

NVIDIA® QUADRO® PASCAL™ P5000, 8 SDI INPUT/OUTPUT, ANALOG INPUT/OUTPUT

KEY FEATURES

- NVIDIA P5000, 6.2 TFLOPS GPGPU Engine
- Up to eight 3G-SDI inputs and eight 3G-SDI outputs
- Up to four analog inputs and/or outputs
- 16 GB GDDR5 memory with NVIDIA GPUDirect™ DMA technology
- Operating power configurable hard cap: 50 – 120W

ADDITIONAL FEATURES

- Optional outputs: DisplayPort 1.4, HDMI 2.0b, DVI
- 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:
 - 2048 CUDA® cores
 - CUDA Toolkit 8.0, CUDA Compute version 6.1
 - OpenCL™ 1.2, DirectX® 12, OpenGL 4.5
 - Vulkan 1.0
- Memory width: 256-bit
- Maximum memory bandwidth: 192 GB/s
- NVENC/NVDEC accelerator for HEVC (H.265) and AVC (H.264) hardware encode/decode
- PCIe x8 Gen 3

SPECIFICATIONS

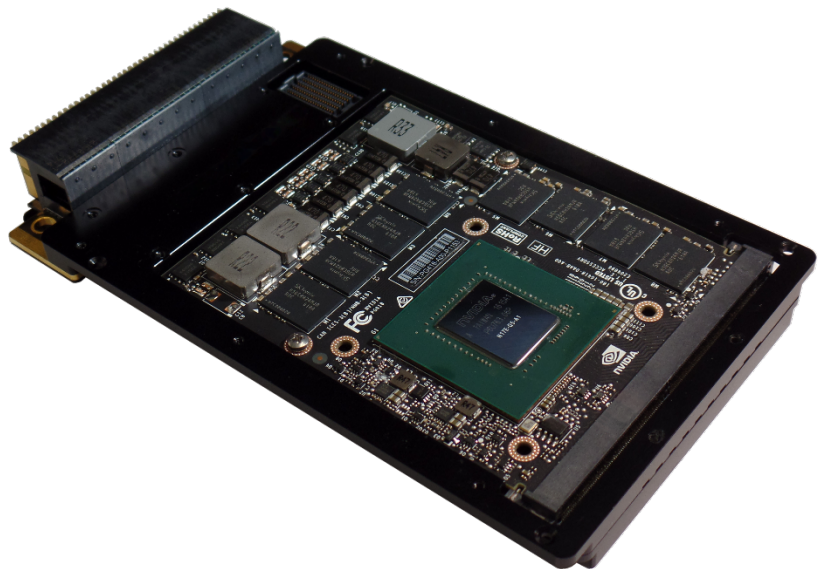
- High level of ruggedization:
 - Rugged air-cooled or conduction-cooled
 - Operating temperature: -40° to +71°C
 - Vibration (sine wave): 5G peak, 5 - 2000Hz
 - Shock: 20G peak
- Front I/O and Rear I/O configurations
- Windows and Linux drivers
- Supported VPX configurations:
 - VPX-REDI (ANSI/VITA 48.x)
 - OpenVPX (ANSI/VITA 65)

OVERVIEW

WOLF's versatile Video Processing Unit (VPU) board includes both an advanced NVIDIA Quadro Pascal GPU and WOLF's Frame Grabber eXtreme (FGX). This board accepts up to eight simultaneous 3G-SDI inputs and CVBS/STANAG inputs. The video data can be routed to the powerful Pascal GPU for processing or encoding, and then output in several formats, including up to eight 3G-SDI, CVBS/STANAG, and optional output to DisplayPort, HDMI or DVI.

The WOLF Frame Grabber eXtreme (FGX) is the engine that provides the board with conversion of video data from one standard to another, with a wide array of video input and output options for both cutting-edge digital I/O and legacy analog I/O. The FGX has direct memory access (DMA) to the Quadro Pascal's GPU memory for GPU processing and complex analysis. By including both the versatile FGX and a high performance Quadro Pascal GPU on one board WOLF's I/O and processing solution avoids the SBC data rebroadcast traffic jams that commonly occur with a 2-board solution.

For additional options contact WOLF to discuss MCOTS and custom design services.



