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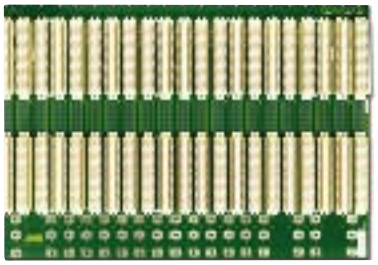
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VME64X, VME320 BACKPLANES



The Bustronic VME64x backplane series is designed to fully comply with the ANSI/VITA VME extension standard. We provide all 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 active, electronic IACK/BUSGRANT daisy chaining standard; onboard, inboard termination; distributed high frequency capacitors for each slot, distributed low frequency capacitors; five signal layers, five power and ground planes.

Bustronic constructs the VME64x board in ten layers — five signal layers, five power and ground planes. We incorporate a full stripline design, generously distributed decoupling capacitors, 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 7U VME64x and VME320 backplanes are compliant to the VITA 1.7 Increased Current Specification. Our 6U VME64x and VME320 backplanes have power distribution options which allow them to meet VITA 1.7 specifications.

The VME320 uses the same components as the VME64x backplane and is fully backwards compatible to the ANSI/VITA 1.1-1997 standard. Connector pinouts of the VME64x backplane are listed on the VME Reference Sheet on the Bustronic web site.

Power Distribution

The Bustronic 7U VME64x and VME320 backplane families are designed with the power insertion area below the signal slots above the bottom-mounting rail so we can apply the maximum power potential to the backplane. We have inserted adequate numbers of power bugs in this area to accommodate more power than the 12 amps potential per slot. The 6U VME64X and VME320 backplanes have power bugs on top and below the slots. As an option, we offer 8/32" press-in powerstuds. +/- 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.

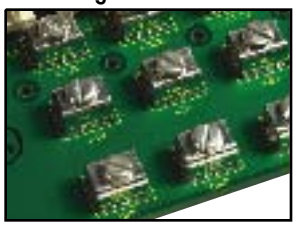
Signal Layout

The Bustronic design conforms to ANSI/VITA 1.1-1997. Onboard, 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. IACK/BUSGRANT daisy chaining is accomplished utilizing surface mount components located between the J1 connectors. Bustronic designs backplanes with the customer's system design in mind to ensure the highest performance, reliability, and value.

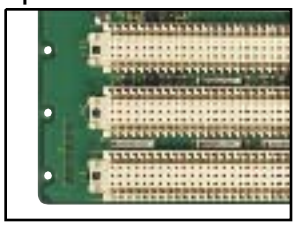
Automatic Daisy Chaining

Automatic daisy chain in VME64x backplanes eliminates a major source of problems when configuring a VME64x system, while eliminating the need for access to the backplane. The VME64x backplane uses surface mount ICs for the daisy chaining. SMT is the latest in technology and offers the most space-saving and efficient processes. The VME320 backplanes have manual jumpering.

