J1, J2, J3 VME BACKPLANE

ELMA
Your Solution Partner

Features

- Exceeds ANSI/VITA 1-1994 and IEEE P1014 specifications
- 8-layer stripline design
- BUSGRANT/IACK daisy chain connectors on J1
- Superior power distribution
- Virtually zero crosstalk

Board Specifications

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

Mechanical Specifications

- 3U height
- 3-21 Slots

Description

For VME backplanes, 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 emissions and 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. Measured results verify that Bustronic backplanes are among the quietest in the industry.

The combination of multiple heavy layers of VCC and ground and the many distributed capacitors allows the Bustronic backplanes to have superior power distribution as verified by measured comparison with our competition. Furthermore, there are 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 and minimum signal skew. This in turn allows significantly higher data transfer rates since signal skew factors four times into the transfer rate calculations.

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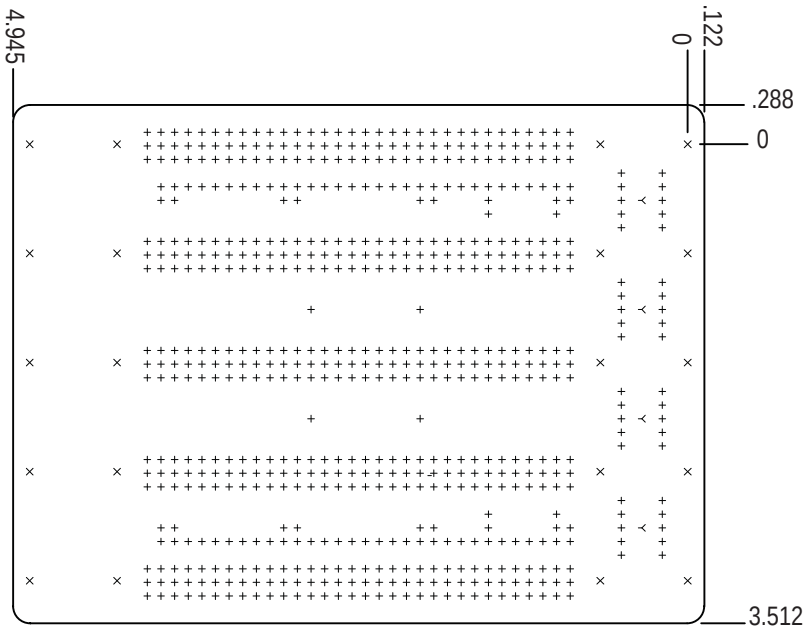
Line Drawing



Slots	Width (in.)	Height (in.)	Part # J1 Backplane	Part # J2 Backplane	Part # J3 Backplane	Part # J2 A+C Bussed
3	2.200	5.067	101VMEJ103	101VMEJ203	101VMEJ303	101SBPJ203
4	3.000	5.067	101VMEJ104	101VMEJ204	101VMEJ303	101SBPJ204
5	3.800	5.067	101VMEJ105	101VMEJ205	101VMEJ305	101SBPJ205
6	4.600	5.067	101VMEJ106	101VMEJ206	101VMEJ306	101SBPJ206
7	5.400	5.067	101VMEJ107	101VMEJ207	101VMEJ307	101SBPJ207
8	6.200	5.067	101VMEJ108	101VMEJ208	101VMEJ308	101SBPJ208
9	7.000	5.067	101VMEJ109	101VMEJ209	101VMEJ309	101SBPJ209
10	7.800	5.067	101VMEJ110	101VMEJ210	101VMEJ310	101SBPJ210
11	8.600	5.067	101VMEJ111	101VMEJ211	101VMEJ311	101SBPJ211
12	9.400	5.067	101VMEJ112	101VMEJ212	101VMEJ312	101SBPJ212
13	10.200	5.067	101VMEJ113	101VMEJ213	101VMEJ313	101SBPJ213
14	11.000	5.067	101VMEJ114	101VMEJ214	101VMEJ314	101SBPJ214
15	11.800	5.067	101VMEJ115	101VMEJ215	101VMEJ315	101SBPJ215
16	12.000	5.067	101VMEJ116	101VMEJ216	101VMEJ316	101SBPJ216
17	13.400	5.067	101VMEJ117	101VMEJ217	101VMEJ317	101SBPJ217
18	14.200	5.067	101VMEJ118	101VMEJ218	101VMEJ318	101SBPJ218
19	15.000	5.067	101VMEJ119	101VMEJ219	101VMEJ319	101SBPJ219
20	15.800	5.067	101VMEJ120	101VMEJ220	101VMEJ320	101SBPJ220
21	16.600	5.067	101VMEJ121	101VMEJ221	101VMEJ321	101SBPJ221

