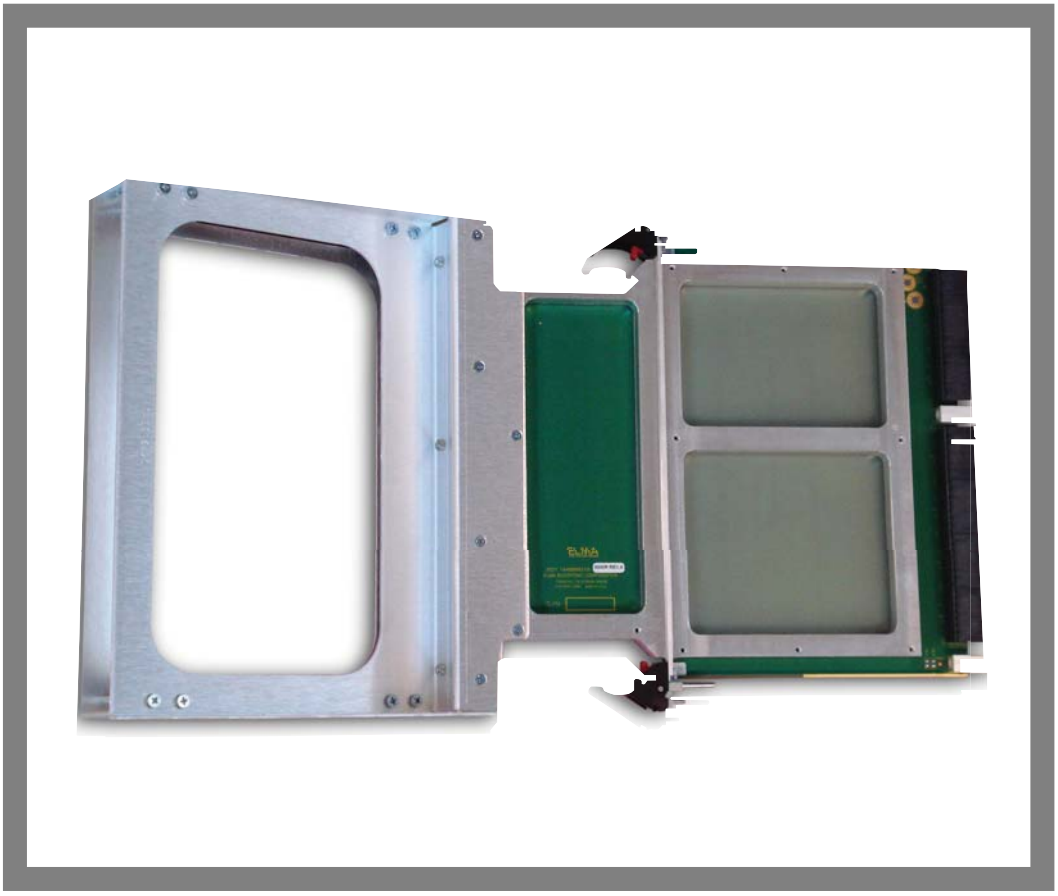
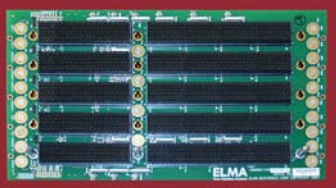
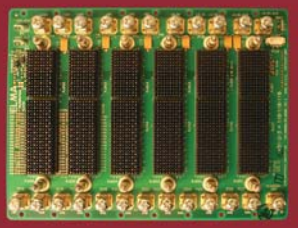
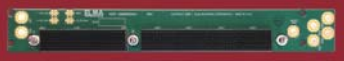
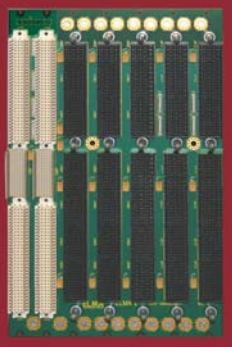










Elma Bustronic VPX Test Extender

User Manual

VPX
OpenVPX

ELMA
Your Solution Partner

6U VPX Extender User Manual

Elma Bustronic used creative engineering to solve a major problem in developing the VPX Extender Board - the lack of a right angle receptacle for VPX in the marketplace. So, the company produced a rigid-flex-rigid PCB design to get around the problem. The solution entails a right angle pin connector that plugs into the backplane, connected to a flex circuit that wires to the straight receptacle to receive the plug-in board. The VPX 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 differential pairs on the MultiGig fabric connector for the hub slots. The VPX extender boards come in a 10-layer stripline design for the rigid PCB and microstrip design for the flex circuit portion. Also featured is an ampmeter, which measures the current and has a digital indicator on the front panel showing the status.

