VPX3U-P5200E-VO

WOLF ADVANCED TECHNOLOGY

Chip-Down NVIDIA Quadro Pascal GP104, 8.7 TFLOPS, 4 Video Outputs

KEY FEATURES

- NVIDIA GP104, 8.7 TFLOPS, GPGPU/Inference
- Chip-down WOLF design and fabrication meets military and aerospace specifications
- 4 independent DisplayPort 1.4 outputs
- 16 GB GDDR5 memory with NVIDIA GPUDirect™ DMA technology
- Operating power configurable hard cap: 40 – 150W

ADDITIONAL FEATURES

- 4 DisplayPort 1.4 digital video outputs:
  - □ support for High Dynamic Range (HDR) video
  - □ 4K at 120Hz or 5K at 60Hz with 10-bit color depth
- Pascal GPGPU parallel processing:
  - □ 2560 CUDA® cores
  - □ CUDA Toolkit 9.0, CUDA Compute version 6.1
  - □ OpenCL™ 1.2, DirectX® 12, OpenGL 4.5, Vulcan
- Memory width: 256-bit width
- Maximum memory bandwidth: 243 GB/s
- NVENC/NVDEC accelerator for HEVC (H.265) and AVC (H.264) hardware encode/decode
- PCIe x16 Gen3
- Windows and Linux drivers

SPECIFICATIONS

- Manufactured in North America with full component traceability
- Component derating meets or exceeds NASA and Rome Labs specifications for reliability
- High level of ruggedization:
  - □ Rugged air-cooled or conduction-cooled
  - □ Operating temperature: -40° to +85°C
  - □ Vibration (sine wave): 10G peak, 5 - 2000Hz
  - □ Shock: 30G peak for air-cooled, 40G peak for conduction-cooled
- Front I/O and Rear I/O configurations
- Supported VPX configurations:
  - □ VPX-REDI (ANSI/VITA 48.x)
  - □ OpenVPX (ANSI/VITA 65)

OVERVIEW

The VPX3U-P5200E-VO module uses a WOLF chip-down design to provide advanced NVIDIA® Quadro® Pascal™ GPU technology in an extremely rugged module, making it an excellent choice for aerospace and defense applications. WOLF designs and manufactures these modules in North America with full component traceability.

These modules are designed and manufactured specifically for use in the harsh environments encountered in military and aerospace applications. They have been designed to pass MIL-STD-810 and DO-160 environmental tests. They have been manufactured to IPC-A-610 CLASS 3 and IPC 6012 CLASS 3 for high reliability electronic products. They are compliant with IPC J-STD-001 soldering standards.

Quadro Pascal GP104 is an enormous leap in processing power compared to the previous generation Maxwell GM204. This rugged Pascal-based module can provide up to 8.7 TFLOPS with 2560 CUDA cores, providing exceptional processing power to applications which benefit from parallel processing. It includes four DisplayPort 1.4 outputs, which provides support for High Dynamic Range (HDR) video, and resolutions of 4K at 120Hz or 5K at 60Hz with 10-bit color depth.

