ADLINK
LEADING EDGE AI COMPUTING

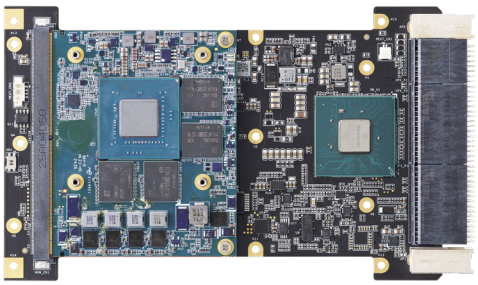
VPX3-XMXM Series

Datasheet

3U VPX GPGPU Blade with NVIDIA RTX™ 5000 / 2000 Ada Generation

Features

- NVIDIA® RTX™ 5000 Ada Generation or NVIDIA® RTX™ 2000 Ada Generation embedded graphics (with a roadmap to Blackwell architecture)
- Up to 9728 CUDA cores, 42.6 TFLOPS peak FP32 performance (RTX™ 5000 Ada SKU)
- Native PCIe Gen4 interface
- PCIe lanes configurable by PCIe switch
- 1x DisplayPort 1.4a (SKU option)
- Additional ports from SBC for expansion (SKU option): 2x USB3.2 Gen1x1, 1x USB2.0, and 1x RS-232
- VITA 46/48/65 compliant for quick deployment
- SOSA-aligned



SOSA
Sensor Open Systems Architecture

Specifications

Core Design	Architecture	3U VPX carrier board with one MXM slot
	VITA standards	VITA 46/48/65 compliant SOSA-aligned
	Slot Profile	SLT3-PAY-2F2U-14.2.3 (PCIe Upstream Port: P1A) SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-0, P2B de-populated (PCIe Upstream Port: P1B) SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0, P2 fully de-populated (PCIe Upstream Port: P1B)
Connectivity	PCI Express	One PCIe Gen4 x8 to P1A, configurable as two PCIe x4 by request One PCIe Gen4 x8 to P1B, configurable as two PCIe x4 by request One PCIe Gen4 x8 to P2A (SKU option), configurable as two PCIe x4 by request Two of PCIe Gen4 x8 (P1B + P2A) can be configured to one PCIe x16 by request
	Video Output	One DisplayPort 1.4a output to P2B (SKU option)
	USB	Two USB3.2 Gen 1x1 from SBC to P2B via PCIe switch (SKU option) One USB2.0 from SBC to P2B via PCIe switch (SKU option)
	COM	One RS-232 from SBC to P2B via PCIe switch (SKU option)
	GPIO	Two GPIO to P2A for multi-configuration (SKU option) Two GPIO to P2A for upstream/downstream rest (SKU option)
	Others	One maintenance port (default RS-232) One UART from PCIe switch to P1A directly for PCIe switch debug usage