Features

- Conforms to VITA 46.0 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 differential signals and run point-to-point across the extender
- Mechanical frame supports 6U, 160mm plug-in card
- Frame has injector/ejector latches for plug-in card
- Signal rate: 3.125 Gb/sec
- +5V on/off switch
- Voltage monitor on VS1 and VS2 power
- Frame has injector/ejector latches to hold extender securely to chassis

Mechanical Specifications

- 6U height
- 240mm
- Multi-Gig RT-2 connectors

Board Specifications

- 10-layer board
- PCB UL listed 94V-0
- PCB .080" thick
- PCB Material: L24 Type GFN

Handling/ESD

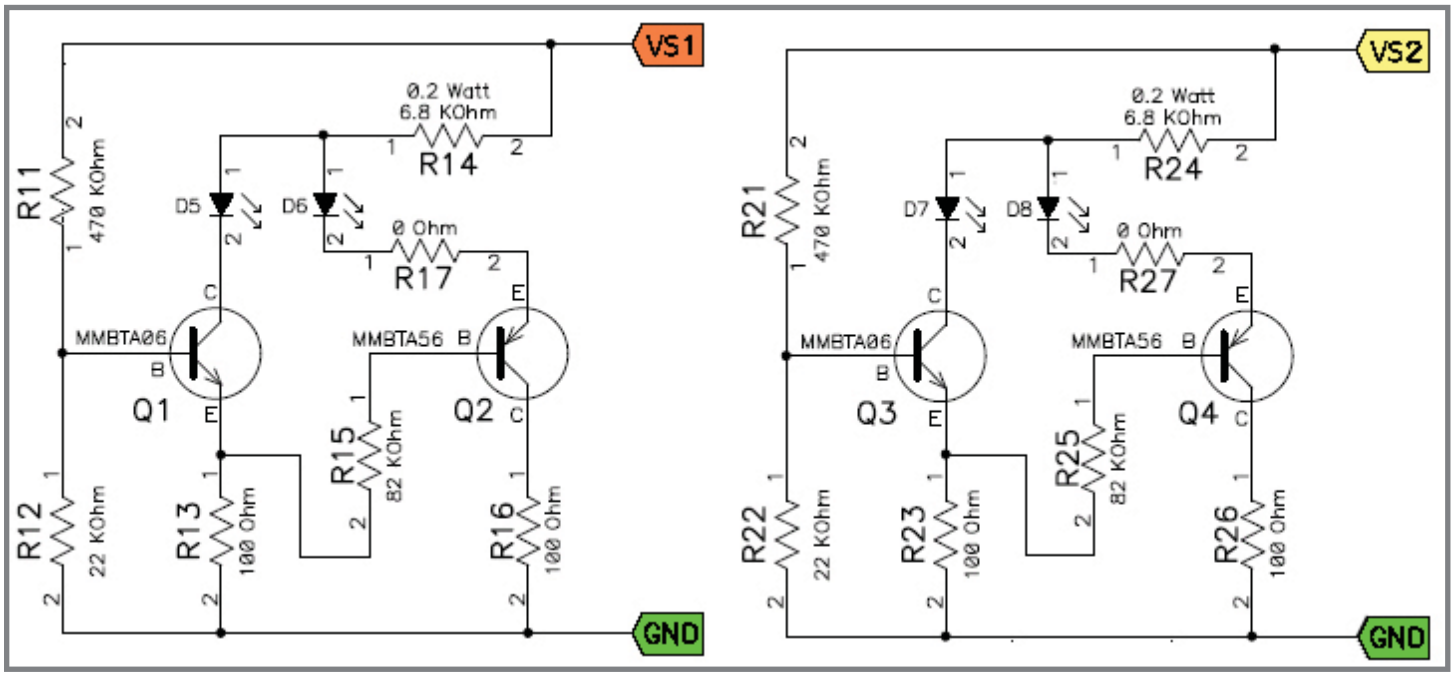
Handle with care. Electro-static discharge (ESD) sensitive components are used on the extender board.

