VPX3U-P2000E-VO

WOLF ADVANCED TECHNOLOGY

Chip-Down NVIDIA Quadro Pascal GP107, 2.3 TFLOPS, 4 Video Outputs

KEY FEATURES

- NVIDIA GP107, 2.3 TFLOPS, GPGPU Engine
- Chip-down WOLF design and fabrication meets military and aerospace specifications
- 4 independent DisplayPort 1.4 outputs
- 4 GB GDDR5 memory with NVIDIA GPUDirect™ DMA technology
- Operating power configurable hard cap: 30 – 50W

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:
  - ☐ 768 CUDA® cores
  - ☐ CUDA Toolkit 9, CUDA Compute version 6.1
  - ☐ OpenCL™ 1.2, DirectX® 12, OpenGL 4.5, Vulcan
- Memory width: 128-bit width
- Maximum memory bandwidth: 96 GB/s
- NVENC/NVDEC accelerator for HEVC (H.265) and AVC (H.264) hardware encode/decode
- Intelligent Platform Management Interface (IPMI) - Optional
- PCIe Switch for flexible configuration up to 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-P2000E-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.
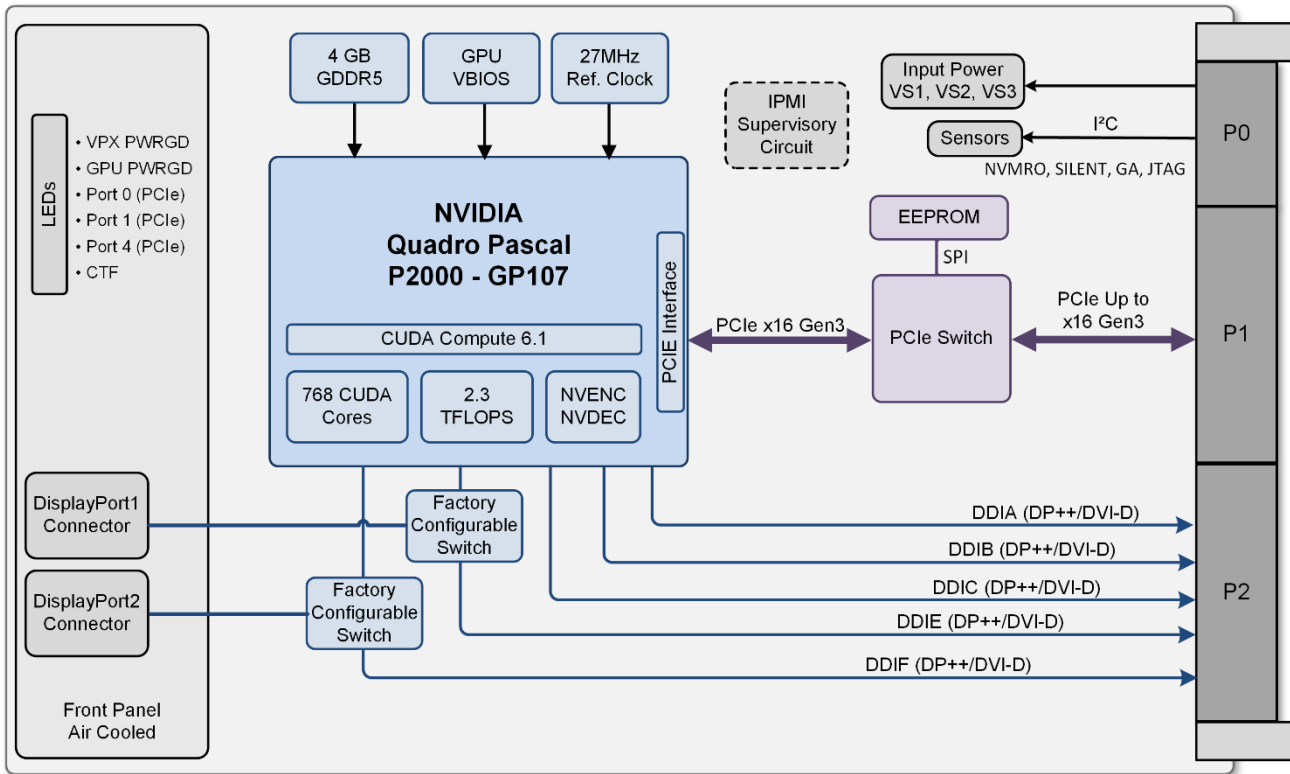
These modules are designed and manufactured specifically for use in the harsh environments encountered in military and aerospace applications. They have been designed to pass MIL-STD-810 and DO-160 environmental tests. They have been manufactured to IPC-A-610 CLASS 3 and IPC 6012 CLASS 3 for high reliability electronic products. They are compliant with IPC J-STD-001 soldering standards.

