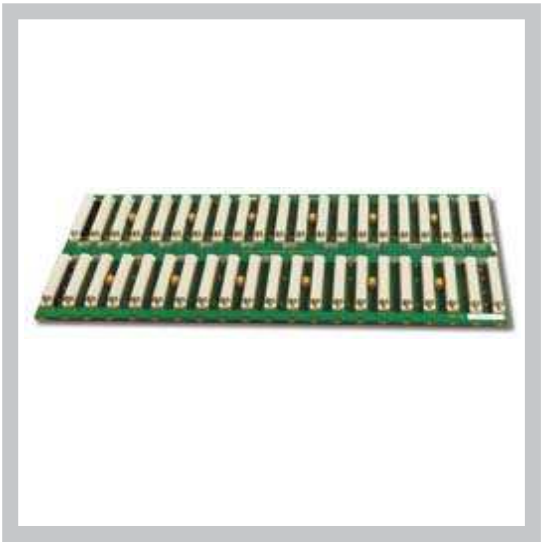
# J1 + J2 MONOLITHIC BACKPLANE

ELMA
Your Solution Partner



## Features

- Exceeds ANSI/VITA 1-1994 and IEEE P1014 specification
- Computer simulations utilized for design optimization
- Onboard, inboard termination
- Superior power distribution utilizing 2 oz. copper power and ground planes
- Virtually zero crosstalk
- Outer ground layers for mechanical protection and EMI/RFI shielding
- Optional BUSGRANT/IACK daisy chain connectors
- Optional high current busbar set

## Board Specifications

- 8-layer stripline design
- 2oz. copper power and ground
- PCB UL recognized 94V-0
- PCB FR-4 or equivalent
- PCB .125" thick

## Mechanical Specifications

- 6U height
- 2-21 Slots

## Description

All Elma Bustronic backplanes are designed to maximize performance, minimize noise, and to give the customer the most reliable, cost effective product possible. To achieve this we used 8-layer construction, stripline design, decoupling capacitors at every slot, inboard terminators, heavy power and ground planes, transient analysis simulation programs, and years of experience designing, building, and using backplanes. Although the design could have been done with four layers, we chose to use eight layers so that we could have three layers of ground, two layers of VCC, and three separate signal layers.

Three 2 oz. copper ground layers are used to fully shield the backplane to minimize RFI/EMI emission/susceptibility, to minimize crosstalk, and to maximize power distribution. Furthermore, the outer ground layers serve to prevent signals or VCC from being exposed where they could be shorted or damaged.

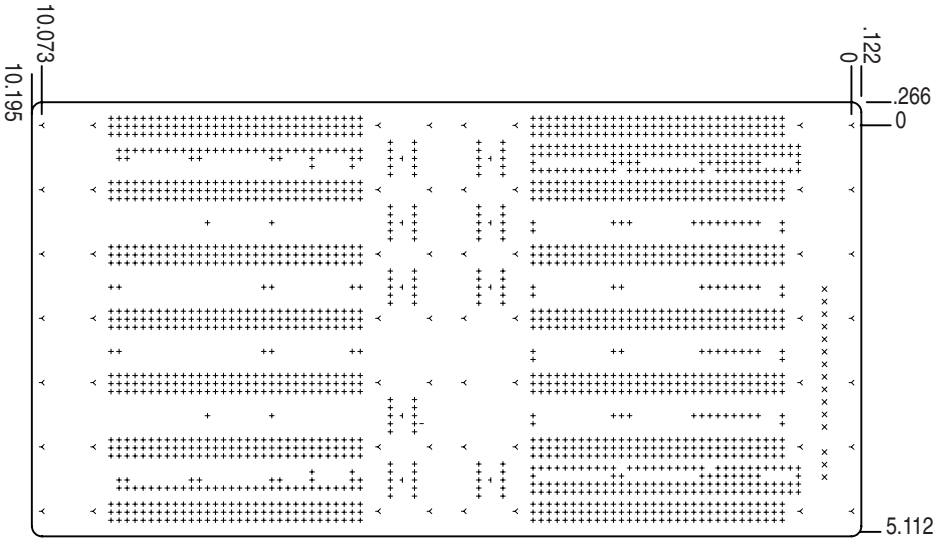
Two 2 oz. copper VCC layers are used to maximize power distribution and to act as virtual ground planes for the signals in order to minimize noise and crosstalk. The high frequency decoupling capacitors at every slot and distributed low frequency electrolytic capacitors throughout the board also help this effort. Measured results verify that Elma Bustronic backplanes are among the quietest in the industry.

The combination of multiple heavy layers of VCC and ground and the many distributed the Elma Bustronic backplanes to have superior power distribution as verified by measured comparison with our conveniently distributed power bugs compatible with simple but effective busbars. For lightly loaded backplanes, power can be inserted through the Friction-Lock (AMP MTA) connectors. All status signals such as ACFAIL, RESET, and SYSFAIL are also available on that same connector.

Stripline construction is used exclusively for the highest possible performance. By utilizing stripline construction only, we eliminate a severe source of RFI/EMI radiation and make all signals have similar characteristic impedances, virtually identical propagation delays,and minimum signal skew. This in turn allows significantly higher data transfer rates since signal skew factors four times into the transfer rate calculations.