NVIDIA® QUADRO®
CERTIFIED
▪ EMBEDDED

WOLF-1116 Chip-Down VPX Module
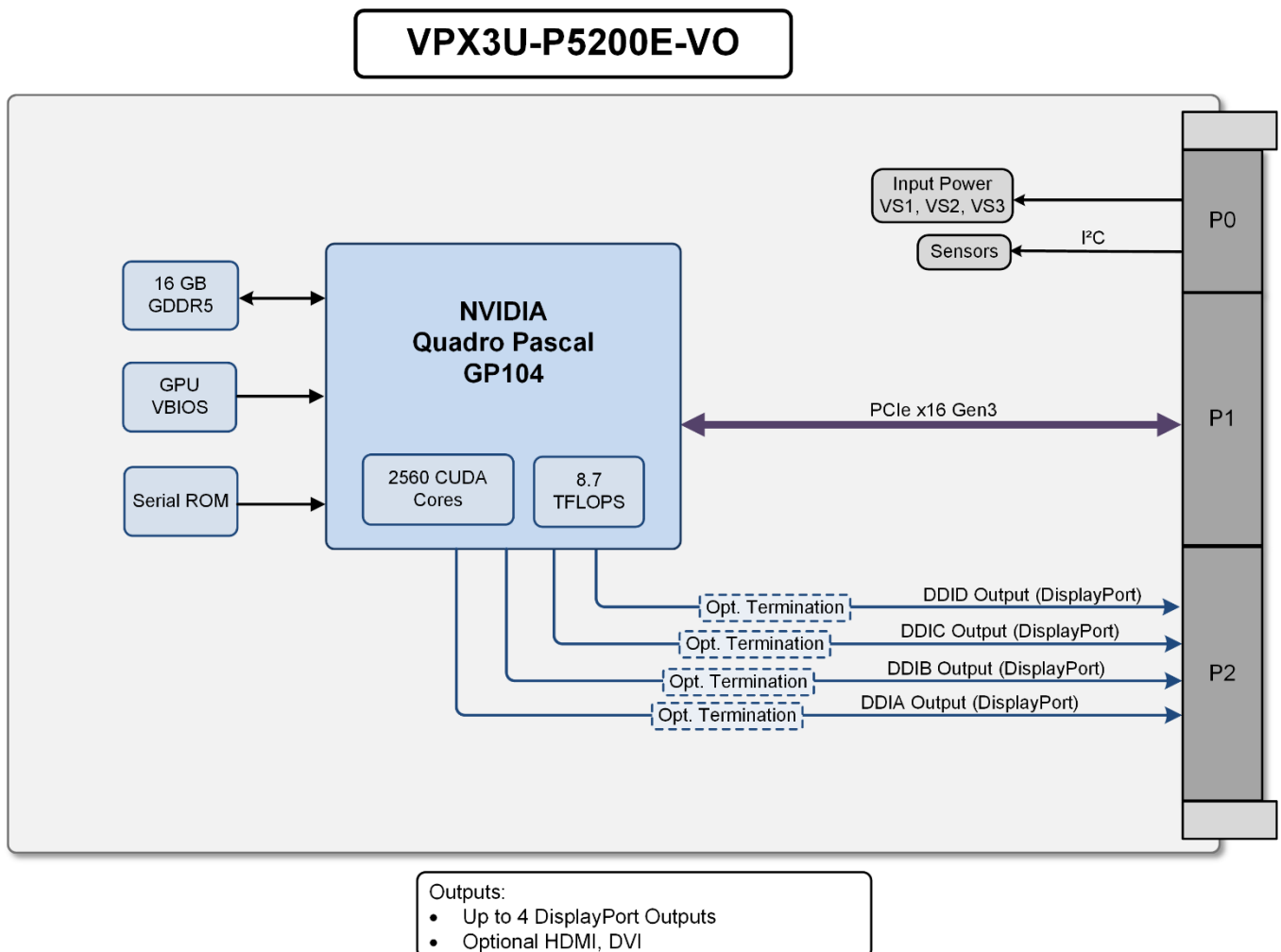
DESIGNED FOR SYSTEM INTEGRATION

The VPX architecture is diverse, spanning custom backplanes, an ambiguous system specification and differing input / output methodologies. That is precisely why WOLF modules come with factory configuration options to solve system integration challenges.

This module has been designed to support VPX REDI (VITA 48) and OpenVPX (VITA 65).

NVIDIA QUADRO PASCAL P5200 EMBEDDED GPU

Quadro Pascal P52000 is an enormous leap in processing capability compared to the previous generation's Maxwell GPUs at a very similar power. The Pascal GPUs are manufactured using the 16nm FinFET process compared to the Maxwell's 28nm process.