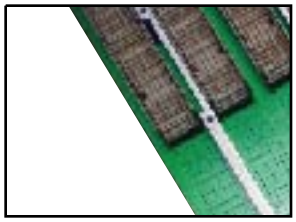
Power Bug



Optional - Busbar

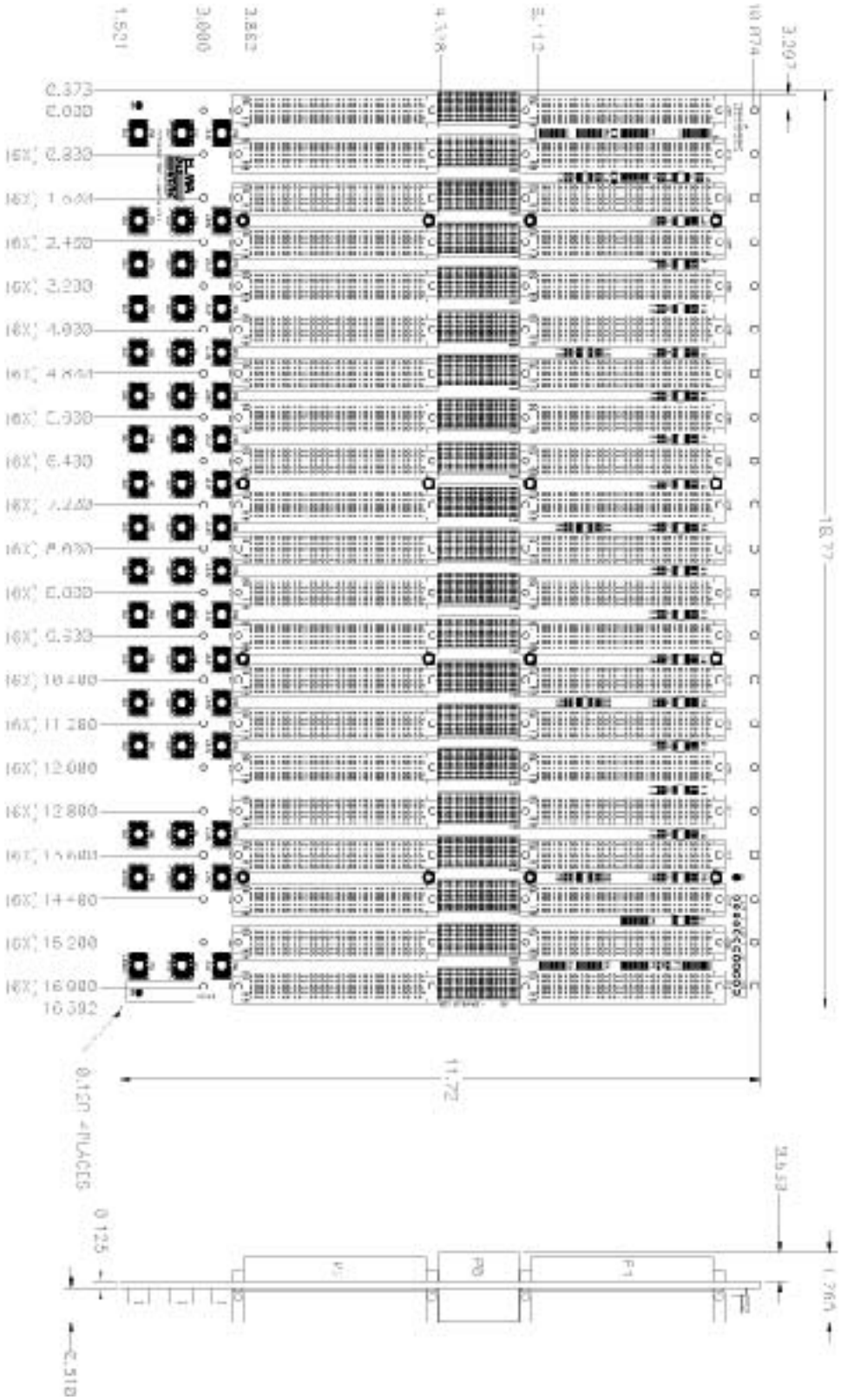


Optional - Stiffeners



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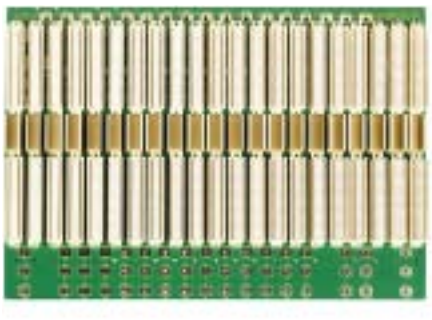
VME64X, VME320 Backplanes



The drawing above is a standard layout for a Bustronic 7U VME64x backplane. The mechanical specifications of other 7U VME64x slot sizes are similar. The VME320 and 6U VME64x backplane lines have a 6U height, with only one row of power bugs below the slots. Contact Bustronic for more details.

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VME64x Backplanes - 7U



Features

- Meets or exceeds ANSI/VITA 1.1-1997, VME extensions standard
- Exceeds ANSI/VITA 1-1994 and IEEE P1014 specifications
- 10-layer controlled impedance stripline design
- Active BUSGRANT, IACK daisy chain
- Power connections at bottom for easier cabling
- Superior power distribution
- Backplane stiffeners to provide durability, reliability
- Compliant to VITA 1.7 Increased Current Specification

Mechanical Specifications

Slots: 2 - 21
Height: 7U
160-pin, class II VME connectors
Vibration: to DIN 41640 Part 15:10 Hz-500Hz
5 g rms, Impact (10 impacts per axis x. y. z) 100 g, 6 ms

