XMC-FGX-TK1
CUDA LOW POWER VIDEO PCIE/SDI CAPTURE, PROCESS, ENCODE

Key Features
- NVIDIA Tegra-K1 ARM/Kepler Processor
  - 4 or 8GB DDR3L Memory
  - Kepler 192-core CUDA GPGPU
  - 325 GFLOPS CUDA and OpenCL
  - Embedded Hardware H.264 Encoder
- 3G/HD-SDI video capture and transmit
  - SMPTE-292M (e.g. 1920×1080 @ 30Hz)
  - SMPTE-424M (e.g. 1920×1080 @ 60Hz)
- PCI Express NTB port to external host
  - Software API and driver for DMA communication
- Sub-Frame Ultra Low Latency Capture

Additional Features
- Video Capture and Transmit modifiable for alternate camera interfaces and display standards
  - GPU Direct Output - LVDS Conversion to 3G/HD-SDI
- USB 3.0, GigE, HDMI, SATA, UART
- Ultra low power, under 15 Watts
- Extended 10+ year product lifespan
- Optional P14/P16 Rear I/O
- Can operate independent of host XMC
- Asynchronous multiprocessing with multiple TegraK1 cards in one system

Specifications
- High level of ruggedization
  - MIL-STD-810, IPC 6012 Class-3
  - -40° to +85°C operating temperature
  - 40g, 11ms shock
  - 0.2g²/Hz@ 5 - 2000Hz vibration
- Linux Kernel 3.10.40
- XMC form factor: 74×149 mm
- Air and Conduction Cooled Versions
- AV 46.9 Compatible Rear I/O

Harsh Environment Video Processor
Raw video capture for analysis, enhancement, fusion, encode and display begins with the low cost, high reliability XMC-FGX-TK1. Video data is captured using 3G/HD-SDI, PCI Express, LAN or USB. Each engine is independent and streams raw data to or from the GPU.

Utilize the 192 CUDA cores for complex algorithmic enhancement or encoding, all programmed in a standard CUDA/OpenCL/OpenGL API.

WOLF FGX Technology powered by Xilinx Series 7
The core of embedded video processing is the video capture engine. The WOLF Frame Grabber eXtreme (FGX) is built on Xilinx FPGA hardware; a high performance engine designed for COTS or MCOTS customization to interface with many camera or display standards.

NVIDIA Tegra K1 – Embedded CUDA
Image enhancement, object tracking, identification and fusion algorithms are limited by processing capability. The XMC-TK1-FGX combines an industry leading 8GB of memory, 5 ARM cores and embedded Kepler GPU to provide the most powerful harsh environment NVIDIA APU engine to date. Eliminate system limitations with the latest generation Tegra K1.
Order Codes

- 0326CC-F800XMCv10
  - XMC-FGX-TK1, Cond Cooled, 8GB DDR3L

- 0326CC-F801XMCv10
  - XMC-FGX-TK1, Cond Cooled, 8GB DDR3L, NTB

- 0326AC-F800XMCv10
  - XMC-FGX-TK1, Air Cooled, 8GB DDR3L

- 0326AC-F801XMCv10
  - XMC-FGX-TK1, Air Cooled, 8GB DDR3L, NTB

- 0326CC-F000XMCv10
  - XMC-FGX-TK1, Cond Cooled, 4GB DDR3L

- 0326CC-F001XMCv10
  - XMC-FGX-TK1, Cond Cooled, 4GB DDR3L, NTB

- 0326AC-F000XMCv10
  - XMC-FGX-TK1, Air Cooled, 4GB DDR3L

- 0326AC-F001XMCv10
  - XMC-FGX-TK1, Air Cooled, 4GB DDR3L, NTB

Non-Transparent Bridging Option

The Non-Transparent Bridging order code includes a fully implemented driver, run-time license for API and instructions for Tegra K1 communication and DMA. Driver is available for multiple target hosts such as Intel, TegraK1 and PowerPC in many operating systems.

Configuration Codes

The XMC-FGX-TK1 is available with multiple configuration options not listed on this datasheet, such as conformal coating material, interface termination, and connector selection. For a complete list, speak to a WOLF support representative.