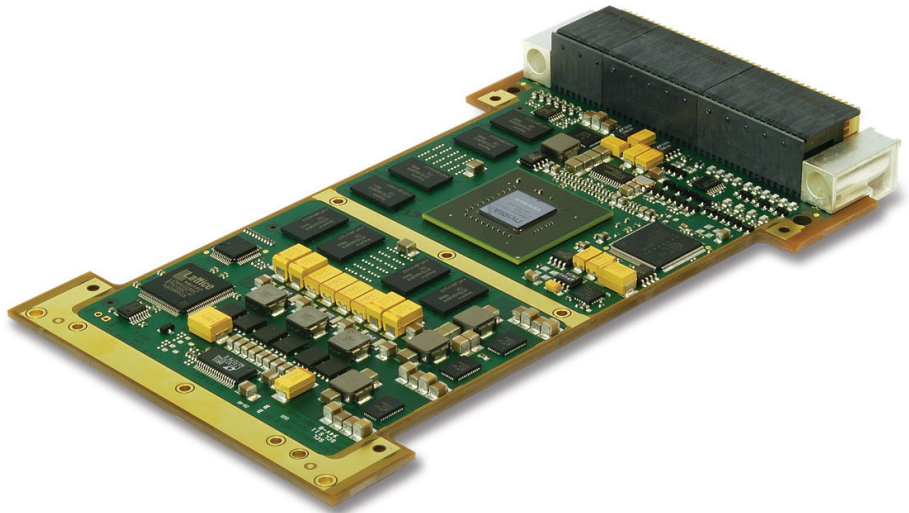




GRA112

3U VPX High Performance Graphics Board

The GRA112 is the third generation of 3U VPX graphics boards, bringing the NVIDIA® Kepler graphics processing unit to the rugged military and aerospace market for both video and graphics generation and general purpose computing (GPGPU).

For both runtime performance and ease of programming, NVIDIA's EXK107 GPU enables significant gains in SIGINT, radar and video or image processing applications. With 384 processing cores, single- and double-precision floating point units, improved shared memory architecture and cache hierarchy, together with faster atomic operations, the GRA112's EXK107 GPU is capable of CUDA Compute Capability v3.0.

The 3U VPX form factor of the Abaco Intelligent Platforms GRA112 allows maximum bandwidth connectivity between NVIDIA's EXK107 GPU and the system backplane, routing the full 16 lanes of PCI Express® Gen 3 to the backplane for connection to a CPU, such as a 3rd generation Intel® Core™-i7 SBC. This high-bandwidth interconnect helps reduce latency, particularly in applications which transfer large volumes of data to the GPU for processing.

Designed to be pin-compatible with Abaco's GRA111, the GRA112 offers two independent graphics channels in both analog

VESA and digital DVI formats. In addition, the analog outputs can be configured to drive legacy video formats such as STANAG 3350 and RS-170, with custom timings if necessary.

This high-performance graphics card is available in all five of Abaco's standard rugged build levels, from benign lab environments to wide-temperature rugged conduction-cooled, and in a two-level maintenance (2LM) VITA 48-REDI variant with rear covers. In critical applications where it is desirable to have a fast shutdown of computing equipment, an option exists for a fast power-supply discharge.

The GRA112 is a form, fit and function replacement for the GRA111, and may be deployed in the MAGIC1 Rugged Display Computer to provide a fast-to-market solution for high-performance graphics and GPGPU signal processing applications.



The GRA112 is optionally available as an LRM (Line Replaceable Module) in accordance with the VPX-REDI (VITA 48) standard

FEATURES:

- NVIDIA® EXK107 GPU
 - NVIDIA Kepler architecture
 - 384 processor cores
 - 128-bit memory bus
 - 2 Gbytes GDDR5 SDRAM as used on NVIDIA GT 650M
- PCI Express
 - 16-lane PCIe Gen 3 capable (x16/x8/x4/x1)
- Support
 - NVIDIA CUDA™ (compute capability 3.0)
 - OpenCL™
 - OpenGL
 - GPUBoost
 - NVIDIA H.264 video encoding (NVENC)
 - NVIDIA PureVideo® Technology (PUHD)
 - NVIDIA PhysX™-ready
 - Microsoft® DirectX (Compute)
- Dual channel output
 - 2x digital DVI outputs
 - Up to WUXGA (1920 x 1200) @ 60 Hz
 - 2x analog outputs
 - Up to UXGA (1600 x 1200) @ 60 Hz
 - Legacy video, STANAG 3350, RS-170
- Air- and conduction-cooled variants
- 3U VPX form factor
- Available as 2LM VPX-REDI

GRA112 3U VPX High Performance Graphics Board

Specifications

GPU

- NVIDIA EXK107

Video memory

- 2 Gbytes GDDR5 SDRAM
- 128-bit wide memory interface

Number of channels

- Dual independent channels

RGB output

- VESA resolutions up to UXGA 1600x1200@60Hz
- STANAG 3350 A, B & C; RS-170; Custom

Digital output

- DVI 1.0 resolutions up to UXGA 1600x1200@60Hz

Video input

- RS-170, NTSC, PAL
- CVBS or S-video

Form factor

- 3U VPX

Fabric Interface

- Interconnection between GPU and CPU
- 16-lane PCI Express interface, Gen 3 capable

Environment

- Level 1: 0°C to +55°C air-cooled
- Level 2: -20°C to +65°C air-cooled
- Level 3: -40°C to +75°C air-cooled
- Level 4: -40°C to +75°C conduction-cooled
- Level 5: -40°C to +85°C conduction-cooled

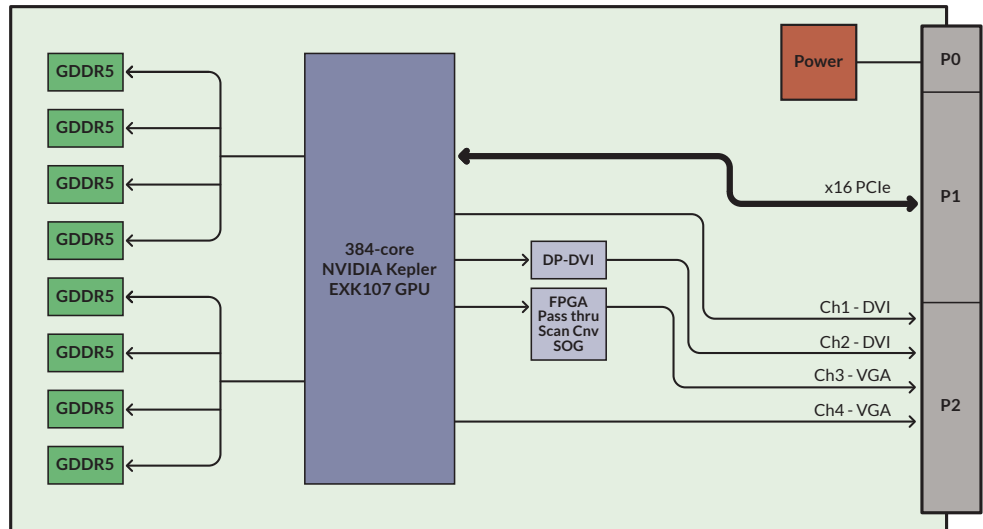
Drivers

- OpenGL 4.1 and DirectX 11 drivers for Microsoft® Windows® & Linux® running on Intel® host card

Power Requirements

- +5V / 3V3_Aux required

Block diagram



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