Board Specifications

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

Electrical/Operating

Conforms to:
IEC 68/1:25/085/21
Operating temperature:
–40 C to +85 C
Storage temperature:
–55C to 85 C
Single Line impedance:
55 Ohm +/- 10 %. Resistance < 100 Ohms/slot
Basic current consumption: 1.5A
Max. voltage drop for +5V and +3.3V< 40mV (at 9A/slot)

Order Information

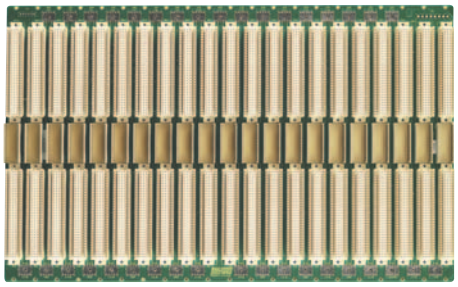
Slots	Height		Width		Order Number
	in.	mm	in.	mm	
2	11 716	297.600	1.560	39.620	101V64XM02
3	11 716	297.600	2.365	60.070	101V64XM03
4	11.716	297.600	3.165	80.390	101V64XM04
5	11.716	297.600	3.965	100.710	101V64XM05
6	11.716	297.600	4.765	121.030	101V64XM06
7	11.716	297.600	5.565	141.350	101V64XM07
8	11.716	297.600	6.365	161.670	101V64XM08
9	11.716	297.600	7.165	181.990	101V64XM09
10	11.716	297.600	7.965	202.310	101V64XM10
11	11.716	297.600	8.765	222.630	101V64XM11
12	11.716	297.600	9.565	242.950	101V64XM12
13	11.716	297.600	10.370	263.270	101V64XM13
14	11.716	297.600	11.170	283.590	101V64XM14
15	11.716	297.600	11.970	303.910	101V64XM15
16	11.716	297.600	12.770	324.230	101V64XM16
17	11.716	297.600	13.570	344.550	101V64XM17
18	11.716	297.600	14.370	364.870	101V64XM18
19	11.716	297.600	15.170	385.190	101V64XM19
20	11.716	297.600	15.970	405.510	101V64XM20
21	11.716	297.600	16.770	425.830	101V64XM21

Note: -0621p/n suffix is standard for VME64x with 5mm shrouds on J1
-0221 p/n suffix is standard for VME64x with 17mm shrouds on J1

*Ask about our VME64 (non-extensions version) backplane options.

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VME64x Backplanes - 6U Classic



Features

- Meets or exceeds ANSI/VITA 1.1-1997, VME extensions standard
- Exceeds ANSI/VITA 1-1994 and IEEE P1014 specifications
- 10-layer controlled impedance stripline design
- Active BUSGRANT, IACK daisy chain
- Power connections at bottom for easier cabling
- Superior power distribution
- Backplane stiffeners to provide durability, reliability
- Options for compliance to VITA 1.7 Increased Current Specification

Mechanical Specifications

Slots: 2 - 21
Height: 6U
160-pin, class II VME connectors
Vibration: to DIN 41640 Part 15:10 Hz-500Hz
5 g rms, Impact (10 impacts per axis x. y. z) 100 g, 6 ms

Board Specifications

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

Electrical/Operating

Conforms to:
IEC 68/1:25/085/21
Operating temperature:
–40 C to +85 C
Storage temperature:
–55C to 85 C
Single Line impedance:
55 Ohm +/- 10 %. Resistance < 100 Ohms/slot
Basic current consumption: 1.5A
Max. voltage drop for +5V and +3.3V< 40mV (at 9A/slot)

Order Information

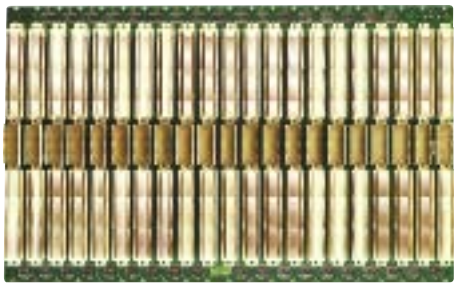
Slots	Height		Width		Order Number
	in.	mm	in.	mm	
5	10.316	262.026	3.965	100.710	101V64XC05
7	10.316	262.026	5.565	141.350	101V64XC07
8	10.316	262.026	6.365	161.670	101V64XC08
9	10.316	262.026	7.165	181.990	101V64XC09
12	10.316	262.026	9.565	242.950	101V64XC12
20	10.316	262.026	15.970	405.510	101V64XC20
21	10.316	262.026	16.770	425.830	101V64XC21

Note: -0621p/n suffix is standard for VME64x with 5mm shrouds on J1
-0221 p/n suffix is standard for VME64x with 17mm shrouds on J1

*Ask about our VME64 (non-extensions version) backplane options.

