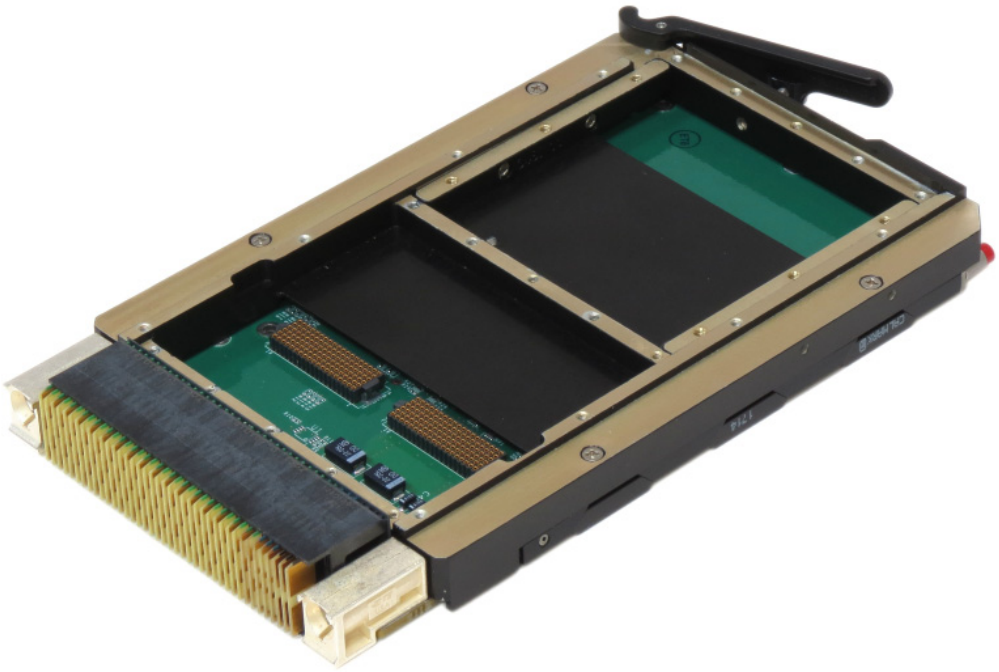
C695

3U VPX PCIe Switch

Aitech
Embedded Computing *without* Compromise



- Rugged 3U VPX Single-Slot PCIe Gen2 Switch
- Two standard configuration options
  - Eight PCIe x4 Backplane Ports
  - Six PCIe x4 Backplane Ports + XMC Site with PCIe x8 Interface
- Supports up to 24 PCIe Ports
- Low Latency Cut-Through Architecture
- Transparent/Non-Transparent Support
- OpenVPX (VITA 65) Compliant
- Conduction and Air-Cooled Versions
- 2LM Option per VITA 48.2
- Vibration and Shock Resistant

