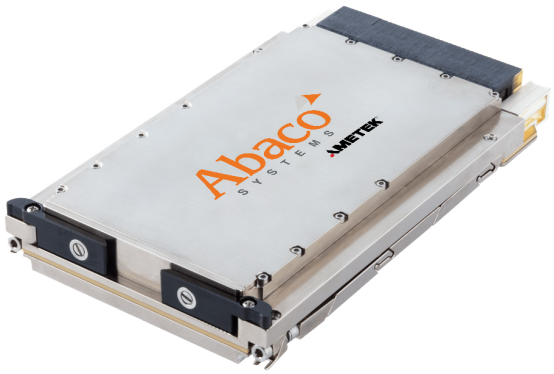


GRA116V

3U VPX Video Capture & GPGPU Card based on the NVIDIA Ampere A2000 GPU.

GRA116V (A2000) is a ruggedized OpenVPX 3U form factor embedded video capture and GPGPU card leveraging the cutting-edge NVIDIA Ampere architecture and the NVIDIA RTX™ platform.

This 3U VPX card is designed with the NVIDIA Ampere A2000 GPU featuring 8 GB of GDDR6 graphics memory equipped with Error Correction Code (ECC), 20 RT Cores, 80 Tensor Cores, and 2,560 CUDA® cores.

Distinguished by its single-slot design, the GRA116V (A2000) is a high performance GPGPU solution tailored for AI-accelerated tasks including raw video and sensor processing, encoding, decoding, and display.

The GRA116V (A2000) offers high-performance embedded computing (HPEC) capabilities to C5ISR mission processing applications such as low-latency GPGPU processing, real-time ray tracing, deep learning (DL), and AI inferencing.

This versatile solution features support for PCI Express Gen 4 for increased data transfer speeds, incorporates dedicated H.265/H.264 encode and decode engines, and supports NVIDIA GPUDirect Remote Direct Memory Access (RDMA) for streamlined data transfer operations.

The GRA116V (A2000) supports four 3G-SDI/HD-SDI inputs and four 3G-SDI/HD-SDI outputs. In addition, this card's Inputs/Outputs can be customized to support ARINC 818.

FEATURES:

- NVIDIA RTX A2000 GPU (Ampere Generation)
  - > 9.3 TFLOPS
  - 2560 CUDA cores
  - 80 Tensor Cores
  - 20 Ray Tracing cores 8 GB GDDR6 with ECC
  - 192 GB/s peak memory bandwidth
- CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264 (MPEG4/AVC) Hardware Encode & Decode
- Windows or Linux on x86

Abaco SYSTEMS / AMETEK®

GRA116V (A2000) *3U VPX Video Capture & GPGPU Card based on the NVIDIA Ampere A2000 GPU.*

Specifications

Interface
- 3U VPX Form Factor
- 1” Pitch (Conduction Cooled)
- PCIe Gen 4 (x4 or x8 support)

Graphics Processor
- NVIDIA RTX A2000 GPU (Ampere Generation)
- Supporting DirectX 12, OpenGL 4.5, and Vulkan 1.2

Graphics Memory
- 8 GB GDDR6 ECC
- 128-bit Memory Interface
- 192 GB/s Memory Bandwidth

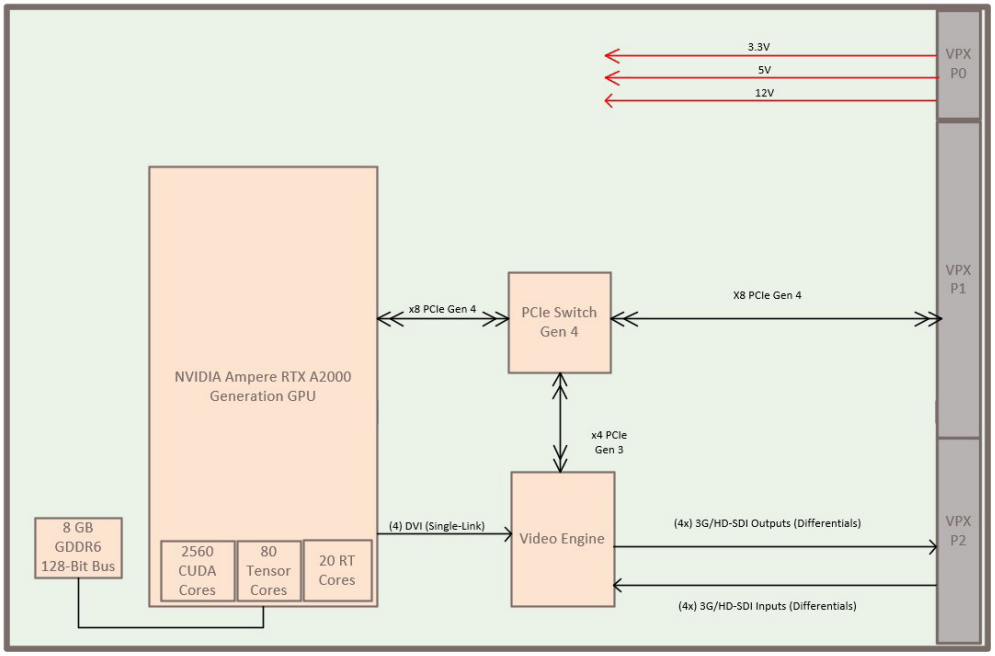
GPGPU Capabilities
- 2560 CUDA Cores. 80 Tensor Cores. 20 RT Cores
- Up to 9.3 TFLOPS FP32 Single Floating Point Performance
- Supports CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264 (MPEG4/AVC), AV1 Hardware Encode & Decode
- NVIDIA GPUDirect® RDMA, NVENC, NVDEC

