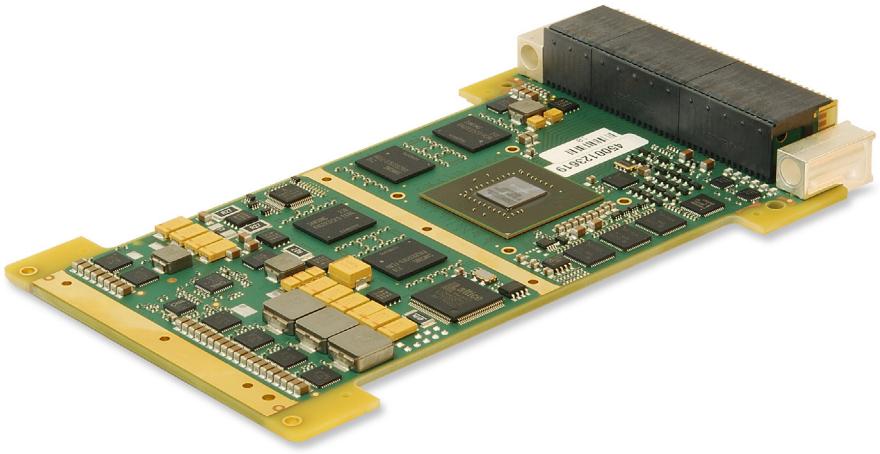


GRA113D

3U VPX High Performance Dual Channel Graphics Board

The GRA113D is the fourth generation of 3U VPX graphics boards, bringing the NVIDIA 'Maxwell' 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 GM107 GPU enables significant gains in SIGINT, radar and video or image processing applications. With 640 processing cores, single- and double-precision floating point units, improved shared memory architecture and cache hierarchy, together with faster atomic operations, the GRA113D's GM107 GPU is capable of CUDA Compute Capability v3.0.

Abaco Systems GRA113D's 3U VPX form factor allows maximum bandwidth connectivity between NVIDIA's GM107 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 5th 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.

The GRA113D natively supports two independent output channels, which may be either DVI or VGA. The GRA113D is a technology insertion for the GRA112.

This high-performance graphics card is available in four of Abaco's 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 GRA113D is optionally available as an LRM (Line Replaceable Module) in accordance with the VPX-REDI (VITA 48) standard.

FEATURES:

- NVIDIA® GM107 GPU
  - NVIDIA Maxwell architecture
  - 640 processor cores
  - 128-bit memory bus
  - 2 Gbytes GDDR5 SDRAM
  - As used on NVIDIA GTX 850M
- PCI Express
  - 16-lane PCIe Gen 3 capable (x16/x8/x4)
- 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 (1920x1200) @ 60 Hz
  - 2x analog outputs
  - Up to UXGA (1600x1200) @ 60 Hz
- Air- and conduction-cooled variants
- 3U VPX form factor
- Available as 2LM VPX-REDI

abaco SYSTEMS

GRA113D *3U VPX High Performance Dual Channel Graphics Board*

Specifications

GPU
- NVIDIA GM107

Video memory
- 2 GB GDDR5 SDRAM
- 128-bit wide memory interface

Number of channels
- Dual independent channels

RGB output
- VESA resolutions up to 1920x1200 @ 60 Hz

Digital output
- DVI 1.0 resolutions up to 1920x1200 @ 60 Hz

Form factor
- 3U OpenVPX

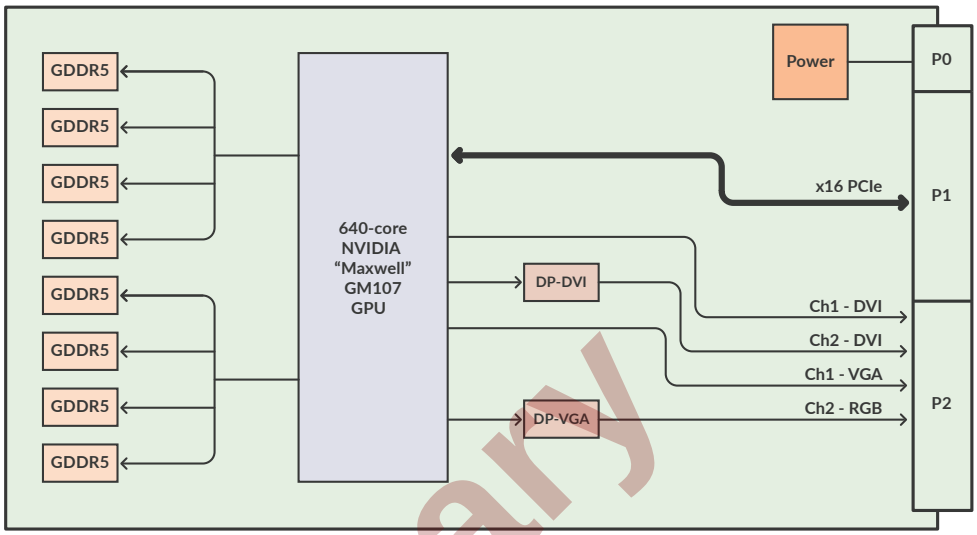
Fabric Interface
- Interconnection between GPU and CPU
- 16-lane PCI Express interface, Gen 3 capable

Environment
- Level 1: 0°C to +55°C air-cooled
- Level 2: -20°C to +65°C air-cooled
- Level 4: -40°C to +75°C conduction-cooled
- Level E: -40°C to +80°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



Ordering information