# VITA 41.X VXS SWITCH FABRIC BACKPLANES

BENEFITS

- Adds high-speed serial fabric while maintaining VME P1 and P2 compatibility

- Supports high-speed serial interfaces such as: Infiniband, Serial RapidIO, Gigabit Ethernet, PCI Express.

- Able to support system management IPMB per VITA 38

Atrenne, a Celestica company, supports a family of 6-21 slot VXS backplanes for rugged applications. The VXS standard is fully compatible with VME, but adds a high-speed serial fabric interface which is able to run Infiniband, Serial RapidIO, Gigabit Ethernet, PCI Express and more.

This backplane series is part of the industry leading Atrenne Integrated Solutions' product line of high performance chassis and backplanes.
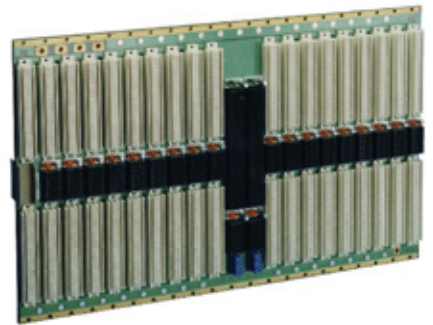
FEATURES

Compliant to the latest VXS switch fabric VITA standards

- Stiffeners placed every two slots ensure board rigidity
- 20-layer low noise stripline design with outside layers incorporating a chassis ground EMI shield
- Standard versions 6, 8 12, 21 slots
  - 6-slot and 8-slot versions feature one VITA 41.x switch slot and up to seven VITA 41.x payload slots, each payload slot connects both links to the one switch slot
  - 12-slot and 21-slot versions features two VITA 41.x switch slots and up to 18 VITA 41.x payload slots with 4x links to two switch slots
- High-performance, low noise
- Electronic Bus Grant (EBG)
- Compliant to the latest VITA standards:
  - VITA 41.0 VXS VMEbus Switched Serial standard
  - VITA 41.10-200 x Live Insertion System Requirements for VITA 41 Boards Trial use standard
- ANSI/VITA 1.7-2003 increased current level for 96-Pin and 160-Pin DIN/IEC Connector standard***
- ANSI/VITA 38-2003 System Management Draft standard
- ANSI/VITA 1.1-1997 VME64x standard as modified by VITA 41.0 (P0/J0 connector and switch slots)
- ANSI/VITA 1.5-2003 2eSST (Source Synchronous Transfer)
- Versions available for:
  - VITA 41.1 VXS InfiniBand™ Protocol Layer standard
  - VITA 41.2 VXS Serial RapidIO® (sRIO) Protocol Layer standard
  - VITA 41.3 VXS Gigabit Ethernet (GbE) Protocol standard
  - VITA 41.4 VXS PCI Express® (PCIe) Protocol standard
  - Atrenne Integrated Solutions' superior signal integrity built-in VMEbus tested to 320 Mbytes/s per VITA 1.5, 2eSST

TABLE 1: TECHNOLOGY OVERVIEW

PHYSICAL

Height	6U 10.317" +0/-.012" (262.052 mm +0/-.305 mm)
Length	2-slot, 1.561" +0/-.012" (39.649 mm +0/-.305 mm) Each additional slot, add .8" (20.32 mm)
Backplane Material	FR4
Construction	20 layer board

ENVIRONMENTAL

Temperature	Operating: -40 to +85° C Storage: -40 to +85° C
Flammability Rating	UL94-V0
Regulatory	Designed to meet UL, CSA, CE requirements

STANDARDS COMPLIANCE

Connector Pitch	4 HP (0.8") spacing
Signal Line Resistance	< 3 ohms
Characteristic Impedance	VMEbus: 60 ohms ±10% Fabric links: 100 ohms ±10% differential
Power Studs	Current rating: 50 A
0.25" Faston Tabs	Current rating: 15 A (used on 6-slot versions for +12 V, -12 V, +V 1, -V 1, +V 2, -V 2, +5 VSTDBY)
Slot Keying	Keying blocks per VITA 41.0

ENVIRONMENTAL

Fabric Connectors	Type RT1 and RT2 high frequency connector
Molded Housing	Liquid crystal polymer UL94-V0
Contacts	Phosphor bronze

SAFETY

Molded Housing	Liquid crystal polymer
Contacts	Phosphor bronze
Contact Surface	Contact zone: selectively gold-plated Termination zone: Tin-plated

VMEbus Transmission Rate	320 Mbytes/s (peak) for 64-bit transmissions on VME bus using 2eSST protocol
Switch Fabric Data Transmission Rate	32 Gbits/s full duplex (peak) per slot for 4x VITA 41.1 InfiniBand fabric, total of 576 Gbits/s for 18 payload slots in 21-slot backplane (at 2.5 Gb/s per pair) 40 Gbits/s full duplex (peak) per slot for 4x VITA 41.2 sRIO fabric, total of 720 Gbits/s for 18 payload slots in 21-slot backplane (at 3.125 Gb/s per pair)

IEC 61076-4-113, 5 ROW DIN STYLE BACKPLANE CONNECTORS

Working Current	2A/pin (VME64x power pins)
Contact Resistance	< 15m Ohms
Insulation Resistance	> 1012 Ohms
Temperature	-65 to +125° C
Molded Housing	Liquid crystal polymer
Contacts	Copper alloy
Contact Surface	Contact zone: selectively gold-plated Termination zone: Tin-plated Press-in zone: Nickel-plate

