

NVIDIA Quadro Pascal P5200E, 8.9 TFLOPS, Chip-Down WOLF Design

KEY FEATURES

- NVIDIA P5200E GPU, 8.9 TFLOPS, 2560 CUDA® cores
- Chip-down WOLF design and fabrication meets military and aerospace specifications
- 4 independent DisplayPort 1.4 outputs
- 16 GB GDDR5 memory with GPUDirect™ DMA
- 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:
 - CUDA Toolkit 9.0, CUDA Compute version 6.1
 - OpenCL™ 1.2, DirectX® 12, OpenGL 4.5, Vulkan
- Memory width: 256-bit; Max bandwidth: 230 GB/s
- PCIe x16 Gen3
- NVENC/NVDEC accelerator for HEVC (H.265) and AVC (H.264) hardware encode/decode
- Windows and Linux drivers

SPECIFICATIONS

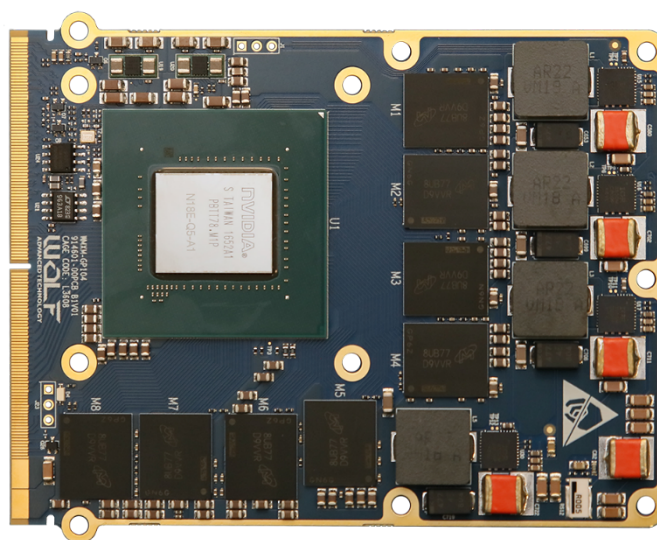
- Manufactured in North America with full component traceability
- Component derating meets or exceeds NASA and Rome Labs specifications for reliability
- Increased board rigidity due to thicker PCB material
- ENIG PCB surface plating
- Hard gold used on connector card edge (30 µin)
- Additional mounting holes to reduce flexing under vibration and shock (standard MXM hole placement also maintained)
- Standard MXM 3.1 connector compliance maintained
- Slight increase in board outline where critical component placement occurs; (Type B +5mm)
- Conformal coating options available (e.g., Parylene, Humiseal, others on request)
- High level of ruggedization:
 - Operating temperature: -40° to +85°C
 - Vibration (sine wave): 10G peak, 5 - 2000Hz
 - Shock: 40G peak

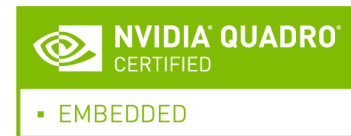
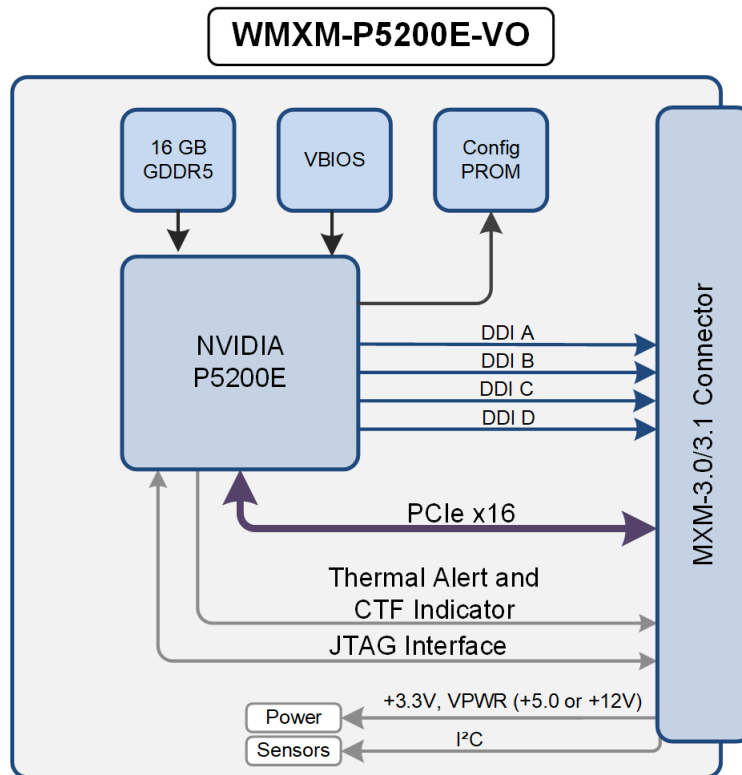
OVERVIEW

The WMXM-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 P5200E is an enormous leap in processing power compared to the previous generation Maxwell GM204. It can provide up to 8.9 TFLOPS of CUDA processing, providing 59 GFLOPS/Watt. The high processing speed combined with 16GB of high bandwidth memory provides the processing throughput required for data processing which benefits from advanced parallel processing, such as video stabilization, image processing, terrain analysis, object tracking or 3D visualization of geospatial data.





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)