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VME320 Backplanes



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 exclusively to Bustronic

Mechanical Specifications

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

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

Electrical/Operating

Conforms to:
IEC 68/1:25/085/21
Operating temperature:
–40 C to +85 C
Storage temperature:
–55C to 85 C
Single Line impedance:
55 Ohm +/- 10 %.
Resistance:
< 100 Ohms/slot
Basic current consumption:
1.5A

The VME320 backplane offers true 320 Mbytes/sec. bandwidth. In the VME320, a signal is driven from slot 1, goes to middle slot and then radiates out to all other slots. All the capacitance concentrates at the middle slot instead of having a transmission line effect like conventional shared-bus backplanes. The result is that the equivalent circuit of the backplane is a simple lumped 200 pF capacitance. In a standard VME backplane, the signals have propagation delay and must "wait" for their turn to go across the bus. Since the slots have their own paths in the VME320, the signals get to their destination several times faster. In fact, the VME320 can achieve 528 MB/s at 66 MHz with up to 21 slots (or over 1 GB/s at 133 MHz with 10 slots). This is 12 to 25 times the bandwidth of the original VME specification.

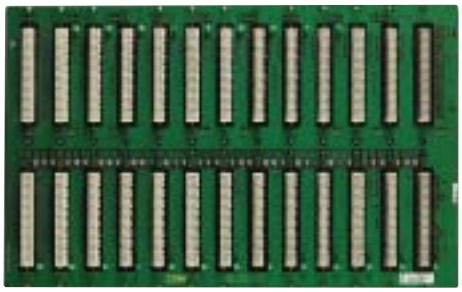
Order Information

Slots	Height		Width		Order Number
	in.	mm	in.	mm	
6	11.716	297.600	4.765	121.030	101V320M06
7	11.716	297.600	5.565	141.350	101V320M07
9	11.716	297.600	7.165	181.990	101V320M09
12	10.316	262.026	9.565	242.950	101V320M09
15	10.316	262.026	11.970	303.910	101V320M12
20	10.316	262.026	15.970	405.510	101V320M20
21	10.316	262.026	16.770	425.830	101V320M21

Note: -0000 p/n suffix is standard

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VXI Backplanes



Features

- Compliant with VXIbus spec. Rev. 1.4, VMEbus C.1
- 10-layer, controlled impedance stripline design
- Electronic BUSGRANT, IACK daisy chain
- Superior power distribution
- Matched propagation delays
- Virtually zero crosstalk

Mechanical Specifications

Slots, C Size: 5, 6, 8, 9, and 13 slots
Slots, D Size: 5, 8, 9, and 13 slots
Height: 6U, 9U

Board Specifications

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

Electrical/Operating

Conforms to:
IEC 68/1:25/085/21
Operating temperature:
–40 C to +85 C
Storage temperature:
–55C to 85 C
Single Line impedance:
55 Ohm +/- 10 %.
Resistance:
< 60 Ohms/slot
Max. voltage drop for +5V:
<40mV

The Bustronic VXIbus backplane series are designed to fully comply with the VXIbus specifications, Rev. 1.4-5/92. Bustronic has incorporated a feature set that is unique in the industry: a custom, laminated busbar, active or passive terminations, automatic active BUSGRANT and IACK jumpering, and optional AMP enhanced Eurocard connectors are offered, along with a 4-point chassis ground that can be modified by the user to isolate the chassis ground from the digital ground. Connector pinouts are available within the VME Reference Sheet on the Bustronic web site.

