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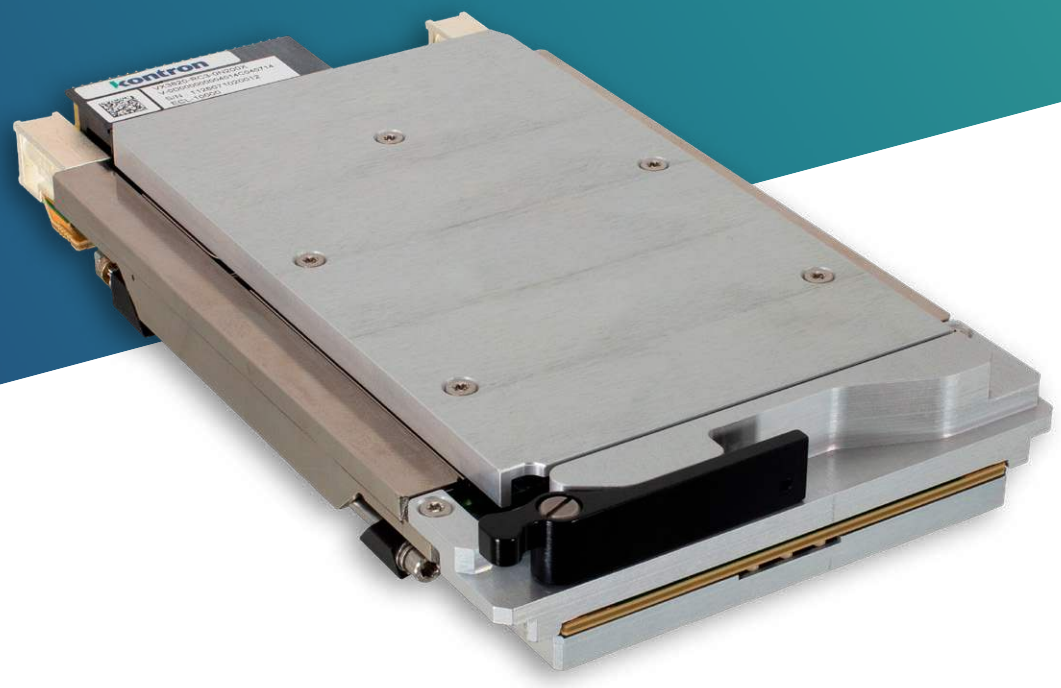
Kontron VX33211

# High-Performance 3U VPX GPU Board

**Designed for advanced graphics, AI inference and GPGPU acceleration in rugged embedded platforms and embedded server applications**

NVIDIA® RTX PRO™ 2000 Blackwell , Rugged Air & Conduction-cooled variants, designed in accordance with SOSA® Standard

| 3328 | 104 | 60 | 8 GB |
|---|---|---|---|
| Cuda Cores | Tensor Cores | Watt GPU TGP | GGDDR7 |



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## VX33211 3U VPX GPU Product Highlights

The VX33211 is a robust 3U VPX GPU board concept engineered for demanding environments and powered by the NVIDIA® RTX PRO™ 2000 Blackwell Embedded GPU. This advanced solution delivers up to 13.78 TFLOPS of FP32 computational performance, making it highly suitable for modern defense and rugged embedded platforms.

### Key Features

- Powered by NVIDIA® RTX PRO™ 2000 Blackwell Embedded GPU
- Up to 13.78 TFLOPS FP32 performance for high-speed computing
- 3328 CUDA cores for parallel processing tasks
- 26 RT cores, enabling real-time ray tracing capabilities
- 104 Tensor Cores for efficient AI inference and deep learning
- 8 GB GDDR7 memory with a bandwidth of 384 GB/s for fast data throughput

Designed specifically for rugged defense platforms, the VX33211 supports a wide array of high-performance tasks, including advanced graphics processing, artificial intelligence inference, sensor data processing, and general-purpose GPU (GPGPU) acceleration.

## The SOSA® Architecture Booster

The VX33211 design is available with the following VITA65 OpenVPX I/O intensive profiles:

- **Slot Profile:** SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0
- **Module Profile:** MOD3p-PAY-1F1U1S1S1U1U2F1H-16.6.11-4

Being developed in compliance with SOSA®-aligned OpenVPX profiles, the module benefits from profile interoperability and open-system integration practices, reducing both development risk and platform lifecycle costs for integrators.

## Reliability and Robustness

### Cooling Options

The air-cooled version of the VX33211 is designed for laboratory environments. If the intended application requires forced-air cooling, this variant can be qualified upon request to meet the necessary environmental demands.

In contrast, the conduction-cooled version is engineered specifically for rugged, mission-critical applications, making use of VITA 48-style plug-in unit mechanics. This design ensures reliable performance in highly constrained and challenging environments.

### Extended Temperature Range

The VX33211 product family can operate reliably across a wide temperature range, from -40° to +85°C at the card edge, depending on the configuration and thermal design. This robust temperature tolerance ensures reliable operation across diverse and demanding deployment environments.

## Typical Applications

**ISR / Electro-Optical/Infra-Red Processing**

Real-time image enhancement, target detection, and AI-driven sensor data analysis.

**Mission Computing**

GPU offload speeds up route planning, battlespace visualization, and map rendering.