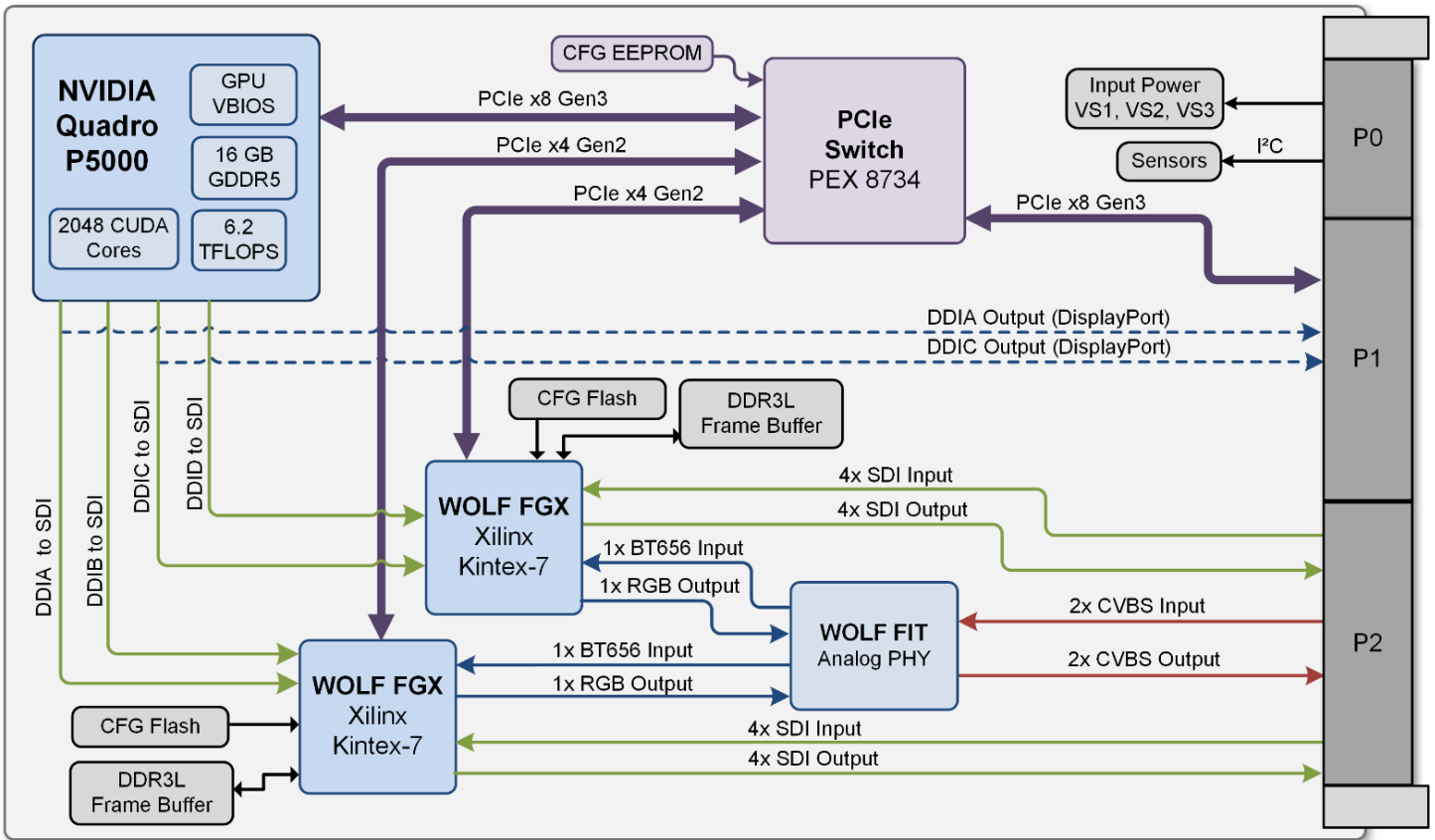
WOLF- 1110 VPX Module

NVIDIA QUADRO PASCAL P5000

Quadro Pascal P5000 is an enormous leap in processing capability compared to the previous generation Maxwell M5000SE. It can provide up to 6.2 TFLOPS of CUDA processing at a very modest operating power, providing a huge improvement to 62 GFLOPS/Watt, making it an excellent choice for aerospace and defense applications.

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-P5000-SDI-8IO



- Inputs and Outputs:
- Up to 8x 3G-SDI Inputs
 - Up to 8x 3G-SDI Outputs
 - CVBS Inputs & Outputs, STANAG 3350 optional: options for 2x Inputs & 2x Outputs (as shown), 4x Input only, 4x Output only
 - Optional Outputs: DisplayPort, HDMI, Single Link DVI

ORDERING CODES FOR VPX3U-P5000-SDI-8IO

Part Number	Description
111023-FC520*VPX3v10	VPX 3U, Air Cooled, NVIDIA Quadro P5000, 6.2 TFLOPS, 16GB GDDR5, 2048 CUDA Cores, 8xSDI IN, 8xSDI OUT, 2xCVBS IN, 2xCVBS OUT, PCIE x8 Gen3, I-Temp (-40C to +71C System Dependent)
111033-FC520*VPX3v10	VPX 3U, Conduction Cooled, NVIDIA Quadro P5000, 6.2 TFLOPS, 16GB GDDR5, 2048 CUDA Cores, 8xSDI IN, 8xSDI OUT, 2xCVBS IN, 2xCVBS OUT, PCIE x8 Gen3, I-Temp (-40C to +71C System Dependent)

* Contact Sales for full part number definition.

Options can include: Conformal Coating, Modified Power Cap, PCIe configuration, Analog I/O config, other

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

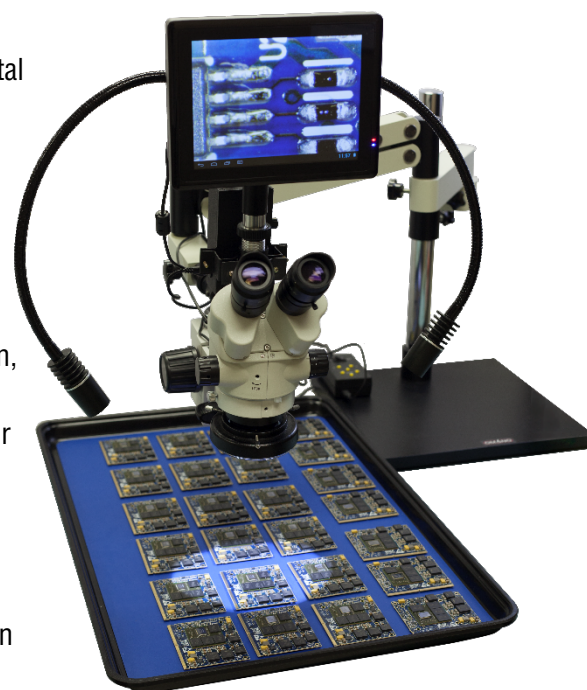
WOLF complies with the following quality management systems:

- 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 MXM modules may not meet the same standards as WOLF manufactured modules.



WOLF- 1110 VPX Module