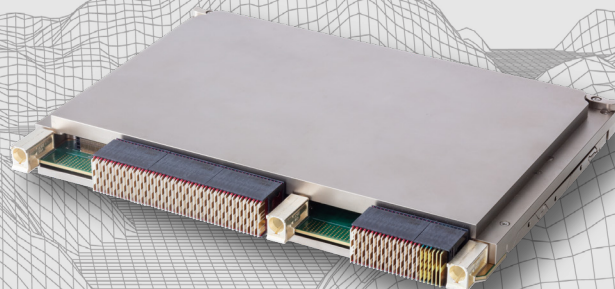


SOSA Aligned 6U OpenVPX Graphics
Processing Board with Dual NVIDIA GPUs



Product image is preliminary

DUAL NVIDIA BLACKWELL GPUS

NVIDIA RTX PRO™ 5000
Blackwell GPU

AI & GPGPU COMPUTING

10,496 CUDA Cores,
320 Tensor Cores, and
80 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-B5000 is a 6U VPX COTS video graphics and GPGPU module architected for high-throughput embedded computing. The design integrates dual NVIDIA RTX PRO 5000 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-B5000 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 5000 GPU supports 24 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 10,496 CUDA cores, 320 Tensor Cores (5th-generation), and 80 RT Core (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.



Condor XR2S-B5000 Specifications

Interface

6U VPX Form Factor
16 Lane PCI Express 4.0

Graphics Processor

NVIDIA RTX PRO™ 5000 Blackwell GPU

Graphics Memory

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

GPGPU Capabilities (*per GPU*)

10,496 CUDA Cores. 320 Tensor Cores. 80 RT Cores.
Up to 1,824 FP4 AI TOPS Performance
Supports CUDA, CUDA-X, OpenCL™ 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 g²/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 Temperatures

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

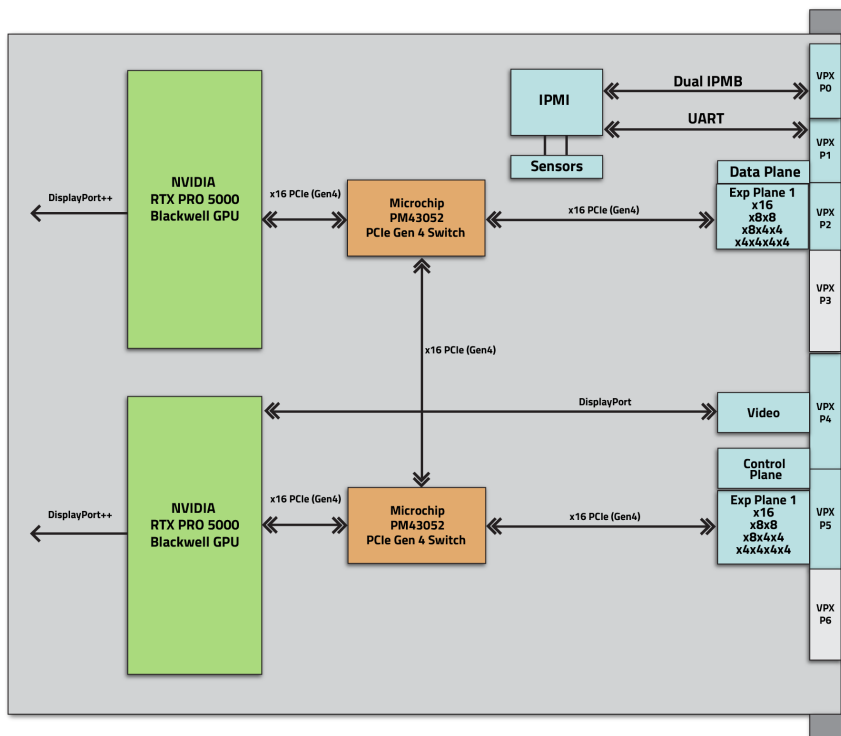
Humidity

95% Without Condensation

Shock (VITA 47.1 OS2)

40 g

Condor XR2S-B5000 Block Diagram



SOSA aligned profile:

SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4-0