Amphenol-BSI VXS Datasheet
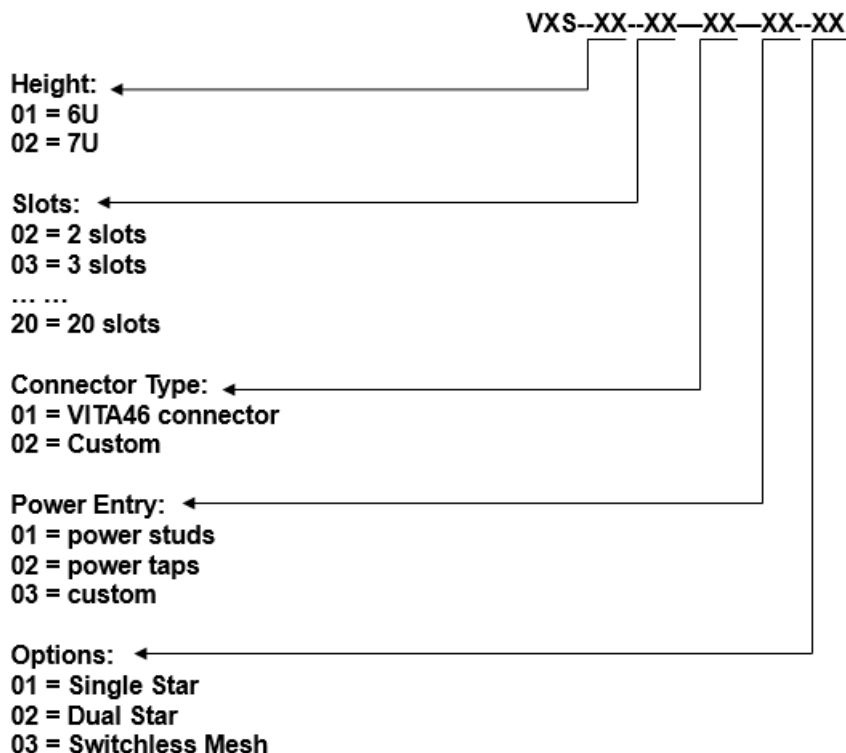
Amphenol-BSI VXS Backplanes

Amphenol-BSI's VXS high performance backplanes are available in both 6U & 7U form factors. All VXS backplanes are compliant to VITA41 VXS specifications. ABSI can customize the VXS backplane against our customer's specific requirements.

Amphenol-BSI VXS backplane order configuration part number table.

The following configuration table provides the part numbering structure applicable to the full range of VXS backplanes on offer from Amphenol-BSI. We can engage with you on any VXS backplane requirement that you may have. Please contact us for further details.

VXS--XX--XX—XX—XX--XX

Height:
01 = 6U
02 = 7U

Slots:
02 = 2 slots
03 = 3 slots
… …
20 = 20 slots

Connector Type:
01 = VITA46 connector
02 = Custom

Power Entry:
01 = power studs
02 = power taps
03 = custom

Options:
01 = Single Star
02 = Dual Star
03 = Switchless Mesh

Configuration part number example

VXS-01-08-01-01-02 specifies a 6U x 8 slot VXS dual star backplane, configured with VITA46 connectors and power studs power entry solution.

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Description

The VXS backplane supports 19" rack applications. The maximum form factor expands to a 20 slot backplane.

The VXS system is the evolution of VME&VME64x. VXS systems are backward compatible with VME/VME64x system. There are some customer applications that have requirements for high bandwidth transfers between VMEbus cards, requirements that even the most recent refresh of the VME parallel bus cannot handle. VXS replaced the 95 pins hard metric 2.0mm P0 connector to a higher data rate 6.4Gbps bandwidth connector. The new connector makes it possible to implement much higher bandwidth and more reliable switch routing between each slot.

ABSI's VXS backplanes can support 3 optional modes:

1. Plug in VME64x cards to use the bus logic
2. Plug in new VPX card to work at low speed bus plus high speed switch mode
3. Use of only the high speed switch links

The VXS P0 connector supports 4 differential pairs per lane, each slot can support 2 transmit ports. VITA41 defines InfiniBand (VITA41.1), Rapid I/O (VITA 41.2), Giga Bit Ethernet (VITA 41.3),PCI Express (VITA 41.4),Star Fabric (VITA 41.5) as the switch interface.

Amphenol-BSI offers our VXS backplane across 2 to 20 slots. It can be customized against specific customer requirements.

Amphenol-BSI

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Routing Topology
VXS supports 3 routing topology: single star, dual star and switchless mesh.

Star topology:
In single star topology, each node slot is connected to a central switch slot with point-to-point connections.
All nodes connect to the switch through differential pairs on the VXS backplane. Each connector has 4 RX pairs and 4 TX pairs.
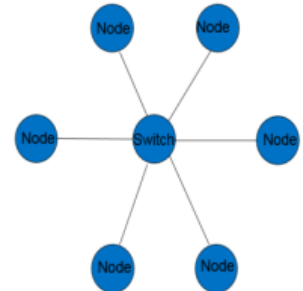