Quadro Pascal architecture provides a more powerful Unified Memory feature. Pascal's larger virtual memory address space enable GPUs to access the entire system memory plus the memory of all GPUs in the system, while the on-demand page migration engine allows the system to migrate pages from anywhere in the system to the GPU's memory for processing. This improved memory handling results in significantly improved algorithm efficiency.

VPX3U-P5200E-VO

Input Power VS1, VS2, VS3 — Sensors — I²C — P0

16 GB GDDR5 — **NVIDIA Quadro Pascal GP104**

GPU VBIOS

Serial ROM

2560 CUDA Cores — 8.7 TFLOPS

PCIe x16 Gen3 — P1

Opt. Termination — DDID Output (DisplayPort)
Opt. Termination — DDIC Output (DisplayPort)
Opt. Termination — DDIB Output (DisplayPort) — P2
Opt. Termination — DDIA Output (DisplayPort)

Outputs:
- Up to 4 DisplayPort Outputs
- Optional HDMI, DVI

ORDERING CODES

The following table defines series of common order codes for the VPX3U-P5200E-VO module. The asterisks denote characters of the part number that are defined based on common configuration options. Some common configuration options for this module are:

- Conformal Coating Type
- Default Power Threshold
- Display Interfaces
- COTS, MCOTS or Locked

	Ordering Number	Description
	3U VPX P5200E Single Slot Configurations	
	111623-F4**VPX3v10	3U VPX, Air Cooled, 1", NVIDIA P5200E
	111633-F4**VPX3v10	3U VPX, Conduction Cooled, 1", NVIDIA P5200E

Contact Sales for the latest Ordering Numbers and options available

MANUFACTURING AND QUALITY ASSURANCE

WOLF designs modules to pass the following environmental standards:

- MIL-STD-810 (United States Military Standard for Environmental Engineering Considerations and Laboratory Tests)
- MIL-HDBK-217 (Reliability Prediction of Electronic Equipment)
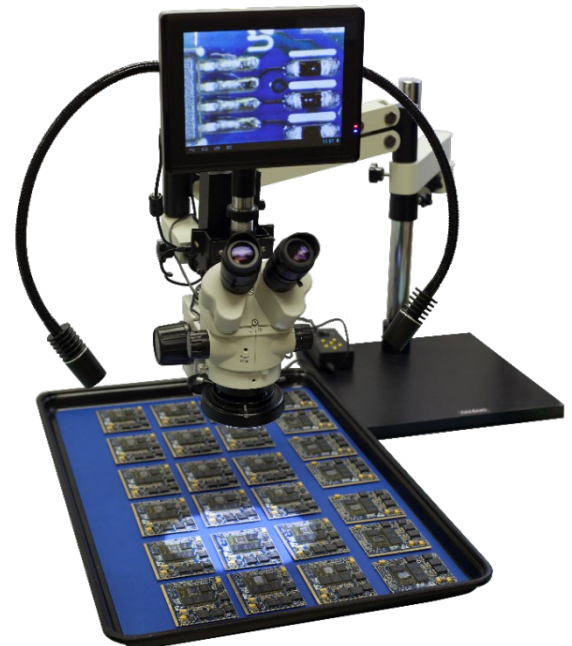- RTCA DO-160 (Environmental Conditions and Test Procedures for Airborne Equipment) on request

WOLF complies with the following quality management systems:

- ISO 9001:2015: Quality management systems (certified)
- SAE AS5553: Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition (compliant)
- SAE AS9100D: Quality Management System - Requirements for Aviation, Space and Defense Organizations (preparing for certification in 2019)

Boards are manufactured to meet the following standards:

- IPC-A-610 CLASS 3 (Acceptability of Electronic Assemblies)
- IPC 6012 CLASS 3 (Qualification and Performance Specification for Rigid Printed Boards, Class 3 for High Reliability Electronic Products)
- IPC J-STD-001 (Requirements for Soldered Electrical and Electronic Assemblies)

Caveat: integrated third party modules may not meet the same standards as WOLF manufactured modules.

ITAR Free

WOLF-1116 Chip-Down VPX Module