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Specifications

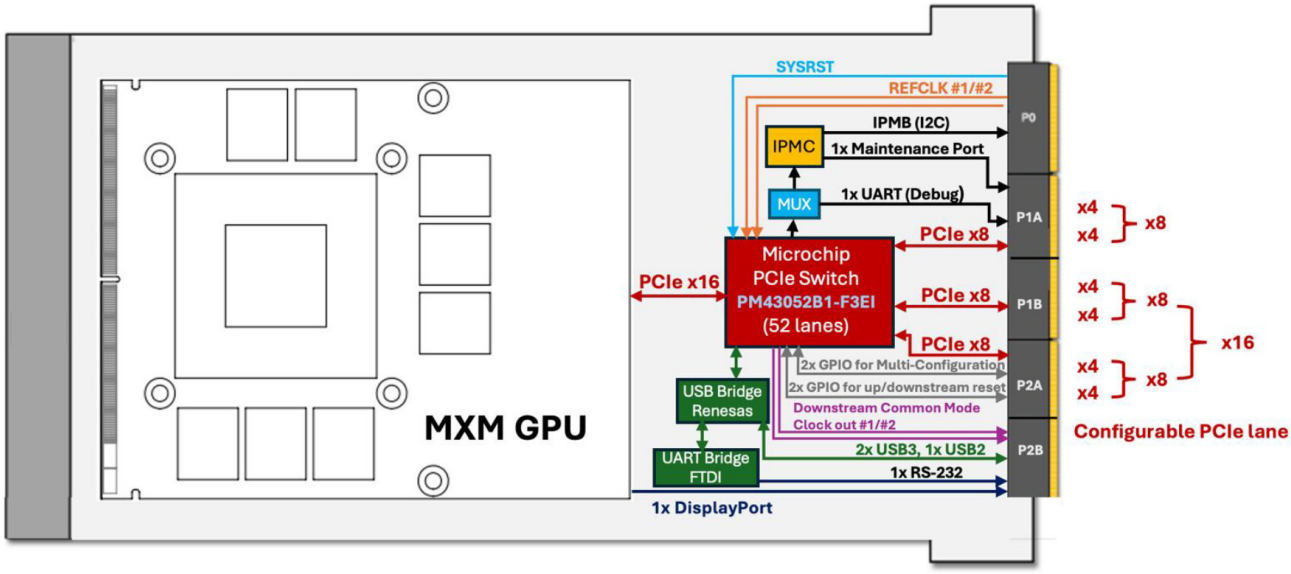
Power Requirement	Power Input	12V (VS1/VS2) 3.3V_AUX only
Operating System	Windows	Windows 10/11 64-bit
	Linux	Support by request
Miscellaneous	LED	Status LED (Appendix 1)
	Reset Button	Board reset button on front panel
Mechanical	Form Factor	3U VPX, conduction-cooled construction, 1” pitch (VITA 48.2)
	Thermal Dissipation	Conduction-cooling by wedge locks
Environmental	Operating Temp.	-40°C to +85°C at wedge locks (VITA47.0, ECC4-CC4)
	Storage Temp.	-55°C to +100°C
	Vibration	Random: 12Grms, 5Hz to 2000Hz (VITA47.0, ECC4-V3) Sinusoidal: 5g, 20Hz to 2000Hz
	Shock	40g, 11ms (VITA47.0, ECC4-OS2)
	Relative Humidity	95% non-condensing
	Altitude	60,000 feet. (operating)
	EMC	CE (EN555032 / EN55035);FCC Part 15B Class A

Software Function

IPMI	IPMI Command	Supports IPMI V1.5 mandatory command list
	VITA Command	Supports VITA 46.11 Tier 1 and Tier 2 mandatory command list

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Block Diagram



GPU Selection

Model	VPX3-XMXM/AD5000	VPX3-XMXM/AD2000
Graphic Core		
GPU	NVIDIA RTX5000 Ada	NVIDIA RTX2000 Ada
Memory	16GB GDDR6 memory Bandwidth: 576GB/s	8GB GDDR6 memory Bandwidth: 256GB/s
GPGPU Computing		
CUDA Cores	9728 CUDA cores 42.6 TFLOPS peak(FP32 performance)	3072 CUDA cores 14.5 TFLOPS peak (FP32 performance)
Tensor Cores	304 Tensor Cores	96 Tensor Cores
RT Cores	76 RT Cores	24 RT Cores
Compute API	CUDA Tool Kit 8.0 and above CUDA Compute version 8 and above, OpenCL1.2	
Graphics API	DirectX® 12, OpenGL 4.6 Graphics API	
TGP & GPU clocks		
TGP Configuration	80W (115W configurable by request)	60W
Base Clock	930 MHz	1635 MHz
Boost Clock	1680 MHz	2115 MHz
Interface		
PCIe	PCIe Gen4 x16	PCIe Gen4 x8