6U VPX Extender User Manual

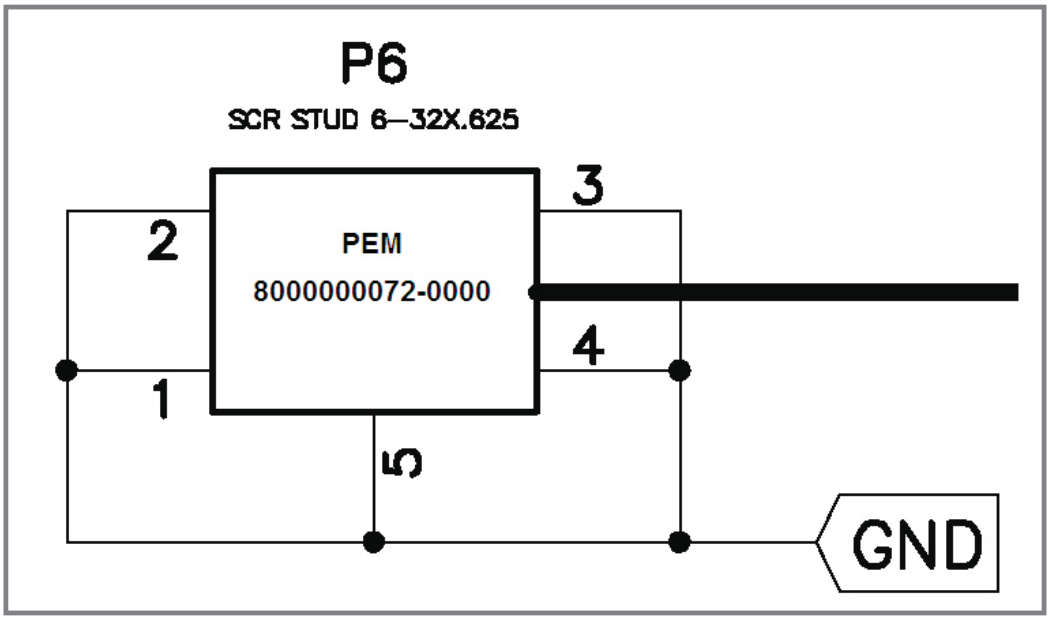
Elma Bustronic uses a rigid-flex-rigid PCB design to eliminate the need for a right of a right angle backplane connector that is not available as part of the MultiGig connector family.

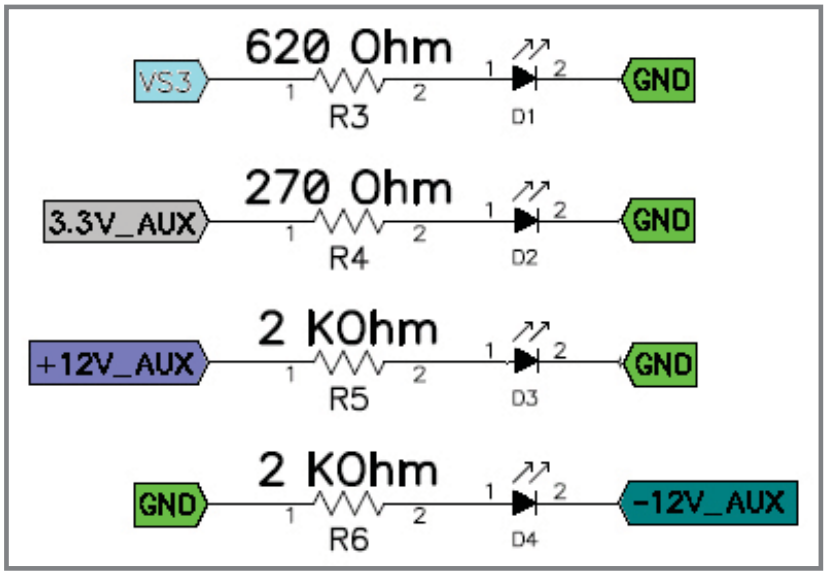
The VPX Extender board's rigid PCB is a 10-layer strip-line design and an 8-layer micro strip design for the flex circuit portion.

Two voltage sensing circuits serve as volt-meters to measure the voltages being supplied to the DUT. For each power voltage there are two LED's indicating the presence of 12V or 48V voltages.