**Radar / Sonar / Electronic Warfare**

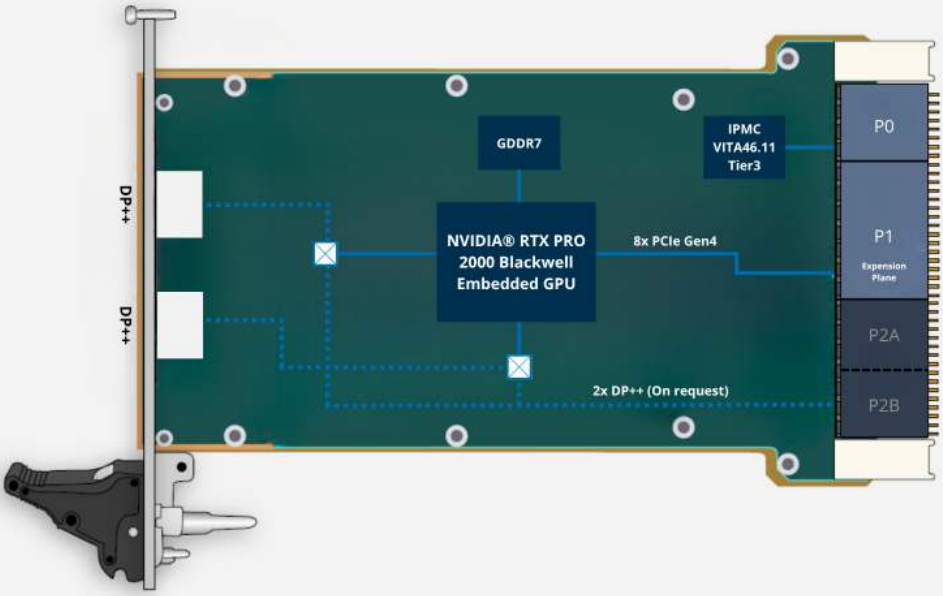
Parallel processing used for beamforming, filtering, classification, and edge inference workflows.

**Training & Simulation**

Embedded 3D visualization and synthetic environment generation for rugged deployed systems.

# 3U VPX High-Performance GPU Board

## Block Diagram



# 3U VPX High-Performance GPU Board

## Technical Information

| | | |
|---|---|---|
| **Form Factor** | | 3U VPX |
| **Processor** | GPU | NVIDIA RTX PRO 2000 Blackwell Embedded |
| | CUDA / Tensor / RT Cores | 3328 / 104 / 26 |
| | FP32 performance | Up to 13.78 TFLOPS |
| | Core clock | Base 1522 MHz / Boost 2070 MHz |
| **Memory** | System Memory | 8 GB GDDR7 24 Gbps / 128-bit / 384 GB/s |
| **On-Board Features** | Board Management System | IPMI controller for VITA46.11 Tier3 support and out-of-band system management. |
| | Sensors | Voltage, temperature and current sensors |
| **Front Panel** | IOS | 2x mDP++ 1.4 (Air Cooled build option) |
| **Backplane** | IOS | PCI Express 4.0 x8; Optional 2 x DisplayPort 1.4 |
| | Expansion Plane | x4 PCIe up to Gen4 |
| **Standard Profile** | Slot Profile | SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0 |
| | Module Profile | MOD3p-PAY-1F1U1S1S1U1U2F1H-16.6.11-4 |
| **Software** | BSP | Linux BSP, Windows on request |
| | Graphics APIs | DirectX 12 Ultimate, OpenGL 4.6, Vulkan 1.2 |
| **Power** | GPU Power | 60 W TGP |
| **Compliance** | | CE; REACH/ROHS |

# 3U VPX High-Performance GPU Board

## Environmental Specification

| | SA - Air Cooled Version | RC - Rugged Conduction Cooled Version |
|---|---|---|
| **Conformal Coating** | No | Standard |
| **Airflow** | The air-cooled version of the VX33211 is designed for evaluation and testing in a laboratory environment.<br><br>Qualification of this variant can be performed upon request. | na. |
| **Cooling Method** | | Conduction |
| **Operating Temperature** | | -40°C to +85°C |
| **Storage Temperature** | | -50°C to +100°C |
| **Vibration Sine (Operating)** | | 20-2000 Hz - 5g |
| **Random** | | 5-100 Hz : PSD = +3dB/octave<br>100-1000 Hz : PSD = 0.1g2/Hz<br>1000-2000 Hz : PSD = -6dB.octave |
| **Shock (Operating)** | | 40g/11 ms Half Sine |
| **Altitude (Operating)** | | -1,500 to 60,000 ft |
| **Relative Humidity** | | 95% without condensation |

## Ordering Information

| Environmental Class | Article | Part Number | Description |
|---|---|---|---|
| **RC** | VX33211-RC4-0N100 | 1080-7179 | 3U Single slot 5HP (1") VPX GPU - NVIDIA® RTX PRO™ 2000 Blackwell Embedded GPU - Conduction-Cooled 'RC4' (-40°C to +85°C) conformal coating - No Front Panel connectors - SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0 Slot Profile and MOD3p-PAY-1F1U1S1S1U1U2F1H-16.6.11-4 Module ProfileL - IPMI Controller for board health status |
| **SA** | VX33211-SA-0F100 | 1080-7180 | 3U Single slot 5HP (1") VPX GPU - NVIDIA® RTX PRO™ 2000 Blackwell Embedded GPU - Air-Cooled 'SA' (Laboratory Environment) - 2x mDP Connectors on the Front Panel - SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0 Slot Profile and MOD3p-PAY-1F1U1S1S1U1U2F1H-16.6.11-4 Module Profile - IPMI Controller for board health status |

Please ask sales.KFR@kontron.com for a specific configuration.

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## Related Products

### VX307H 3U VPX Plug-In Card

SOSA®-aligned Intel® 10nm x86 Microserver 3U VPX Blade

- Intel® Xeon® D-2700 processors with 100G Integrated Ethernet
- Up to 20 cores with AVX-512 vector engine
- Security enforced by Hardware Root of Trust
- VITA48 cooling builds with VITA 47 CC3 support
- Designed in accordance with SOSA® requirements

More Information


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More Information




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