

GRA111

3U VPX High Performance Graphics Board

Features

- NVIDIA® GT 240 Graphics Processing Unit (GPU)
 - 96 processor cores
 - 540 MHz graphics clock
 - 1302 MHz processor clock
- Feature Support
 - NVIDIA CUDA™ technology
 - OpenCL™
 - OpenGL
 - NVIDIA PureVideo® Technology (PUHD)
 - NVIDIA PhysX™ -ready
 - Microsoft® DirectX (Compute)
- 1 GByte DDR3 SDRAM
- Two independent output channels
- VESA output resolutions to 2048x1536
- HDMI
- DVI 1.0 digital video output (single or dual link)
- Air- and rugged-conduction variants
- 3U VPX Form Factors

The GRA111 is the second generation 3U VPX graphics board, employing the state-of-the-art NVIDIA GT 240 GPU to bring desktop performance to the rugged Military and Aerospace market. In addition to meeting increased demand for graphics rendering performance, the GRA111 is the first rugged implementation of a CUDA-capable GPU.

The VPX form factor allows for high speed PCI Express connections to single board computers in the system. The GRA111 supports the 16-lane PCI Express implementation, providing the maximum available communication bandwidth to a CPU such as GE Intelligent Platforms SBC341. The PCI Express link will automatically adapt to the active number of lanes available, and so will work with single board computers in 8- and 4-lane configurations.

With a rich set of I/O, the GRA111 is designed to serve many of the most common video applications. Dual, independent channels mean that it is capable of driving RGB analog component video, digital DVI 1.0, and HDMI standards. In addition, the GRA111's video input capability allows integration of sensor data using RS170, NTSC or PAL video formats.

NVIDIA CUDA is a general purpose parallel computing architecture that leverages the parallel compute engine in NVIDIA GPUs to solve many computational problems in a fraction of the time required on a CPU. It includes the CUDA Instruction Set Architecture (ISA) and the parallel compute engine of the GPU. Today developers can use C, one of the most widely used high-level programming languages, which can then be run at great performance on a CUDA enabled processor.

The GRA111 is a form, fit and function replacement for the GRA110 which will fit the existing MAGIC1 Rugged Display Computer, providing a fast-to-market solution for small high-performance graphics and GPGPU signal processing applications.



Optionally available as an LRM (Line Replaceable Module) in accordance with the VPX-REDI (formerly VITA 48) standard



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Specifications

GPU

- NVIDIA GT 240 graphics processor
- 96 processor cores
- 540 MHz graphics clock
- 1302 MHz processor clock

Video memory

- 1 GByte DDR3 memory
- 790 MHz memory clock
- 128-bit memory interface width, 25.2 (GB/sec) memory bandwidth

Number of channels

- Two

RGB output

- VESA: resolutions up to 2048x1536 @ 85Hz

Digital output

- DVI 1.0: resolutions up to 2560x1600 @ 60Hz
- HDMI up to 1080p

Video input

- RS170, NTSC, PAL; composite or S-video

Form factor

- 3U VPX: allows maximum bandwidth between CPU & GPU on 16-lane PCI Express

Drivers

- Drivers for Windows® and Linux® running on Intel® host card available from NVIDIA

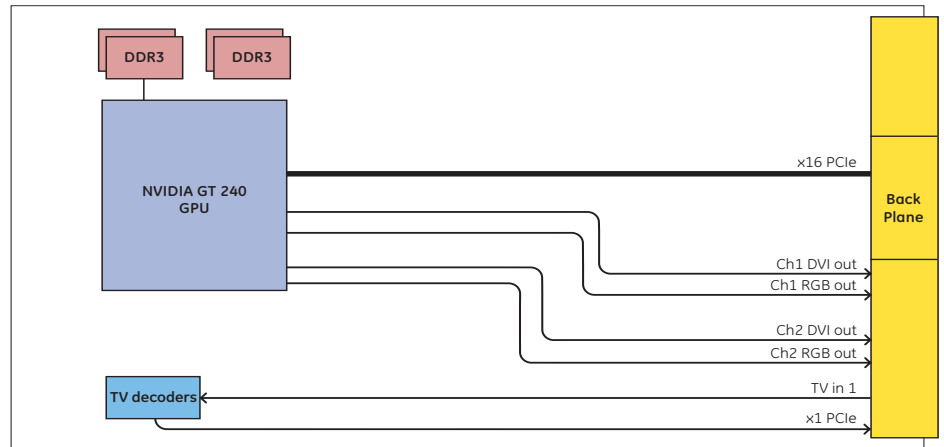
Mechanical

- 3U VPX form factor
- 0.8", 0.85", 1" widths
- Optional two level maintenance covers

Thermal and Power Specifications

- Maximum graphics card power: 44 watts
- VPX-PO only power connection
- Power rail requirement (W): 5V @ 9A; 3V3 Aux @ 200mA

Block Diagram



Ordering Information

GRA111-1000

Level 1 Air-cooled GRA111

Dual Channel NVIDIA graphics processing unit, with NVIDIA GT 240 GPU; 1 GByte GDDR3 SDRAM. Dual DVI 1.0 output; Dual VGA output; Dual RS-170/NTSC/PAL output; RS-170/NTSC/PAL Input

GRA111-2000

Level 2 Air-cooled GRA111 as above

GRA111-3000

Level 3 Air-cooled GRA111, as above

GRA111-4000

Level 4 Conduction-cooled GRA111, as above

GRA111-5000

Level 5 Conduction-cooled GRA111, as above

Consult factory for availability

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Enterprise Solutions. For more information, visit www.ge-ip.com.

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