IEC 1076-4-101, 2 MM BACKPLANE CONNECTOR (VME64X SLOT J0)

Plating	Gold over palladium nickel finish or equivalent
Temperature	-55 to +125° C
Mechanical Durability	250 mating cycles
Contact Material	Bronze
Molded Housing	Polyester glass filled acc. UL94V-0
Insulation Resistance	acc. IEC 512-5 Signal contact: 10^4 m Ohms (min) Shield contact: 10^4 m Ohms (min)

*** Note that 6-slot versions are limited to the following currents:
Total of 100 A each on 3.3 V and 5 V
2 A/slot each on +12 V, -12 V, +V 1, -V 1, +V 2, -V 2, +5 VSTDBY

TABLE 2: ORDERING INFORMATION

PART NUMBER	DESCRIPTION
6-SLOT	
024-606-0301	VITA 41.1 VXS InfiniBand backplane: · 1 fabric slot per VITA 41.1 · 5 VME64x payload slots per VITA 41.1* · System management IPMB bus per VITA 38
024-606-0302	VITA 41.2 VXS sRIO backplane: · 1 fabric slot per VITA 41.2 · 5 VME64x payload slots per VITA 41.2* · System management IPMB bus per VITA 38
024-606-0303	VITA 41.3 VXS GbE backplane: · 1 fabric slot per VITA 41.3 · 5 VME64x payload slots per VITA 41.3* · System management IPMB bus per VITA 38
024-606-0304	VITA 41.4 VXS PCIe backplane: · 1 fabric slot per VITA 41.4 · 5 VME64x payload slots per VITA 41.4* · System management IPMB bus per VITA 38
8-SLOT	
024-608-0301	VITA 41.1 VXS InfiniBand backplane: · 1 fabric slot per VITA 41.1 · 7 VME64x payload slots per VITA 41.1* · System management IPMB bus per VITA 38 · 9 slots wide; 9th slot is used for high current VITA 1.7 power connections
024-608-0302	VITA 41.2 VXS sRIO backplane: · 1 fabric slot per VITA 41.2 · 7 VME64x payload slots per VITA 41.2* · System management IPMB bus per VITA 38 · 9 slots wide; 9th slot is used for high current VITA 1.7 power connections
024-608-0303	VITA 41.3 VXS GbE backplane: · 1 fabric slot per VITA 41.3 · 7 VME64x payload slots per VITA 41.3* · System management IPMB bus per VITA 38 · 9 slots wide; 9th slot is used for high current VITA 1.7 power connections
024-608-0304	VITA 41.4 VXS PCIe backplane: · 1 fabric slot per VITA 41.4 · 7 VME64x payload slots per VITA 41.4* · System management IPMB bus per VITA 38 · 9 slots wide; 9th slot is used for high current VITA 1.7 power connections
12-SLOT	
024-612-0301	VITA 41.1 VXS InfiniBand backplane: · 2 fabric slot per VITA 41.1 · 10 VME64x payload slots per VITA 41.1 · System management IPMB bus per VITA 38
024-612-0302	VITA 41.2 VXS sRIO backplane: · 2 fabric slot per VITA 41.2 · 10 VME64x payload slots per VITA 41.2 · System management IPMB bus per VITA 38
024-612-0303	VITA 41.3 VXS GbE backplane: · 2 fabric slot per VITA 41.3 · 10 VME64x payload slots per VITA 41.3 · System management IPMB bus per VITA 38

PART NUMBER	DESCRIPTION
024-612-0304	VITA 41.4 VXS PCIe backplane: · 2 fabric slot per VITA 41.4 · 10 VME64x payload slots per VITA 41.4 · System management IPMB bus per VITA 38
21-SLOT	
024-621-0301	VITA 41.1 VXS InfiniBand backplane: · 2 fabric slot per VITA 41.1 · 18 VME64x payload slots per VITA 41.1 · 1 VME64x slot per ANSI/VITA 1.1 · System management IPMB bus per VITA 38
024-621-0302	VITA 41.2VXS sRIO backplane: · 2 fabric slot per VITA 41.2 · 18 VME64x payload slots per VITA 41.2 · 1 VME64x slot per ANSI/VITA 1.1 · System management IPMB bus per VITA 38
024-621-0303	VITA 41.3 VXS GbE backplane: · 2 fabric slot per VITA 41.3 · 18 VME64x payload slots per VITA 41.3 · 1 VME64x slot per ANSI/VITA 1.1 · System management IPMB bus per VITA 38
024-621-0304	VITA 41.4 VXS PCIe backplane: · 2 fabric slot per VITA 41.4 · 18 VME64x payload slots per VITA 41.4 · 1 VME64x slot per ANSI/VITA 1.1 · System management IPMB bus per VITA 38

Notes:
* Both 4X ports A and B on the payload slots are routed to separate ports on the single switch slot.
- For 6-slot versions, the 5 payload slot A ports are mapped to switch ports 1-5 and the 5 payload slot B ports are mapped to switch ports 6-10 on the switch slot.
- For 8-slot versions, the 7 payload slot A ports are mapped to switch ports 1-7 and the 7 payload slot B ports are mapped to switch ports 8-14 on the switch slot.

WARRANTY
This product has a one year warranty.

CONTACT INFORMATION
www.atrenne.com
sales@atrenne-cs.com
508.588.6110

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