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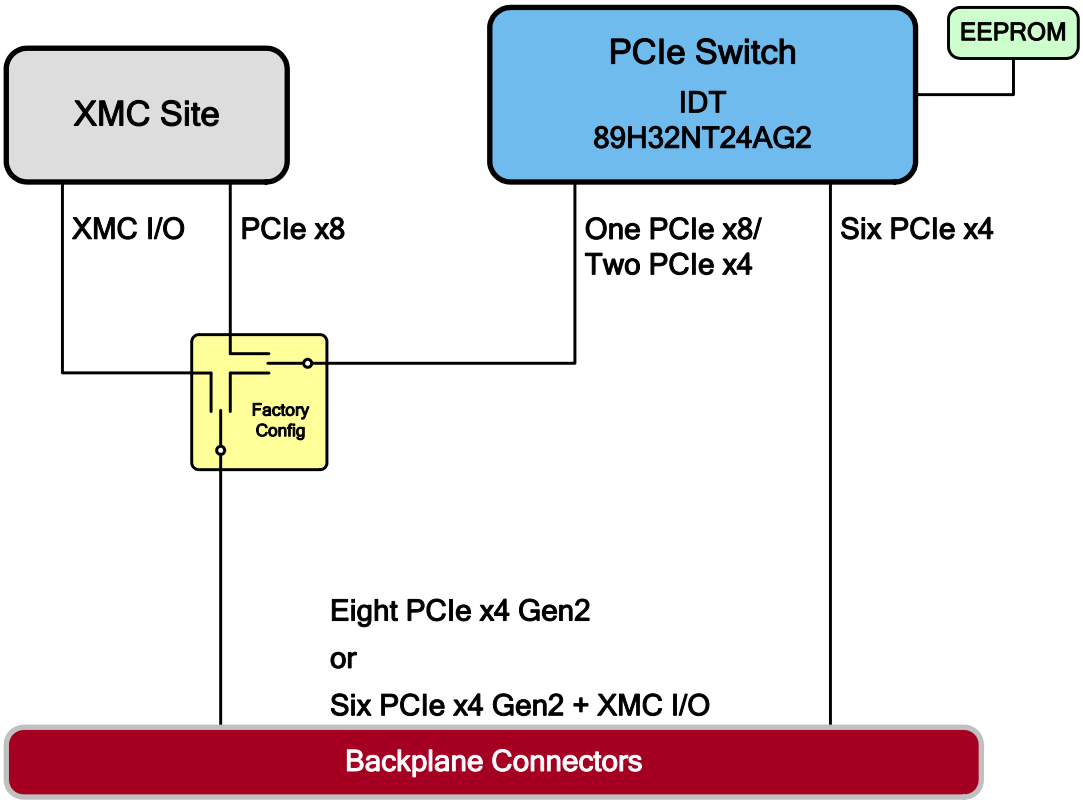
Aitech's C695 is a high-performance 3U VPX PCI Express Switch for embedded and harsh environment applications.

PCIe switching is performed by the IDT 89H32NT24AG2 32-lane/24-port Gen2 PCIe switch, which provides powerful switching capabilities and integrated DMA engines for fast data transfers.

Up to eight PCIe x4 ports are routed from the IDT switch to the C695 VPX backplane connectors. When the C695 is equipped with the optional XMC site, eight of the IDT switch PCIe lanes are routed to the XMC and XMC I/O is routed to the VPX backplane connectors.

Additional backplane PCIe port/lane grouping options are user configurable via the on-board EEPROM. User configuration options also include Transparent and Non-Transparent (NT) ports and upstream/downstream port configuration.



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Board Architecture

PCIe Switch	IDT 89H32NT24AG2
OpenVPX (VITA 65) Switch Slot Profiles	Supported OpenVPX (VITA 65) switch slot profiles vary according to C695 I/O Variant (see *I/O* below) • **SLT3-SWH-8F-14.4.2** Compatible with Variant 1 SWH = Switch board, 8F = Eight fat pipes (PCIe x4) • **SLT3-SWH-4F-14.4.4** Compatible with All Variants SWH = Switch board, 4F = Four fat pipes (PCIe x4)

I/O

	Variant 1 (1)	**Variant 2** (1)
PCIe	Eight x4 Backplane Ports (2)	Six x4 Backplane Ports (3) + One x8 Port at XMC Site
XMC I/O	N/A	20 Differential Pairs + 2 Single-Ended

Notes:
(1) C695 I/O Variants offer different I/O routing options via factory configuration (options are specified when ordering the C695 and are not user configurable); additional configuration options may be available per customer request, contact an Aitech representative for more information
(2) User configurable as up to 24 ports via on-board EEPROM device
(3) User configurable as up to 20 ports via on-board EEPROM device

PCIe Switch Features

- Supports Gen2 (5 GT/s) and Gen1 (2.5 GT/s) speeds
- User configurable via on-board EEPROM device (1)
- Low latency cut-through architecture
- Automatic per port link width negotiation
- Supports 128 Bytes to 2 kB maximum payload size
- Supports up to 8 independent switch partitions
- Transparent / Non-Transparent (NT) port configuration (up to 8 ports configurable as NT)
- Upstream / Downstream port configuration
- DMA support
- Multicast support
- Port Status Indicator LEDs

Notes:
(1) User configuration of the C695 PCIe switch is not mandatory; the PCIe switch can also be used with the default EEPROM value loaded by Aitech

