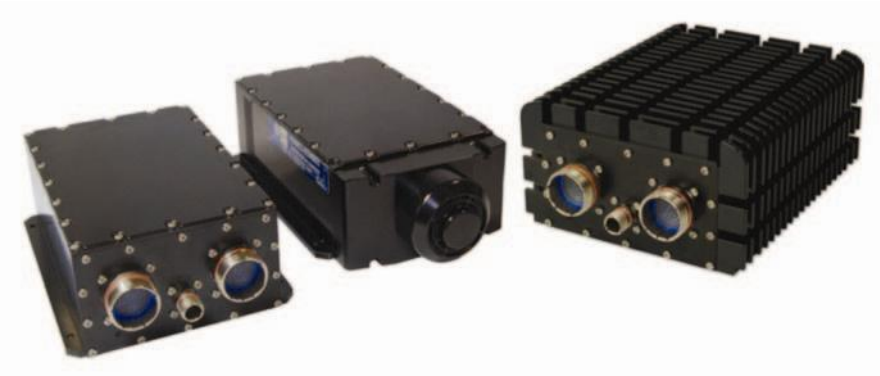
GE
Intelligent Platforms



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® 3rd Gen Core™ i7
  - Intel 2nd Gen Core i7
- GPU options
  - NVIDIA® EXK107
  - Intel Graphics 3000
  - Intel 4500MHD integrated graphics
- Multiple video standards
- Dual Channel Output
- 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, such as embedded training, 360° situational awareness, or advanced digital maps.

Additionally, through use of the EXK107 GPU (as used on the GeForce GT 650M), the MAGIC1 provides General Purpose computing on Graphics Processing Units (GPGPU) for data-intensive application, opening up a huge range of Intelligence, Surveillance and Reconnaissance applications. Example ISR applications on this 384-core CUDA-capable GPU include wide-area persistent surveillance, hyperspectral sensor fusion, IED detection, synthetic aperture radar processing, and many more.

The MAGIC1 benefits from form, fit, and function technology upgrades and has evolved to the third generation of Intel CPU, the Core i7. System memory is made up of two banks of dual data rate SDRAM, with capacity of 8 GBytes DDR3.

The dual channel NVIDIA EXK107 GPU with 2 Gbytes of GDDR5 memory can output both channels as either DVI or RGB. The GPU connects to the CPU through a dedicated 16-lane Gen 2 PCI Express™ link.

To enable rapid application development and deployment, the MAGIC1 is code compatible with desktop environments such as CUDA, OpenCL and MATLAB, allowing easy porting of applications and algorithms onto the deployable platform.

Storage is provided by a hardware-encrypted solid state disk drive, which boasts a capacity of up to 256 GBytes, a sustained read/write performance of greater than 250 Mbytes/second, and a purge facility to allow data on the drive to be securely deleted in an emergency. A software development kit allows selection of the desired purge algorithm.

The MAGIC1 Rugged Display Processor is available in three chassis configurations:

- Base-plate cooling for when a suitable coldplate is available
- Convection-assisted cooling by means of integral fins
- Forced air cooling through hollow sidewall heat exchangers suitable for rugged airborne applications.

MAGIC1 Rugged, High Performance, Display and Multicore Payload Processor

Specifications

CPU
- Intel Core i7-3612QE @ 2.1 GHz

Main memory
- 8 GB DDR3 SDRAM

Local Flash memory
- 8 GB Flash

GPU
- NVIDIA EXK107 384-core GPU
- Intel HD Graphics 3000 integrated graphics
- Intel 4500MHD integrated graphics

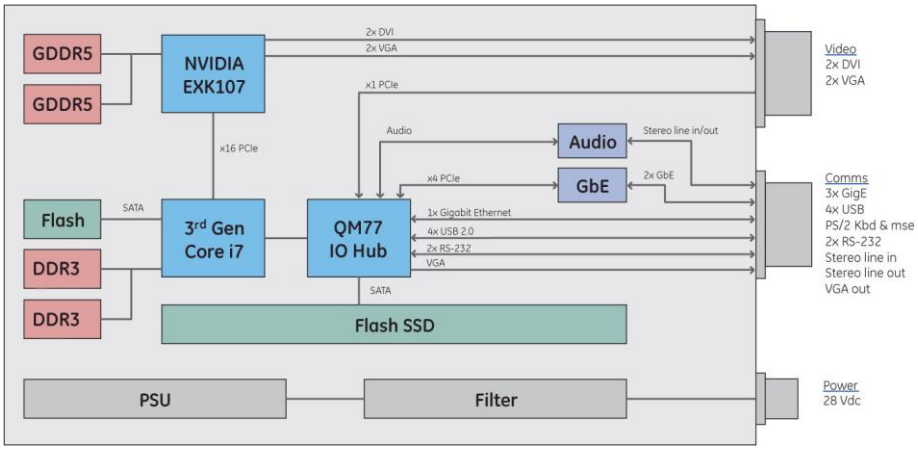
Internal mass storage
- Rotating media for lab use
- 32, 64, 128 or 256 GB SSD
- AE-128 encryption
- Hardware purge, i.a.w. military standards

Front panel Interfaces
- 3 Gigabit Ethernet
- 4 USB
- PS/2 keyboard and mouse
- 2x RS232
- 1 or 2 VGA out
- 2 DVI out
- 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
  230mm x 167mm x 83mm
  9.05" x 6.57" x 3.25"
  Length x Width x Height

Block Diagram



Ordering Information

MAGIC1 – 4 D 8 6 4 K F 1

NOTE: Consult GE for preferred options

1 = BIOS

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

X = Intel 4500MHD Integrated Graphics
K = NVIDIA EXK107 384-core GPU

4 = 3 GbE ports + x1 PCIe to support TV capture

6 = 64 GB SSD with Fast Purge
B = 64 GB SSD, AE-128, Fast Purge
D = 256 GB SSD, AE-128, Fast Purge
R = 120 GB Rotary Drive – Lab Use Only

8 = 8 GB DDR3 SDRAM (CPU opt A, B)

A = 2.2 GHz DC Core i7: SBC324
B = 2.1 GHz QC Core i7: SBC324
D = 2.1 GHz QC Core i7: SBC325

4 = -40° C to +65° C operation
5 = -40° C to +75° C operation

About GE Intelligent Platforms

GE Intelligent Platforms is a division of GE that offers software, control systems, services, and expertise in automation and embedded computing. We offer a unique foundation of agile and reliable technology providing customers a sustainable competitive advantage in the industries they serve, including energy, water, consumer packaged goods, oil and gas, government and defense, and telecommunications. GE Intelligent Platforms Military and Aerospace Division is headquartered in Huntsville, AL. For more information, visit defense.ge-ip.com.

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