MAGIC1

Rugged, High Performance, Display and Multicore Payload Processor

Features

- High Performance display computer
- CUDA enabled compute node
- Leading edge graphics performance
- CPU options
  - Intel Core2Duo
  - Freescale 8641D
- GPU options
  - NVIDIA GT 240 (CUDA Enabled)
  - NVIDIA G73
  - Intel 4500MHD integrated graphics
- Multiple video standards
- Dual Channel Output
- Video input
- Up to 256 GBytes solid state disk
- Baseplate, convection or forced air cooled

The small form factor MAGIC1 combines state of the art CPU technology with the latest Graphics Processing Units (GPUs) in order to deliver unprecedented levels of performance to the rugged marketplace. When deployed as a Display Computer this enables the MAGIC1 to support the industry's most demanding visual applications. Additionally, through use of the GT 240 GPU, the MAGIC1 provides access to General Purpose computing on Graphics Processing Units (GPGPU) computing.

In order to provide full application coverage the CPU can be selected as an Intel Core 2 Duo or a dual core Freescale 8641D. System memory is made up of two banks of dual data rate SDRAM, with capacity up to 4 GBytes.

The dual channel GPU can be selected as either an NVIDIA GT 240 GPU incorporating 1 Gbyte of DDR3 memory or an NVIDIA G73 GPU incorporating 256 Mbytes of GDDR3 SDRAM. In each case graphics memory is arranged in two banks and the GPU connects to the CPU through a dedicated 16-lane PCI Express™ link.

GPGPU computing uses the GT 240 as a 96 core parallel processing engine to accelerate radar, sonar, image processing and similar applications. To enable rapid application development environments such as CUDA, OpenCL and MATLAB are available.

Storage is provided by a solid state disk drive, which boasts a capacity of up to 256 GBytes, sustained read performance of 45 Mbytes/second, and a purge facility to allow data on the drive to be securely deleted in an emergency.

The MAGIC1 Rugged Display Processor is available in three chassis configurations: Base-plate cooled for when a suitable cold-plate is available, convection cooled by means of integral fins or forced air cooled through hollow sidewall heat exchangers for when no external cooling mechanism is available.

MAGIC1 Rugged, High Performance, Display and Multicore Payload Processor

Specifications

CPU
- Intel Core2Duo
- Freescale 8641D

Main memory
- Up to 4 GBs DDR2 SDRAM

Local Flash memory
- 1 GB Flash

GPU
- NVIDIA GT 240 96 core GPU
- NVIDIA G73 GPU as used in the GeForce 7600GT
- Intel 4500MHD integrated graphics

Internal mass storage
- Rotating or SSD

Front panel Interfaces
- 3 Gigabit Ethernet
- 4 USB
- PS/2 keyboard and mouse
- 2 × RS232
- 1 or 2 VGA out
- 2 DVI out
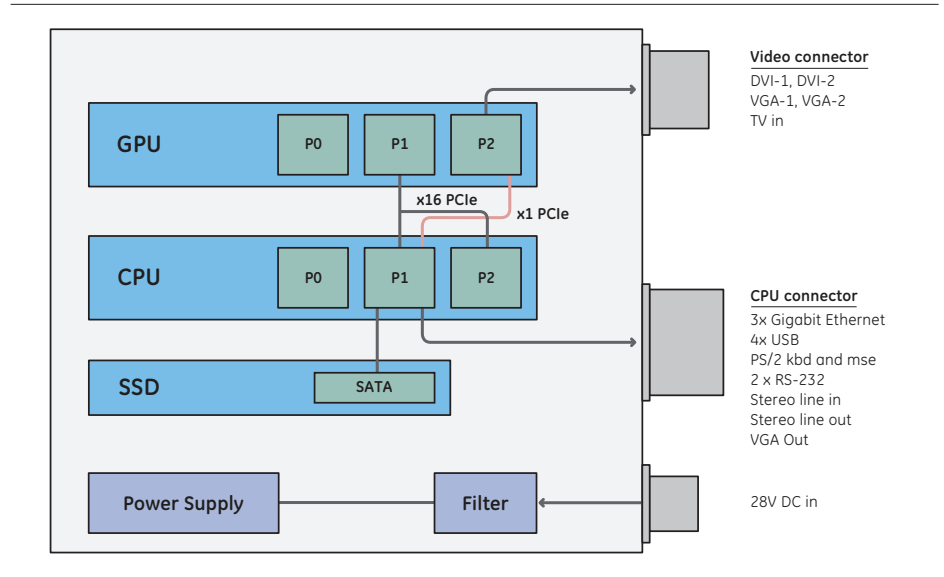- TV in
- Audio Stereo line out, Audio in

Software support
- BIOS to support Windows XP, Linux, VxWorks, OpenGL, DirectX,
- NVIDIA® PhysX™, NVIDIA® 3D Vision™

Dimensions
- Baseplate cooled
- Length 230mm (9.05in) × Width 167mm (6.57in) × Height 83mm (3.25in)

Block Diagram

Video connector
DVI-1, DVI-2
VGA-1, VGA-2
TV in

CPU connector
3x Gigabit Ethernet
4x USB
PS/2 kbd and mse
2 × RS-232
Stereo line in
Stereo line out
VGA Out

28V DC in

Ordering Information

MAGIC1 - 4 5 2 6 4 C F 1   NOTE: Consult GE for preferred options

1 = BIOS
3 = BIOS + CentOS Linux
4 = BIOS + Red Hawk Linux (90 day evaluation)

0 = Conduction Cooled Baseplate
3 = Air Blown Sidewall, Aero Fan
F = Finned (convection)

X = Intel 4500MHD integrated graphics
0 = NVIDIA G73 GPU
C = NVIDIA GT 240 96 core GPU

4 = 3 Gb Ethernet ports + x1 PCIe to support TV capture

2 = 32 GB SSD
3 = 64 GB SSD no fast purge
4 = 128 GB SSD
5 = 256 GB SSD
6 = 64 GB SSD with fast purge
R = 120 GB Rotary Drive – Lab Use Only

1 = 1 GB SDRAM (2x512MB)
2 = 2 GB DRAM (2x1GB)
4 = 4 GB SDRAM

4 = 1.86 GHz SL9400 Core2Duo
5 = 2.26 GHz SP9300 Core2Duo
6 = 1 GHz 8641D Dual Core
8 = 1.33 GHz 8641D Dual Core

4 = -40˚C to 65˚C operation
5 = -40˚C to 75˚C operation

08.10 GFA-810B