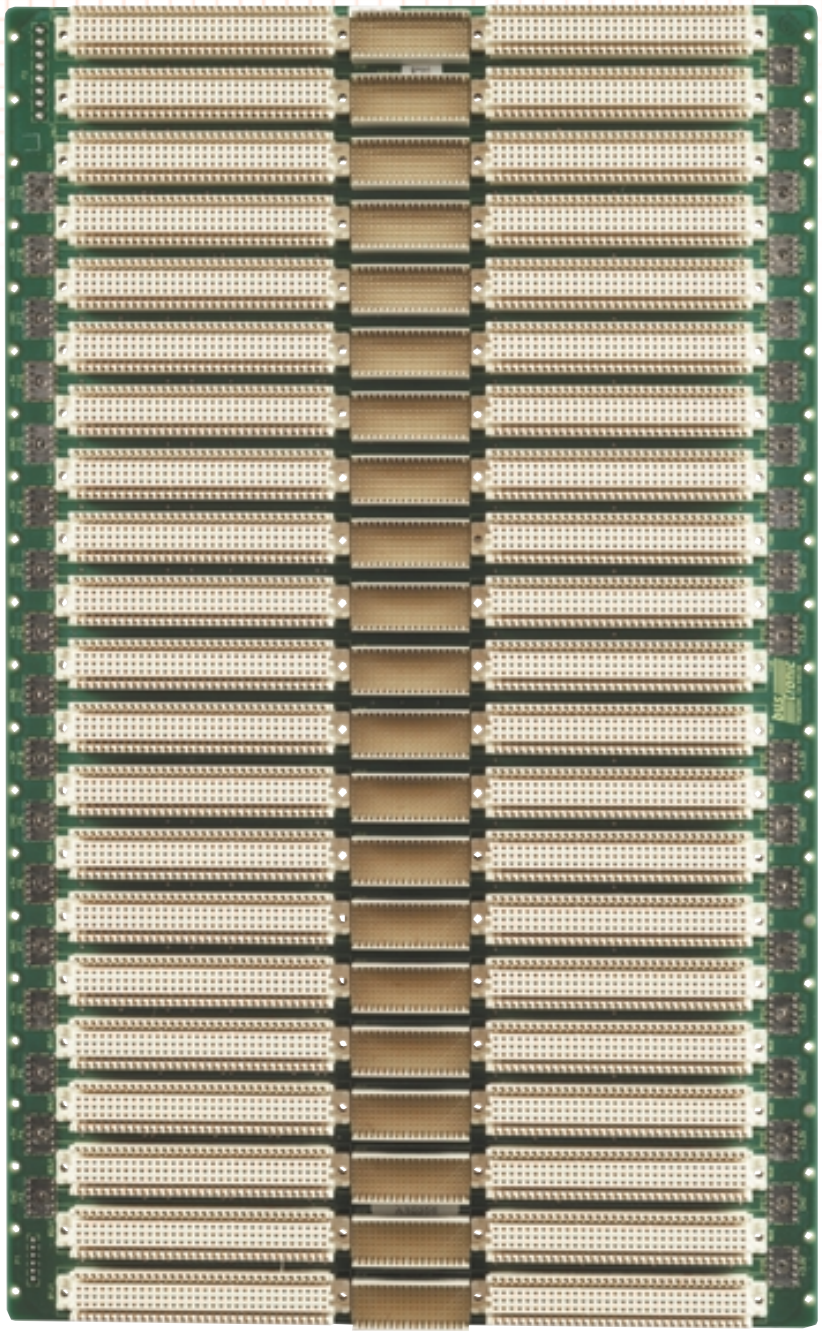
VME320 Backplane



Features

- True 320 Mbyte/sec. data rate, 8 times standard VME
- Exceeds ANSI/VITA 1-1994 and IEEE P1014 specifications
- Meets ANSI/VITA 1.1-1997, VME extensions standard
- Compatible with VME64x and VME legacy hardware
- 10-layer controlled impedance stripline designs for under 15 slots
- 14-layer high performance stripline designs for 15 slots and above
- Virtually zero crosstalk
- Patented by Arizona Digital and licensed by Bustronic Corp.