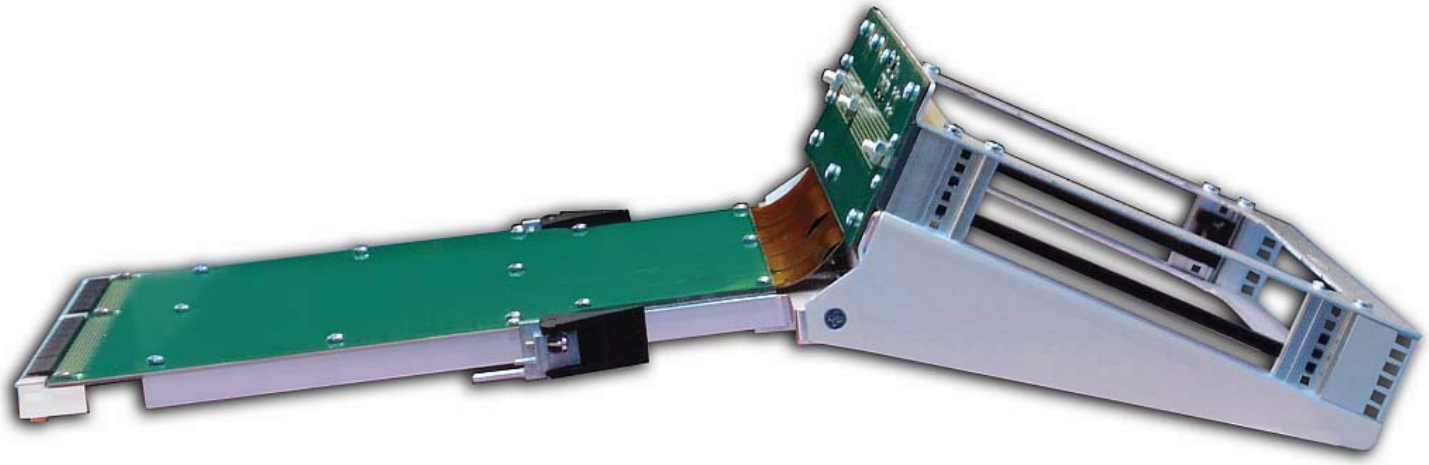
6-32 PEM Studs provide input to each voltage plane.



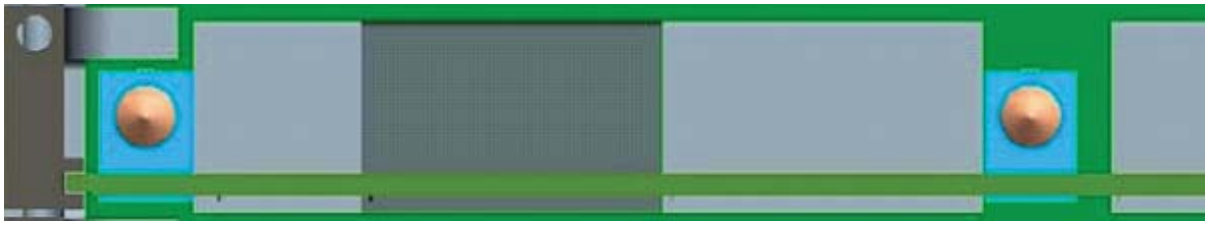


A series of shunts provides a way to interrupt any one of the links in the J1 fabric channels.

A right angle daughter card connector connects the extender to the backplane and a vertical receptacle connector on a flex circuit allows the backplane connector to be positioned to accept a blade under test almost in line with the extender card assembly.