Quadro Pascal GP107 is an enormous leap in processing power compared to the previous generation Maxwell GM107. This rugged Pascal-based module can provide up to 2.3 TFLOPS of CUDA processing, providing 46 GFLOPS/Watt. 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-1178 Chip-Down VPX Module

VPX3U-P2000E-VO

- **LEDs**
  - VPX PWRGD
  - GPU PWRGD
  - Port 0 (PCIe)
  - Port 1 (PCIe)
  - Port 4 (PCIe)
  - CTF

4 GB GDDR5 | GPU VBIOS | 27MHz Ref. Clock

IPMI Supervisory Circuit

Input Power VS1, VS2, VS3

Sensors — I²C

NVMRO, SILENT, GA, JTAG

P0

NVIDIA Quadro Pascal P2000 - GP107

CUDA Compute 6.1

768 CUDA Cores | 2.3 TFLOPS | NVENC NVDEC

PCIE Interface

EEPROM — SPI

PCIe x16 Gen3

PCIe Switch

PCIe Up to x16 Gen3

P1

DisplayPort1 Connector

DisplayPort2 Connector

Factory Configurable Switch

Factory Configurable Switch

DDIA (DP++/DVI-D)
DDIB (DP++/DVI-D)
DDIC (DP++/DVI-D)
DDIE (DP++/DVI-D)
DDIF (DP++/DVI-D)

P2

Front Panel Air Cooled

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

WOLF-1178
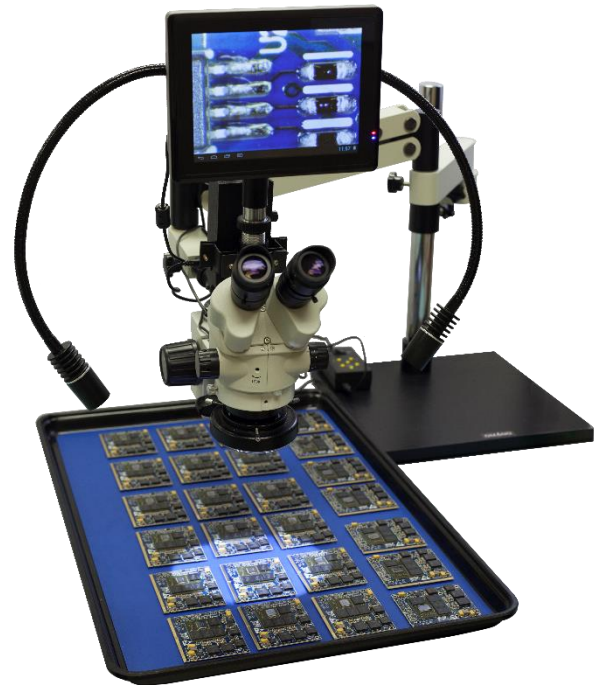
MANUFACTURING AND QUALITY ASSURANCE

WOLF stress tests to MIL-STD-810 (United States Military Standard for Environmental Engineering Considerations and Laboratory Tests) and MIL-HDBK-217 (Reliability Prediction of Electronic Equipment); Alternately will stress test to RTCA DO-160 (Environmental Conditions and Test Procedures for Airborne Equipment) on request.

WOLF products meet the following quality standards:

- ISO 9001:2015 (Quality management systems)
- 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 Certified (Requirements for Soldered Electrical and Electronic Assemblies)

Boards are manufactured to meet the following standards:

- SAE AS9100D (Quality Management System - Requirements for Aviation, Space and Defense Organizations)
- SAE AS5553 (Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition)

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