Video Inputs
- Four 3G-SDI/HD-SD

Video Outputs
- Four 3G-SDI/HD-SDI

Software and Platform Support
- Windows or Linux on x86

Block diagram



Operating Temperature (MIL-STD-810)
- -40°C to 85°C (Rugged Conduction Cooled)

Power Consumption
- 3.3V, 5V and 12V
- 50 -90 W

Shock and Vibration (MIL-STD-810)
- 40 g ; 0.1 g²/Hz

Humidity (MIL-STD-810)
- 95% Without Condensation

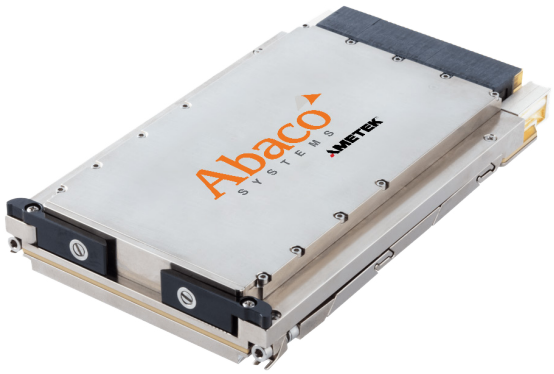
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Abaco Systems is a business unit of AMETEK, Inc., a leading global provider of industrial technology solutions serving a diverse set of attractive niche markets.



GRA116V

3U VPX Video Capture & GPGPU Card based on the NVIDIA Ampere A4500 GPU.

The GRA116V (A4500) is a ruggedized OpenVPX 3U form factor embedded video capture and GPGPU card leveraging the cutting-edge NVIDIA Ampere architecture and the NVIDIA RTX™ platform.

This 3U VPX card is designed with the NVIDIA Ampere A4500 GPU featuring 16 GB of GDDR6 graphics memory equipped with Error Correction Code (ECC), 46 RT Cores, 184 Tensor Cores, and 5,888 CUDA® cores.

Distinguished by its single-slot design, the GRA116V (A4500) is a high performance GPGPU solution tailored for AI-accelerated tasks including raw video and sensor processing, encoding,decoding, and display.

The GRA116V (A4500) offers high-performance embedded computing (HPEC) capabilities to C5ISR mission processing applications such as low-latency GPGPU processing, real-time ray tracing, deep learning (DL), and AI inferencing.

This versatile solution features support for PCI Express Gen 4 for increased data transfer speeds, incorporates dedicated H.265/H.264 encode and decode engines,and supports NVIDIA GPUDirect RemoteDirect Memory Access (RDMA) forstreamlined data transfer operations.

The GRA116V (A4500) supports four 3G-SDI/HD-SDI inputs, four 3G-SDI/HD-SDI outputs, and one DisplayPort™ output.

FEATURES:

- NVIDIA RTX A4500 GPU (Ampere Generation)
  - >17.66 TFLOPS
  - 5888 CUDA cores
  - 184 Tensor Cores
  - 46 Ray Tracing cores
  - 16 GB GDDR6 with ECC
  - 512 GB/s peak memorybandwidth
- CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264(MPEG4/AVC) HardwareEncode & Decode
- Windows or Linux on x86

Abaco SYSTEMS / AMETEK®

GRA116V (A4500) *3U VPX Video Capture & GPGPU Card based on the NVIDIA Ampere A4500 GPU.*