# J1 + J2 VME MONOLITHIC BACKPLANE

## Line Drawing




## Order Information

| Slots | Width (in.) | Height (in.) | Part Number |
|---|---|---|---|
| 2 | 1.555 | 10.317 | 101VMEM102 |
| 3 | 2.200 | 10.317 | 101VMEM103 |
| 4 | 3.000 | 10.317 | 101VMEM104 |
| 5 | 3.800 | 10.317 | 101VMEM105 |
| 6 | 4.600 | 10.317 | 101VMEM106 |
| 7 | 5.400 | 10.317 | 101VMEM107 |
| 8 | 6.200 | 10.317 | 101VMEM108 |
| 9 | 7.000 | 10.317 | 101VMEM109 |
| 10 | 7.800 | 10.317 | 101VMEM110 |
| 11 | 8.600 | 10.317 | 101VMEM111 |
| 12 | 9.400 | 10.317 | 101VMEM112 |
| 13 | 10.200 | 10.317 | 101VMEM113 |
| 14 | 11.000 | 10.317 | 101VMEM114 |
| 15 | 11.800 | 10.317 | 101VMEM115 |
| 16 | 12.000 | 10.317 | 101VMEM116 |
| 17 | 13.400 | 10.317 | 101VMEM117 |
| 18 | 14.200 | 10.317 | 101VMEM118 |
| 19 | 15.000 | 10.317 | 101VMEM119 |
| 20 | 15.800 | 10.317 | 101VMEM120 |
| 21 | 16.600 | 10.317 | 101VMEM121 |

# PRODUCT CONFIGURATIONS

## VME J1+J2 Monolithic Backplanes

**(Example: 101VMEM121-0500R)**

| 101 | Product | Form | Slots | -_ _ _ _ _Configuration |
|---|---|---|---|---|

**Product**
VME

**Form**
**M1 =** Monolithic, 6U

**02-21 =** Slots

**Configuration**

**Power Interface**
**0** = 10 pin power tap with 6/32 screw
**1** = M4 threaded stud
**2** = 10 pin power taps with busbar kit
**8** = Not applicable

**J0 and J1 Connector Tail Length if Applicable**
**0** = 13mm first and last slots, 6mm all other slots
**1** = 17mm first and last slots, 6mm all other slots
**2** = 6mm all slots
**3** = 13mm all slots
**4** = 17mm all slots
**5** = 13mm first and last slots, 6mm ADC all other slots
**7** = 96 pin, 6mm earless DIN
**9** = Not applicable
**C** = 96 pin, 6mm with ADC

**J2 and J3 Connector Tail Length if Applicable**
**0** = 96 pin, 13mm all slots
**1** = 96 pin, 17mm all slots
**2** = 96 pin, 6mm all slots
**X** = Not applicable

**Shrouds**
**0** = All slots shrouded where applicable
**1** = No slots shrouded
**2** = All J2 slots shrouded
**5** = J2, first and last slots
**6** = Locking shrouds where applicable
**7** = Locking shrouds J2 only

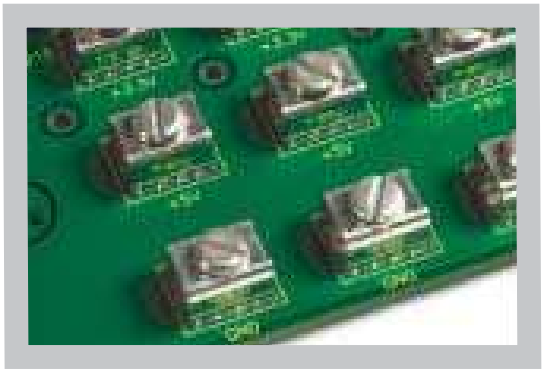
**RoHS Compliance**
**R** = RoHS compliant

## Common Configuration Examples

| | | |
|---|---|---|
| **-0000** | **-0221** | **-0500** |
| **-0000R** | **-0221R** | **-0500R** |

# J1 + J2 VME MONOLITHIC BACKPLANE

## Design Elements



Power Bugs

### Power Distribution

The versatile power distribution consists of power bugs at every other slot, an optional busbar may be installed directly across the power bugs without interfering with the mounting holes. In lieu of power bugs, studs may be installed. A 16-pin Molex connector is provided for power distribution and to provide control signal interfacing. High frequency decoupling capacitors are provided at every slot while low frequency decoupling is distributed throughout the PCB.

### Signal Layout

Onboard and inboard terminators are provided to reduce signal length and reduce possible signal reflections. A minimum stub length is utilized in routing and interconnecting to the terminators. The bus grant jumpers are arranged between each slot and are centered for easy installation and removal. All bus grant jumpers are accessible from the front and rear. Bustronic backplanes have been designed with the customers' system designs in mind in order to give the highest performance, reliability, and value in the industry.

### Automatic Daisy Chaining

Optional automatic daisy chain eliminates a major source of problems when configuring a VME system, while eliminating the need for access to the backplane.

### Mechanical Design

All mounting holes have adequate clearances for installation with metal hardware. All corners are rounded to allow installation into tight enclosures and prevent cables and wiring from snagging on the sharp corners. Power bugs and connectors are positioned to allow shrouds at each connector location for both J1 and J2. All slots and components are identified with easy to read silkscreen in yellow. A high quality soldermask is used to prevent chipping or scratches.

Busbar

Connector Keys


Screw Stud

Ejector shroud