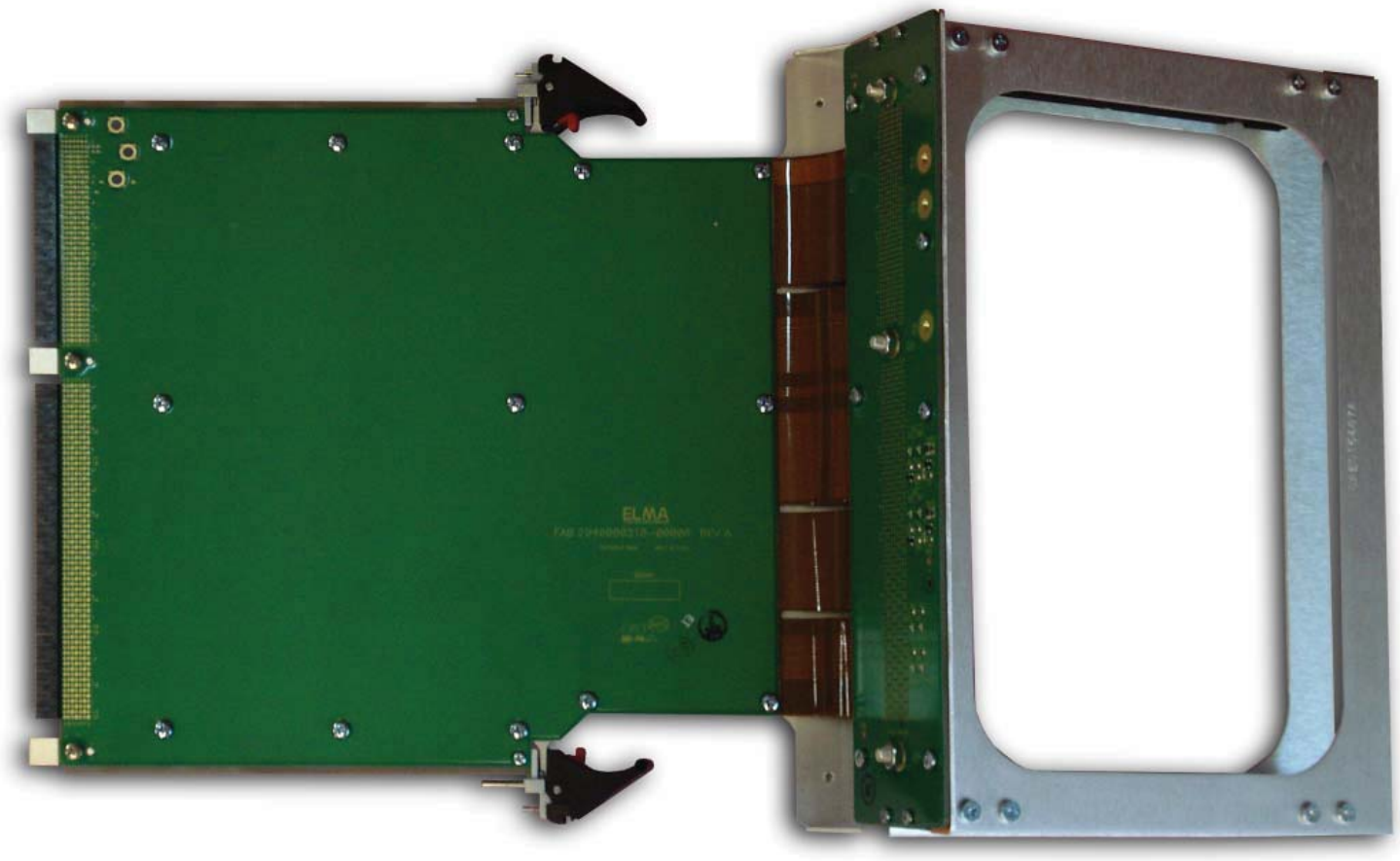


The VPX extender boards are designed to bring a circuit card completely out of a card cage or enclosure so that it can be tested or debugged. This provides access to both sides of the test board. Both the backplane interface and the D.U.T. interface of the extender card provide an alignment key as defined within ANSI-VITA 41.0.



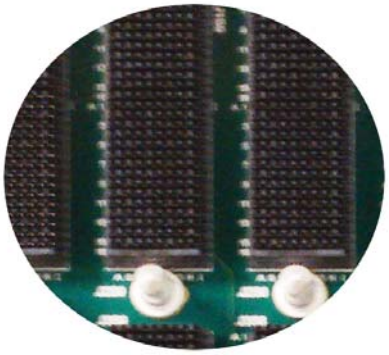
6U VPX Extender User Manual

This is a rear view (below) showing the portion of the extender card (left side) that installs into the VPX chassis. It is equipped with standard card injectors/ejectors and can be locked into place with standard hardware in the same way that any VPX card would be installed. The metal structure (right side) recreates the backplane slot and accepts the 6U VPX card to which the user wishes have probe access.



Connectors

MultiGig RT-2



Ratings	
Operating Voltage:	50 Volts AC peak or DC
Current:	1 ampere at <30/C (single circuit, free air)
Temperature:	-55 to 105/C
Low level contact resistance, circuit:	80 milliohms maximum initial 5 milliohms maximum average increase 10 milliohms maximum individual increase
Low level contact resistance, compliant pin:	1 milliohm maximum intital 1 milliohm maximum change
Insulation resistance:	1000 megohms minimum
Withstanding voltage:	1 minute hold with no breakdown or flashover
Temperature rise vs. current:	30/C maximum temperature at 1 ampere load, single circuit in free air using thermography
Mechanical	Vibration, sinusodial:
Mechanical Vibration:	No discontunuities of 1 microsecond or longer duration
Mechanical Shock:	No discontunuities of 1 microsecond or longer duration
Mating Force:	0.75 N [2.7 ozf] maximum per contact. Average for entire connector.
Unmating Force:	0.15 N [.57 ozf] minimum per contact. Average for entire connector.
Compliant pin inserton:	31 N [7 lbf] maximum per pin average
Compliant pin retention:	13.35 N [3 lbf] minimum

VME64x (160-pin DIN) - See VME Reference Sheet

Power Stud 8-32

Current Rating:	Up to 40 A @ 30 C rise
Surface Treatment:	Tin overall
Style Designator:	86 knurled shank
Head Diameter:	0.230 inches nomial
Overall length:	0.615 inches minimum and 0.635 inches maximum
Thread Length:	0.545 inches maximum nut thread
Locking Feature:	Knurled shank