Specifications

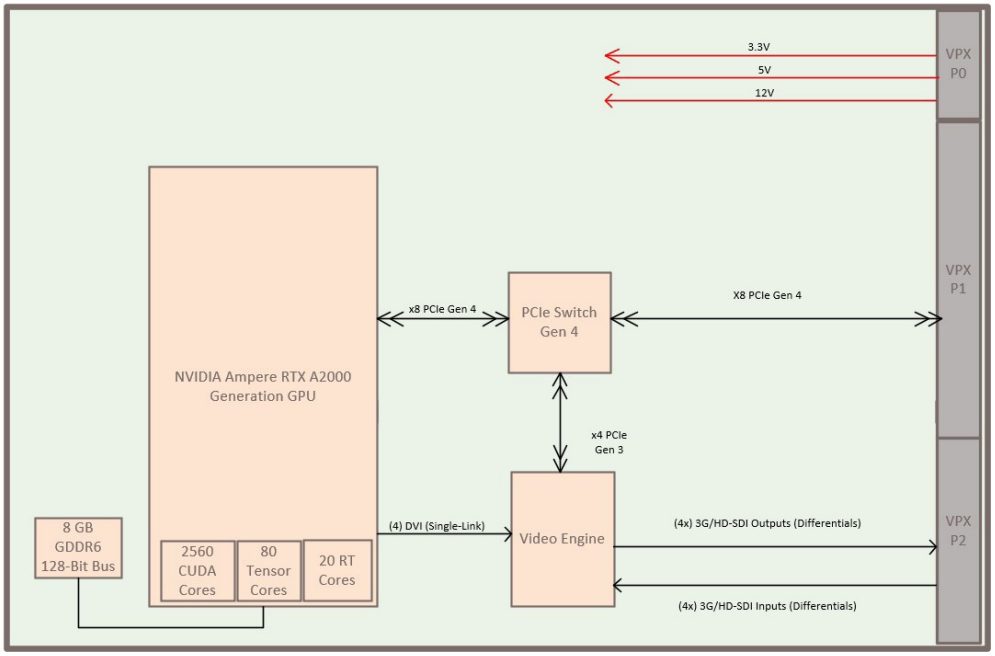
Interface
- 3U VPX Form Factor
- 1" Pitch (Conduction Cooled)
- PCIe Gen 4 (x4 or x8 support)

Graphics Processor
- NVIDIA RTX A4500 GPU (Ampere Generation)
- Supporting DirectX 12, OpenGL 4.5, and Vulkan 1.2

Graphics Memory
- 16 GB GDDR6 ECC
- 256-bit Memory Interface
- 512 GB/s Memory Bandwidth

GPGPU Capabilities
- 5888 CUDA Cores. 184 Tensor Cores. 46 RT Cores.
- Up to 17.66 TFLOPS FP32 Single Floating Point Performance
- Supports CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264 (MPEG4/AVC), AV1 Hardware Encode & Decode
- NVIDIA GPUDirect® RDMA, NVENC, NVDEC

Block diagram



Video Inputs
- Four 3G-SDI/HD-SDI

Video Outputs
- Four 3G-SDI/HD-SDI
- One DisplayPortTM

* Four active outputs

Software and Platform Support
- Windows or Linux on x86

Operating Temperature (MIL-STD-810)
- -40°C to 85°C (Rugged Conduction Cooled)

Power Consumption
- 3.3V, 5V and 12V
- 50 -90 W

Shock and Vibration (MIL-STD-810)
- 40 g ; 0.1 g²/Hz

Humidity (MIL-STD-810)
- 95% Without Condensation

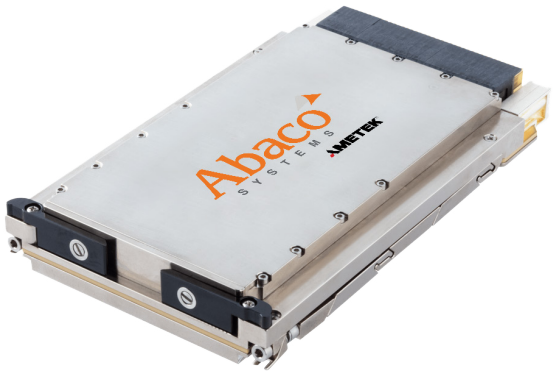
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GRA116V

3U VPX Video Capture & GPGPU Card based on the NVIDIA Quadro RTX3000 GPU.

The GRA116V (RTX3000) is a rugged 3U VPX form factor card based on NVIDIA® Turing™ architecture and the NVIDIA RTX™ platform. It operates as an all-in-one solution for video capture, process, encode, decode, stream, and display.

The GRA116V (RTX3000) is a key component of High Performance Embedded Computing (HPEC) systems as this one device handles data and image processing from up to four sensors to perform activities such as image enhancement, image analysis, video stitching, remote sensing, and target acquisition, target tracking and several other data processing tasks.

Along with built-in H.265 (HEVC) / H.264 (MPEG4 AVC) hardware based encode and decode, the card also supports SDI VANC KLV metadata insertion and extraction, and is ideal for applications involving low latency video capture/display in the ISR and Signals Intelligence (SIGINT) markets.