Mechanical Specifications

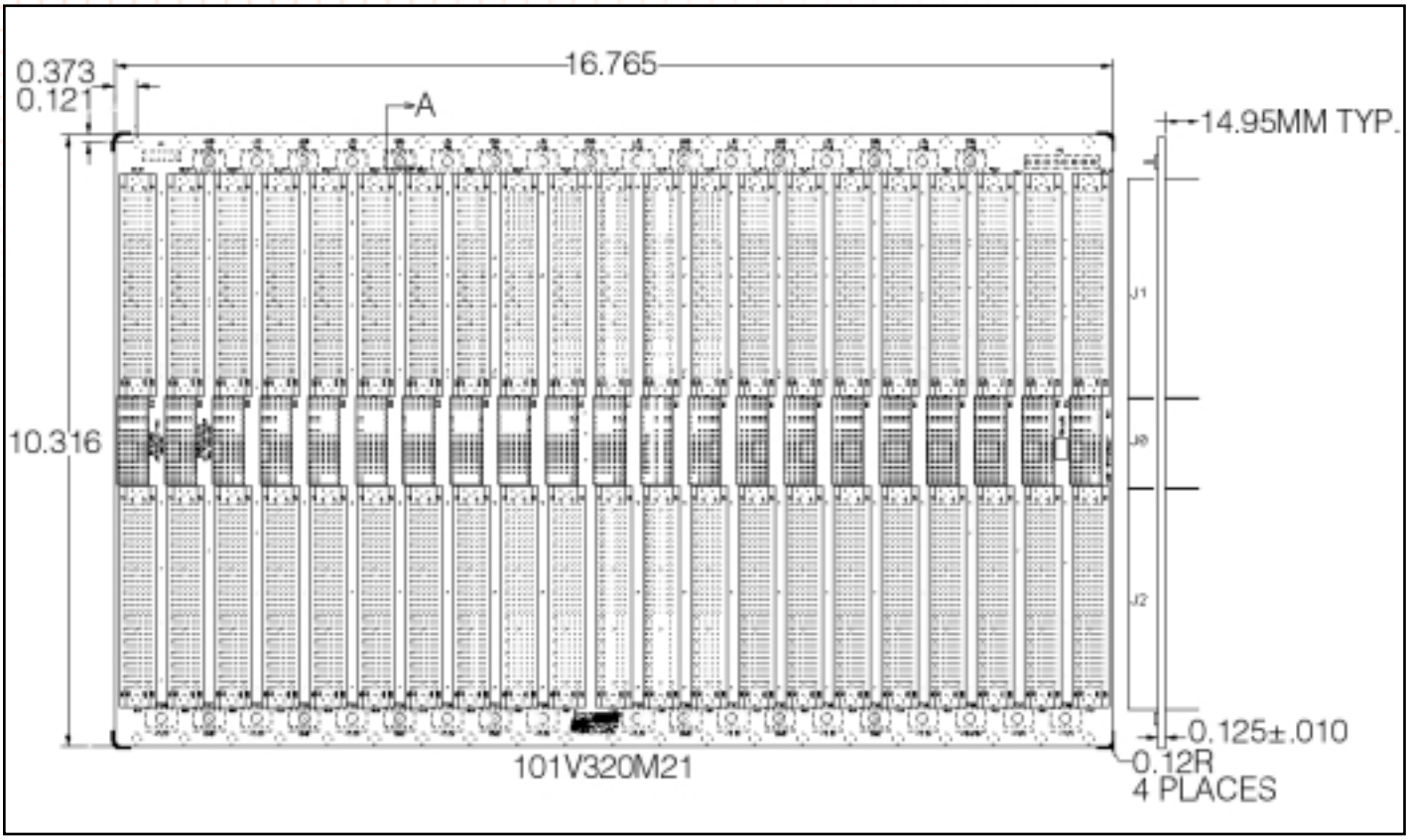
Slots: 6, 7, 9, 12, 15, and 21
Height: 6U

Board Specifications

10-layer board - under 15 slots
14-layer board - 15 slots or above
2 oz. copper power and ground
PCB UL recognized 94V-0
PCB FR-4 or equivalent
PCB .125" thick

The Bustronic VME320 backplane series is designed to comply with the ANSI/VITA VME extension standard. We provided all the standard features required for VME64x compatibility, including 160-pin VME extension connectors in J1 and J2, all defined ground pins connected to a ground plane, routing and termination of all VME and VME64x bussed signal lines, geographic address pins, distribution of +5V, +3.3V, +/-12V, +/-V1, +/-V2, and VPC, all on a single monolithic printed circuit board with J1 and J2 included. Additional features include onboard, inboard termination, distributed high frequency capacitors for each slot, distributed low frequency capacitors; at least five signal layers, five power and ground planes.

Bustronic constructed the board utilizing the now famous star design invented and patented by Arizona Digital. The VME320 features generously distributed decoupling capacitors, undershoot diodes, inboard termination, and 2 oz. power and ground planes. We could use fewer layers, but we use this design to isolate each signal layer so our backplanes provide superior performance. Our standard design features 2 oz. copper ground planes, which fully shield the backplane and minimize EMI/RFI emissions susceptability, minimize crosstalk, and maximize power distribution. In addition, the robust outer ground layers provide mechanical and EMI/RFI protection for the backplane.
Two oz. copper VCC planes allow us to maximize power distribution while they 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 across the board also help this effort. Measured results verify that Bustronic backplanes are among the quietest in the industry.