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Ordering Information

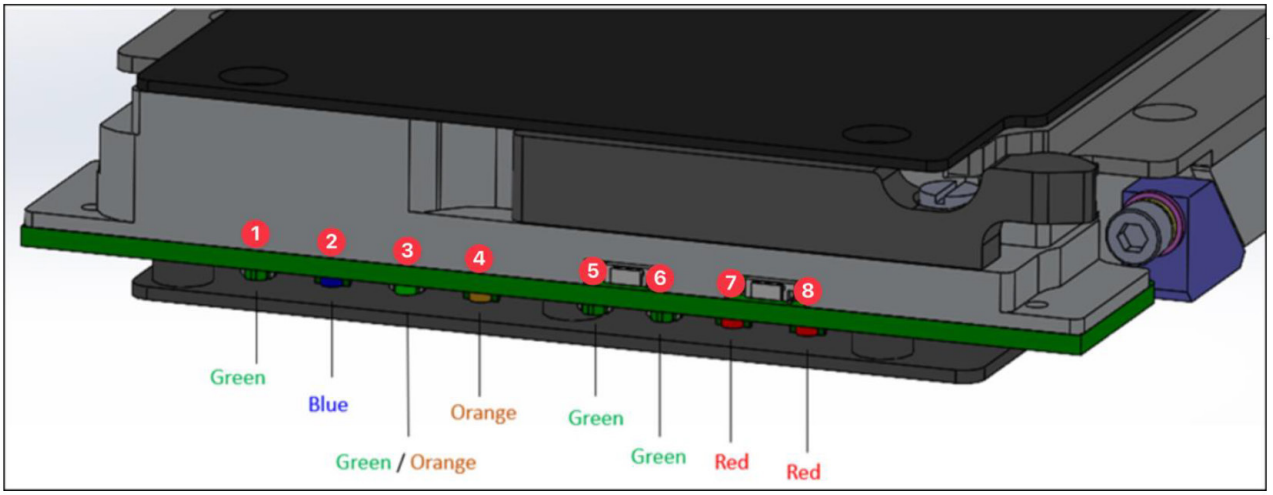
Legacy OpenVPX payload: SLT3-PAY-2F2U-14.2.3(PCIe Upstream Port: P1A)	
VPX3-XMXM/AD5000, COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, 1x DP, 2x USB3.0, 1x USB2.0, and 1x RS-232, supports common PCIe clock mode
VPX3-XMXM/AD5000, non-COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, 1x DP, 2x USB3.0, 1x USB2.0, and 1x RS-232, supports non-common PCIe clock mode
VPX3-XMXM/AD2000, COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, 1x DP, 2x USB3.0, 1x USB2.0, and 1x RS-232, supports common PCIe clock mode
VPX3-XMXM/AD2000, non-COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, 1x DP, 2x USB3.0, 1x USB2.0, and 1x RS-232, supports non-common PCIe clock mode

P2B de-populated, SOSA-aligned payload: SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-0 (PCIe Upstream Port: P1B)	
VPX3-XMXM/AD5000, w/o P2B, COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, supports common PCIe clock mode, P2B de-populated
VPX3-XMXM/AD5000, w/o P2B, non-COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, supports non-common PCIe clock mode, P2B de-populated
VPX3-XMXM/AD2000, w/o, P2B, COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, supports common PCIe clock mode, P2B de-populated
VPX3-XMXM/AD2000, w/o P2B, non-COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 3x PCIe x8, supports non-common PCIe clock mode, P2B de-populated

P2 fully de-populated, SOSA-aligned payload: SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0 (PCIe Upstream Port: P1B)	
VPX3-XMXM/AD5000, w/o P2, COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 2x PCIe x8, supports common PCIe clock mode, P2 fully de-populated
VPX3-XMXM/AD5000, w/o P2, non-COMM	3U VPX GPGPU blade with MXM RTX 5000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 2x PCIe x8, supports non-common PCIe clock mode, P2 fully de-populated
VPX3-XMXM/AD2000, w/o P2, COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 2x PCIe x8, supports common PCIe clock mode, P2 fully de-populated
VPX3-XMXM/AD2000, w/o P2, non-COMM	3U VPX GPGPU blade with MXM RTX 2000 ADA, SOSA aligned, conformal coating & ETT, -40 to +85˚C, conduction-cooled, with 2x PCIe x8, supports non-common PCIe clock mode, P2 fully de-populated

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Appendix 1: Status LED



NO.	Function	Color	Blink Rate	Description
1	Power	Green	Always on	Board power ready
			Off	Board power NOT ready
2	IPMC Heartbeat	Blue	One blink per second	IPMC ready
			Off	IPMC NOT ready
3	PCIe Switch Heartbeat & Debug	Green	One blink per second	PCIe switch ready
			Off	PCIe switch NOT ready
		Orange	Off	Normal Status
			Always on	MXM GPU abnormal
4	Internal Heater	Orange	Off	Heater off
			Four blinks per second	Heater on (below -20C)
5	IPMC Maintenance Port Selection	Green	Off	Maintenance port is RS-232 (default)
			Always on	Maintenance port is UART
6	PCIe Switch Debug Port Selection	Green	Always on	PCIe switch debug port to P1A (default)
			Off	PCIe switch debug port to IPMC
7	MXM GPU Temperature	Red	Off	MXM GPU in normal temperature
			Four blinks per second	MXM GPU in critical temperature
8	Board Temperature	Red	Off	Board in normal temperature
			Four blinks per second	Board in critical temperature

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