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Mechanical

	Form Factor & Dimensions [1]	Weight
Air-Cooled	3U VPX REDI per ANSI/VITA 48.1	< 330 g (0.73 lbs)
Conduction-Cooled	3U VPX REDI per ANSI/VITA 48.2	< 240 g (0.53 lbs)
Conduction-Cooled 2LM	3U VPX REDI 2LM (Two Level Maintenance) per ANSI/VITA 48.2	< 390 g (0.86 lbs)

Notes: (1) See *Ordering Information* below for available pitches

Power

+5V	+3.3V_AUX	+12V_AUX	-12V_AUX	+12V [4]	Total [1,2,3]
1.3 A	0.05 A	0 A	0 A	0 A	6.7 W

Notes:
(1) Variant 1 is capable of operating from only +5V or from +5V and +3.3V_AUX (current is drawn from the backplane +3.3V_AUX supply if available, if +3.3V_AUX is not available +3.3V is generated on board and +5V consumption is increased); Variant 1 does not require +12V, +3.3V, and ±12V_AUX
(2) Variant 2 requires +5V, +3.3V_AUX, and ±12V_AUX (+3.3V_AUX and ±12V_AUX are required for XMC site power supplies); Variant 2 does not require +3.3V
(3) Power consumption with all PCIe ports active, PCIe Gen2 operation, and (in Variant 2) no XMC installed
(4) The default configuration of Variant 2 provides +5V for the XMC VPWR supply and the +12V backplane supply is not required (the +12V backplane supply is required only for +12V VPWR, which is available by factory configuration as a special order option, contact your Aitech representative for more information)

Environmental

Specs per VITA 47	Air-Cooled			Conduction-Cooled	
	Commercial	**Rugged**	**Military**	**Rugged**	**Military**
Operating Temp.	AC1 (0 to +55 °C) [2]	AC3 (-40 to +70 °C) [2]	AC4 (-40 to +85 °C) [1,2]	CC3 (-40 to +70 °C) [3]	CC4 (-40 to +85 °C) [1,3]
Non-Operating Temp.	C1 (-40 to +85 °C)	C3 (-50 to +100 °C)	C4 (-55 to +125 °C)	C3 (-50 to +100 °C)	C4 (-55 to +125 °C)
Vibration	V1	V2	V2	V3	V3
Operating Shock	OS1	OS1	OS1	OS2	OS2
Altitude	15,000 ft.	35,000 ft.	70,000 ft.	35,000 ft.	70,000 ft.
Relative Humidity [4]	0 - 90%	0 - 100%			
Conformal Coating	N/A	Acrylic (Silicone and Urethane Optional)			

Notes:
(1) -55 °C available, contact an Aitech representative for more information
(2) Operating ambient air temperature (with sufficient airflow)
(3) Operating card edge temperature
(4) Non-condensing

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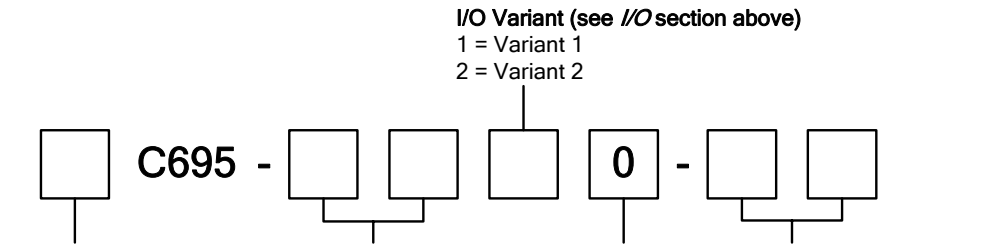

Ruggedization
1 = Commercial
2 = Rugged
4 = Military

Cooling + Pitch
Air-Cooled
A3 = 1"
Conduction-Cooled
R0 = 0.8" *
R2 = 0.85" 2LM *

Reserved

Configuration Number
To be assigned by Aitech

* Compatible also with 1" pitch enclosures and backplanes

Example: 4C695-R020-00

Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the C695 and additional software support.