PRODUCT CONFIGURATIONS

VME J1, J2, J3 Backplanes

(Example: 101VMEJ121-0590R)

101	Product	Form	Slots	-_____Configuration

Product
VME

Form
J1 = 3U, J1
J2 = 3U, J2
J3 = 3U, J3

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
9 = Custom (-9XXX sequential Numbers)

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
6 = 160 pin, 17mm VME extension connector, all slots
7 = 96 pin, 6mm earless DIN
8 = 160 pin, 13mm VME extension connector, all slots
9 = Not applicable
A = 160 pin, 13mm F & L, 6mm ADC, all other slots
B = 160 pin, 17mm F & L, 6mm ADC, all other slots
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
6 = 160 pin, 17mm VME extension connector, all slots
8 = 160 pin, 13mm VME extension connector, all slots
9 = 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	-0500	-0590	-0900
-0000R	-0500R	-0590R	-0900R

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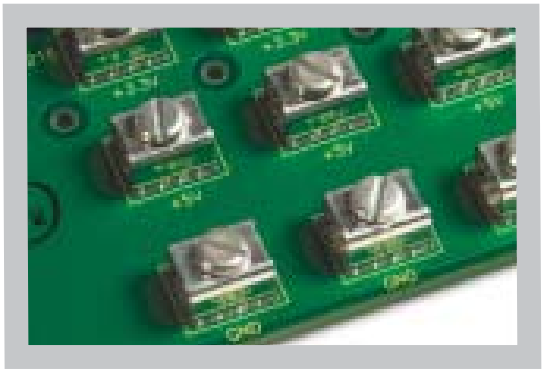
Design Elements



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

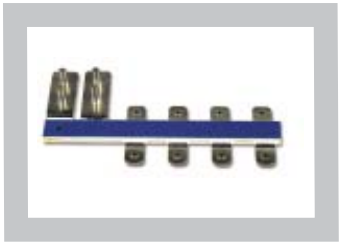
Onboard and inboard terminators are provided to reduce signal length and reduce possible signal reflections. A minimum stub length is utilized in routing and interconnecting to the terminators. The bus grant jumpers are arranged between each slot and are centered for easy installation and removal. All 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

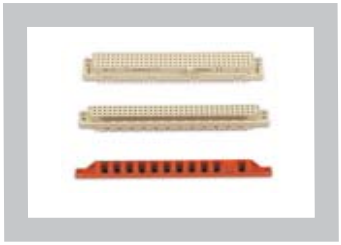
Optional automatic daisy chain eliminates a major source of problems when configuring a VME system, while eliminating the need for access to the backplane.

J2 Backplane A+C Bussed

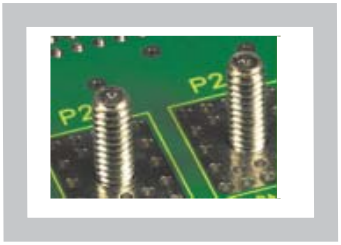
The J2 backplane with A+C rows bussed is another option. The A+C rows are bussed in all slots. Also, row B has onboard, inboard termination.



Busbar



Connector Keys



Screw Stud

Ejector shroud

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