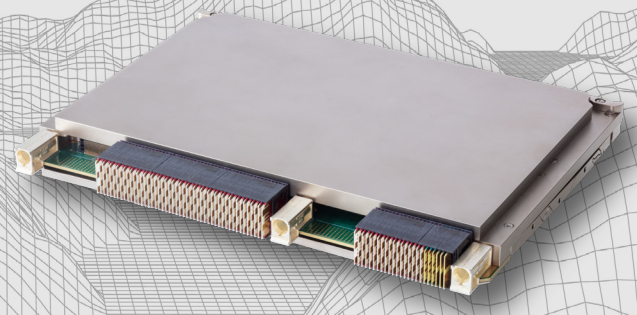
Condor™ XR2S-B4000

SOSA Aligned 6U OpenVPX Graphics Processing Board with Dual NVIDIA GPUs

NVIDIA Preferred Partner



Product image is preliminary

DUAL NVIDIA BLACKWELL GPUS

NVIDIA RTX PRO™ 4000 Blackwell GPU

AI & GPGPU COMPUTING

7,680 CUDA Cores, 240 Tensor Cores, and 60 RT Cores (per GPU)

PCIE SWITCH

Dual Switchtec™ PFX PCIe® Gen 4 Switch

6U VPX Embedded Video Graphics & GPGPU Card with NVIDIA Blackwell

The Condor XR2S-B4000 is a 6U VPX COTS video graphics and GPGPU module architected for high-throughput embedded computing. The design integrates dual NVIDIA RTX PRO 4000 Blackwell GPUs on a single 6U VPX SOSA aligned payload, enabling parallel processing for compute-intensive workloads such as multi-stream video processing, sensor fusion, and AI inference pipelines. The Condor XR2S-B4000 is designed to support high-bandwidth data processing in VPX-based systems where compute density, memory bandwidth, and low-latency interconnect are critical design considerations.

The module incorporates two Microchip Switchtec PFX PCIe Gen4 Switches to provide high-bandwidth, low-latency interconnect between GPUs and the VPX backplane. This architecture supports efficient PCIe lane distribution and peer-to-peer communication, optimizing data movement across the system without excessive host CPU involvement. Each NVIDIA RTX PRO 4000 GPU supports 16 GB of GDDR7 memory with ECC on a 256-bit interface, delivering high memory bandwidth and data integrity for large dataset processing. The compute architecture includes 7,680 CUDA cores, 240 Tensor Cores (5th Generation), and 60 RT Cores (4th Generation) per GPU, supporting mixed-precision compute, matrix operations, and hardware-accelerated ray tracing. This enables acceleration of parallel workloads including AI inference, signal processing, and real-time rendering.

The Blackwell architecture supports ninth-generation NVENC engines with 4:2:2 encoding support and sixth-generation NVDEC decoders. These engines enable hardware-accelerated encode/decode pipelines for high-resolution, multi-channel video streams while minimizing GPU core utilization. Support for GPUDirect RDMA enables direct data transfers between GPUs and external devices (e.g., NICs, frame grabbers, or FPGA-based modules) by bypassing system memory. This reduces latency and CPU overhead while increasing effective throughput for data-intensive applications.

SOSA Sensor Open Systems Architecture™

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Condor XR2S-B4000 Specifications

Interface
6U VPX Form Factor
16 Lane PCI Express 4.0

Graphics Processor
NVIDIA RTX PRO™ 4000 Blackwell GPU

Graphics Memory
16 GB GDDR7 *(per GPU)*
256-bit Memory Interface *(per GPU)*

GPGPU Capabilities *(per GPU)*
7,680 CUDA Cores. 240 Tensor Cores. 60 RT Cores.
Up to 1,334 FP4 AI TOPS Performance
Supports CUDA, CUDA-X, OpenCLTM and Shader Model 6.8
H.265 (HEVC) / H.264 (MPEG4/AVC), AV1 Hardware Codec
9th Gen NVENC Encoders with 4:2:2 support
6th Gen NVDEC Decoders
NVIDIA GPUDirect® RDMA

SOSA Slot Profiles
SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4

Vibration (VITA 47.1 V3)
0.1 g^2/Hz

Software & Platform Support
Windows or Linux on x86
DirectX12, OpenGL 4.6, Vulkan 1.4

PCIe Switch - Dual
Switchtec™ PFX PCIe® Gen 4 Switch
Industrial Temperature

Video (Front Panel)
2x DisplayPort++

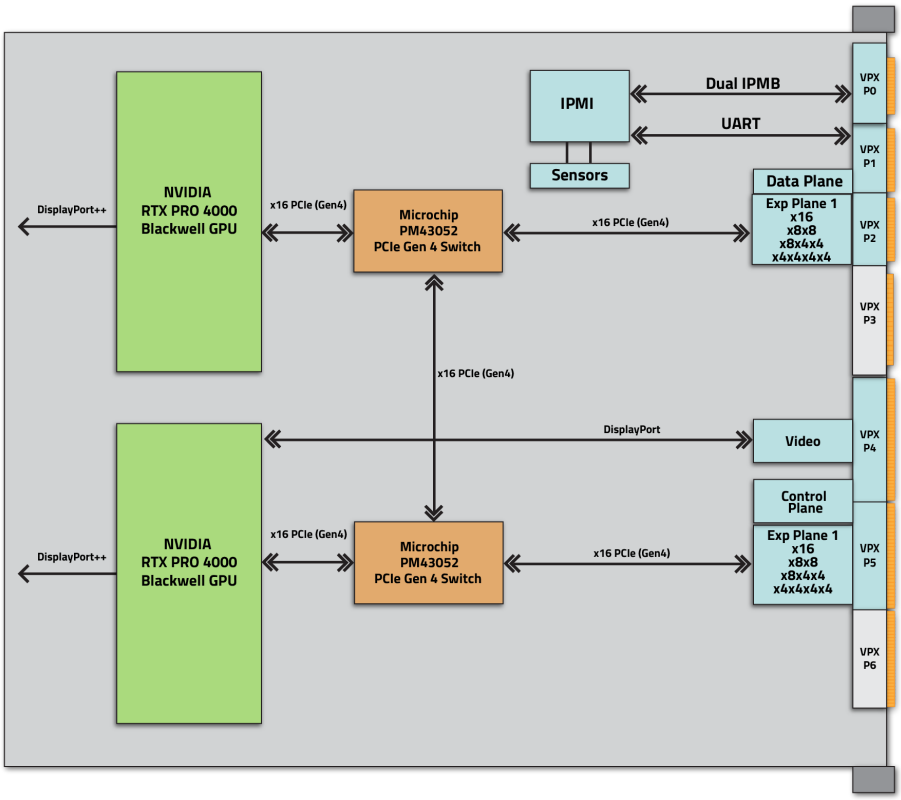
Power
12V Vss
3.3Vaux
90W - 250W

Operating Tempertures
- 40°C to 50°C (Rugged Air Cooled)
- 40°C to 55°C (Rugged Conduction Cooled)

Humidity
95% Without Condensation

Shock (VITA 47.1 OS2)
40 g

Condor XR2S-B4000 Block Diagram



SOSA aligned profile:
SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4-0

Preliminary Subject to change*

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