This GRA116V (RTX3000) card has 6 GB GDDR6 graphics memory, along with 1920 CUDA® cores and delivers up to 5.3 TFLOPS floating-point performance with CUDA™ and OpenCL™ support. It also takes full advantage of the NVIDIA GPUDirect™ RDMA to minimize latency for real-time video and data streaming.

The board design is modular and allows for graphics performance upgrades in the future. The 3G-SDI I/O can be configured as HD-SDI & SD-SDI if required. The product supports PCI Express Gen 3 (8 or 4 lane) when mated with a compatible Single Board Computer (SBC).

The card is available in conduction cooled with thermally efficient heatsink technology and rear I/O.

FEATURES:

- NVIDIA RTX 3000 GPU (Quadro Generation)
  - > 5.3 TFLOPS
  - 1920 CUDA cores
  - 240 Tensor Cores
  - 30 Ray Tracing cores
  - 6 GB GDDR6 with ECC
  - 336 GB/s peak memory bandwidth
- CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264 (MPEG4/ AVC) Hardware Encode & Decode
- Windows or Linux on x86

Abaco SYSTEMS / AMETEK®

GRA116V (RTX3000) *3U VPX Video Capture & GPGPU Card based on the NVIDIA Quadro RTX3000 GPU.*

Specifications

Interface
- 3U VPX Form Factor
- 1” Pitch (Conduction Cooled)
- 4, or 8 Lane (factory configured). PCI Express 3.0, 2.0

Graphics Processor
- NVIDIA RTX 3000 GPU (Quadro Generation)
- Supporting DirectX 12, OpenGL 4.5, and Vulkan 1.2

Graphics Memory
- 6 GB GDDR6 ECC
- 192-bit Memory Interface
- 336 GB/s Memory Bandwidth

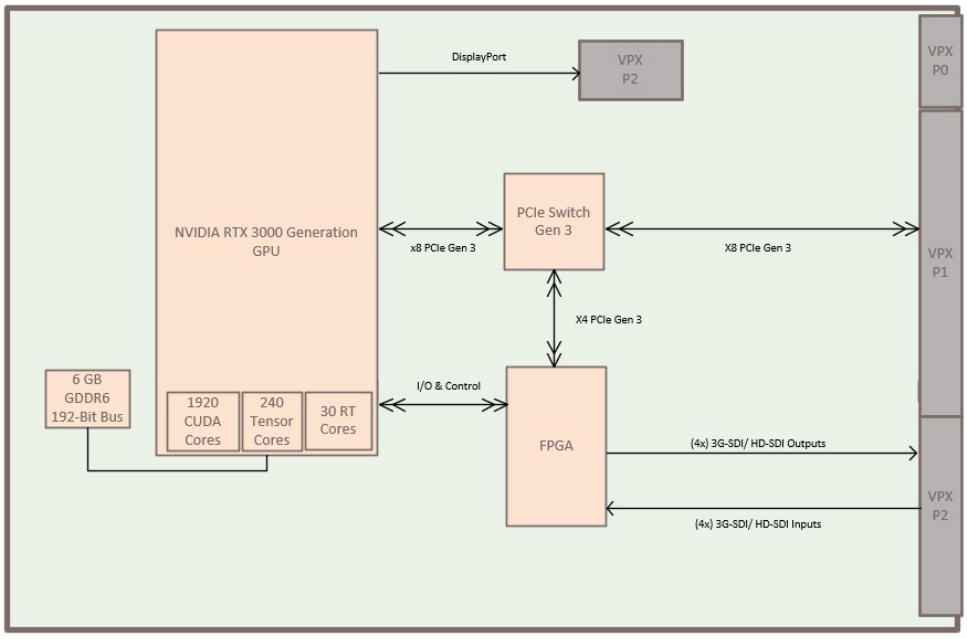
GPGPU Capabilities
- 1920 CUDA Cores. 240 Tensor Cores. 30 RT Cores.
- Up to 5.3 TFLOPS FP32 Single Floating Point Performance
- Supports CUDA, CUDA-X, OpenCLTM and Shader Model 5.1
- H.265 (HEVC) / H.264 (MPEG4/AVC), AV1 Hardware Encode & Decode
- NVIDIA GPUDirect® RDMA, NVENC, NVDEC

Video Inputs
- Four 3G-SDI & One DisplayPort (4K UHD) (customizations available)
- (DisplayPort can be converted to DVI or VGA with adapters)

Video Outputs
- Four 3G-SDI w/ SDI VANC KLV metadata insertion/extraction

Software and Platform Support
- Windows or Linux on x86

Block diagram



Operating Temperature (MIL-STD-810)
- -40°C to 75°C (Rugged Conduction Cooled)

Power Consumption
- 50 -125 W

Shock and Vibration (MIL-STD-810)
- 40 g ; 0.1 g²/Hz

Humidity (MIL-STD-810)
- 95% Without Condensation

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