Dual Star topology:
Unlike the single star topology, the dual star topology contains 2 central switch slots. In dual star topology the node slot is connected to a central 2 switch slots with point-to-point connections. All nodes connect to the switch through differential pairs on the VXS backplane. Each connectors has 4 RX pairs and 4 TX pairs.
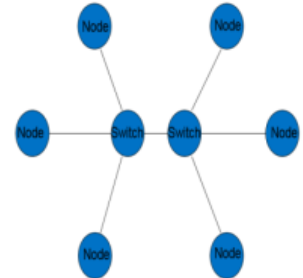
Switchless Mesh
In some applications, nodes require full connections between each other. In this case each node makes connection with each node in the system. In the Switchless mesh VXS backplane, each node has 8 TX pairs and 8 RX pairs. So the maximum switchless slot number is 3 slots. If a requirement for greater than 3 slots using switchless topology is required a VME slots+VXS switchless slots structure should be used.
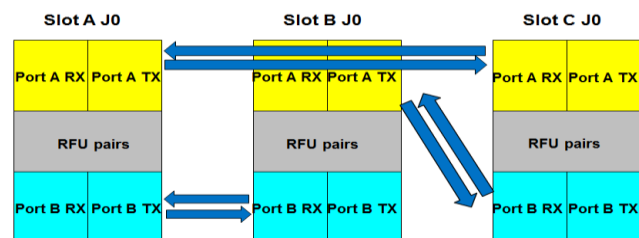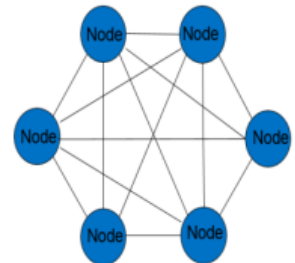
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Amphenol-BSI VXS Features:
- Compliant to VITA 41.0-2006 Specification
- 2 to 20 slots configuration
- Daisy chain routing in J1&J2,Single star, dual stat or mesh logic in P0 area.
- 4 HP slot pitch
- IEC 61076-4-113 & High speed Multigig RT2 connector
- Support Rear IOs
- Screws/studs for power entry
- Standard loss level PCB material
- RoHS compliant

PCB information:
- 18 layers board
- Slot pitch 0.8"
- Independent power and ground layers for power distribution
- Signal impedance Z0 50 Ohms +/-10%
- FR4 material

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Connector Type:

J1&J2 connector
160 pins IEC 61076-4-113 connectors are used on the VXS backplane J1&J2 area. The 160 pin connector is available from Harting.

High speed switch connector example: TE 1410135-1
A multigig RT2 connector is used to perform the switch logic of the VXS backplane.

Power entry solution
The Amphenol-BSI VXS backplanes contain a few power entry solutions to meet our customer's configuration requirements. Choose between power tags, screws or studs for power input. We also offer industry standard power entry options on VXS backplanes to meet your power entry requirements.

Power tags example ERNI 214787:
Press-fit power tags is an option on the VXS backplane. Each power tap can carry 40A current.

Power Studs example PEM KFH-632-8-ET
Use of press-fit studs is also an option on VXS backplane. Each power tap can carry 30A current.

Custom
Our customers can also specify a custom power entry solution that they will use.

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6U Dimension Table:

Slot Numbers	Height in Inch	Height in mm	Length in Inch	Length in mm
2	10.317	262.05	1.560	39.640
3	10.317	262.05	2.360	59.960
4	10.317	262.05	3.160	80.280
5	10.317	262.05	3.960	100.600
6	10.317	262.05	4.760	121.920
7	10.317	262.05	5.560	141.240
8	10.317	262.05	6.360	161.560
9	10.317	262.05	7.160	181.880
10	10.317	262.05	7.960	202.200
11	10.317	262.05	8.760	222.520
12	10.317	262.05	9.560	242.840
13	10.317	262.05	10.360	263.160
14	10.317	262.05	11.160	283.480
15	10.317	262.05	11.960	303.800
16	10.317	262.05	12.760	324.120
17	10.317	262.05	13.560	344.440
18	10.317	262.05	14.360	364.760
19	10.317	262.05	15.160	385.080
20	10.317	262.05	15.960	405.400

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7U Dimension Table:

Slot Numbers	Height in Inch	Height in mm	Length in Inch	Length in mm
2	11.716	297.600	1.560	39.640
3	11.716	297.600	2.360	59.960
4	11.716	297.600	3.160	80.280
5	11.716	297.600	3.960	100.600
6	11.716	297.600	4.760	121.920
7	11.716	297.600	5.560	141.240
8	11.716	297.600	6.360	161.560
9	11.716	297.600	7.160	181.880
10	11.716	297.600	7.960	202.200
11	11.716	297.600	8.760	222.520
12	11.716	297.600	9.560	242.840
13	11.716	297.600	10.360	263.160
14	11.716	297.600	11.160	283.480
15	11.716	297.600	11.960	303.800
16	11.716	297.600	12.760	324.120
17	11.716	297.600	13.560	344.440
18	11.716	297.600	14.360	364.760
19	11.716	297.600	15.160	385.080
20	11.716	297.600	15.960	405.400

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Amphenol-BSI

Amphenol ABSI is an industry leader of backplane and system solutions. Amphenol-BSI has been a leading designer and manufacture of backplanes for more than 30 years.

Amphenol-BSI deliver:

- Industry leading interconnect technology
- Advanced printed circuit capabilities and partnerships
- Innovative backplane system design and manufacturing
- Integrated design / applications engineering services
- Flexible, global support and supply chain management
- Most extensively tooled Backplane Supplier in the industry
- Industry leading Mechanical and SI test solutions
- Lowest cost solution on highest performance backplane

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