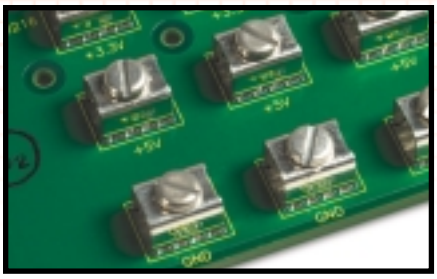
The combination of multiple heavy layers of VCC and ground, plus the distributed capacitors allow Bustronic backplanes to provide superior power distribution. Additionally, there are multiple, well-distributed power bugs to reduce the likelihood of voltage drop across the backplane. There is also a utility connector that allows minimal power insertion and provides access to status signals, including ACFAIL, RESET, and SYSFAIL.

We use stripline construction to assure the highest possible performance. By exclusively utilizing stripline construction, we eliminate a significant source of EMI/RFI radiation and give all signals similar characteristic impedances and minimal signal skew. All these items allow for significantly higher data transfer rates, since signal skew factors into data transfer rate calculations four times.

Ordering Information

Slots	Height		Width		Order Number
	in	mm	in	mm	
6	10.316	262.0264	4.765	121.030	101V320M06
7	10.316	262.0264	5.565	141.350	101V320M07
9	10.316	262.0264	7.165	181.990	101V320M09
12	10.316	262.0264	9.565	242.950	101V320M09
15	10.316	262.0264	11.970	303.910	101V320M12
20	10.316	262.0264	15.970	405.510	101V320M20
21	10.316	262.0264	16.770	425.830	101V320M21

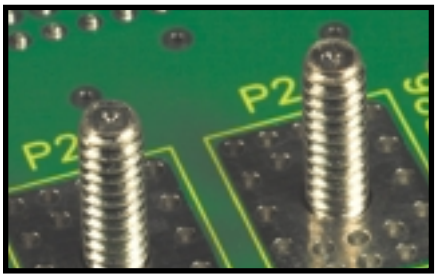
Design Elements



Power bugs

Power Distribution

Bustronic VME320 backplanes are designed with the power insertion area, either above and below the signal slots for slot counts of 12 or more and below the signal slots for fewer than 12 slots, making the backplane height 11.317 inches. Adequate numbers of power bugs have been inserted in this area to accommodate sufficient power for the slot count. As an option, we offer 8/32" press-in power studs. +/- V1 and V2 are accommodated by a 12-pin friction lock header connector located at the top of the backplane and an 8-position utility connector for system functions including Ground, +5V, ACFAIL, SYSFAIL, SYSRESET, +3.3V, +12V and -12V.



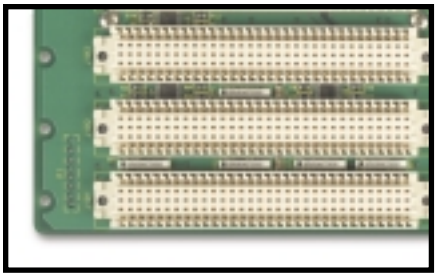
M4 screw studs

Signal Layout

Onboard, inboard terminators and undershoot diodes are provided to reduce possible signal reflections. The star interconnect design is used to interconnect the signal pins and the terminations. Our design avoids crosstalk and noise caused by inadequate power and ground shielding. Every Bustronic backplane is designed with the customer's system in mind—ensuring the highest performance, reliability, and value.

Manual Daisy Chaining

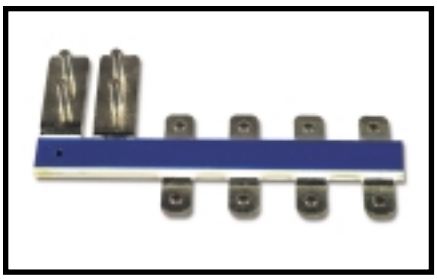
The VME320 backplane is manually daisy chained using jumpers. The BUSGRANT and IACK signals are jumpered across the empty slots so that the signals can continue across the backplane.


Daisy chain

Mechanical Design

All mounting holes have adequate clearances for installation with metal hardware. All corners are rounded to allow installation in tight enclosures and to prevent cables and wiring from snagging on 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. A high quality soldermask is used to prevent chipping or scratches. For backplanes with slot counts of 12 and above, the PCB is 10.317 inches tall. For backplanes below 12 slots wide, the height is 11.7 inches.

Other Options


Busbar


Ejector shroud

bustronic

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