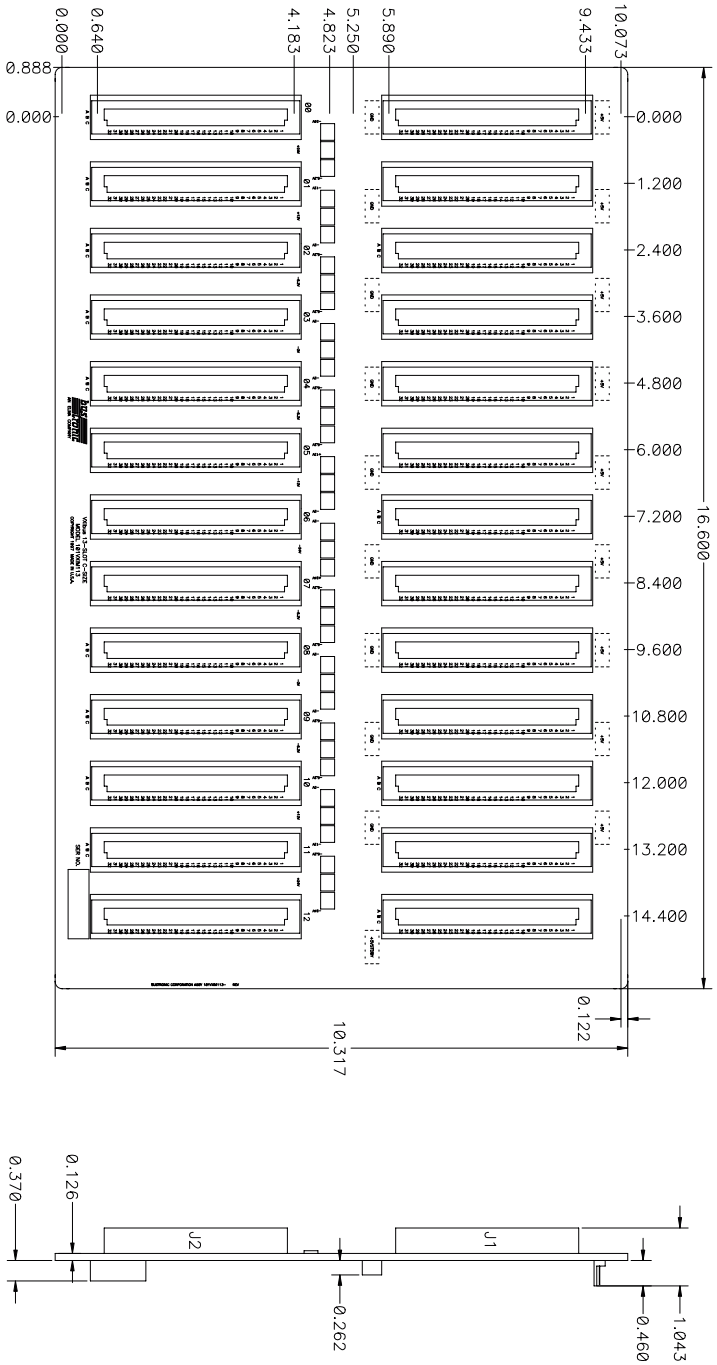
Order Information

Slots	Height		Width		Order Number
	in.	mm	in.	mm	
C/05	10.317	262.100	7.000	177.800	101VXIM105
C/06	10.317	262.100	8.200	208.300	101VXIM106
C/08	10.317	262.100	10.600	269.200	101VXIM108
C/09	10.317	262.100	11.800	299.700	101VXIM109
C/11	10.317	262.100	14.200	360.680	101VXIM111
C/13	10.317	262.100	16.600	421.600	101VXIM113
D/05	15.567	395.400	7.000	177.800	101VXIM205
D/08	15.567	395.400	10.600	269.200	101VXIM208
D/13	15.567	395.400	16.600	421.600	101VXIM213

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VXI Backplanes

Ten-layer stripline construction provides superior performance, minimizes crosstalk, and provides for excellent RFI/EMI resistance. The use of computer simulation results in an optimized design with low DC resistance, low AC noise, and outstanding power distribution. The use of four signal layers (three for TTL and one for ECL) yields state-of-the-art performance. A panel connector for SYS Reset, and a power monitor connector are optional. Bustronic utilizes a custom, laminated busbar to distribute ±24V, ±12V, -5.2V, and 2V throughout the backplane, rather than the more common approach of bringing these voltages to the backplane at only one or two points. As a result of this proprietary busbar, the Bustronic VXIbus backplane has one of the lowest voltage drops in the industry.



The drawing above is a standard layout for a Bustronic size "C" VXI backplane. The mechanical specifications of other VXI slot sizes in 6U configurations are similar. The size "D" VXI backplane comes in a 9U layout. Contact Bustronic for more details.

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