



# mITX-M965-P

## Mini-ITX Embedded Motherboard with PCI Expansion Slot

### Features

- Mini-ITX form factor with PCI expansion slot
- Processors
  - Intel® Core™ 2 Duo, PGA (mPGA478P)
  - Intel® Celeron® M
- GME965/ICH8M chipset combination
- Up to 4 Gbyte DDR2 SDRAM, 200-pin SODIMM
- Graphics
  - VGA, LVDS, DVI
  - Microsoft DirectX9 and OpenGL 1.5
- PCI expansion slot
- Two Gigabit Ethernet ports
- Four USB 2.0 ports on rear panel
  - Additional four ports onboard
- Two COM ports
- Three SATA interfaces with SATA 1.0a support
- Up to two IDE devices
- High definition audio
- Temperature, voltages and fan alarms
- Energy efficiency
  - Wake-On events (PS/2, USB, LAN, Ring, RTC)
  - Supports ACPI 2.0/1.0
  - Enhanced Intel® SpeedStep Technology
  - AC power failure recovery
  - Intel® Rapid Memory power management
- RoHS compliant

Mini-ITX is an open architecture with industry-wide acceptance that provides for product longevity and stability. mITX-M965-P is an embedded motherboard in the Mini-ITX form factor with expandable I/O functionality, up to three devices, through off-the-shelf PCI slot cards or using a riser card.

The mITX-M965-P single board computer features Intel's Core 2 Duo and Celeron M processors. These processors deliver performance-per-watt improvements and provide an excellent choice for system integrators with high performance requirements.

Using two SODIMM sockets, the four Gbyte of DDR2 memory can be adjusted, on demand, to satisfy an application's needs. The mITX-M965-P is well equipped with two Gigabit Ethernet ports, up to eight USB ports, and two COM ports. Also supported are various mass storage devices, including a choice of three SATA channels and/or up to two IDE devices.

For superior graphic performance, the mITX-M965-P features integrated analog CRT, a LVDS interface, and a DVI port along with the Mobile Intel Graphics Media Accelerator X3100 and the Dynamic Video Memory Technology 4.0. Coupled with the audio port, the mITX-M965-P lends itself to a wide range of multimedia implementations.

mITX-M965-P is powered via a 20-pin ATX power connector.

The mITX-M965-P is well suited for industrial environments where shock, vibration and extended temperature operation are not required.

The product is RoHS compliant.



# mITX-M965-P Mini-ITX Embedded Motherboard with PCI Expansion Slot

## Specifications

### Processor

- Intel Core 2 Duo mobile processor
  - 800/533 MHz system data bus
  - Processor socket: mPGA478P
  - Intel Celeron M processor

### Chipset – Intel

- Intel GME965 Express Chipset
- Intel 82801HEM I/O Controller Hub (ICH8M)

### Memory

- Two 200-pin SODIMM sockets
- Supports up to 4 Gbyte of DDR2 SDRAM
- Supports 533 MHz and 667 MHz DDR2 SDRAM

### Graphics Features

- Onboard graphics features
  - Mobile Intel Graphics Media Accelerator X3100
  - Dynamic Video Memory Technology 4.0
  - Microsoft® DirectX9 and OpenGL 1.5 support
- Integrated graphics interface
  - Analog CRT with integrated 300 MHz RAMDAC
    - Supports up to QXGA (2048 x 1536 @ 60 Hz)
  - LVDS interface
    - 25 MHz to 112 MHz single/dual channel @ 18 bpp, TFT panel type support
    - 24 bpp dual channel up to 2048 x 1536
  - DVI
    - DVI 1.0 support for external digital monitor

### Audio

- Realtek ALC262 high definition audio codec
- Two-channel audio output
- Two 24-bit stereo DACs
- Three 20-bit stereo ADCs
- S/PDIF input/output interface

### LAN

- Two Realtek RTL8111 PCI Express Gigabit controllers
- Supports 10 Mbps, 100 Mbps and 1 Gbps
- IEEE 802.3 and IEEE 802.3ab compliant

### Expansion

- PCI slot for PCI or Riser card (up to 3x PCI devices)

### Serial ATA Interface

- Three Serial ATA 1.0a interface (up to 1.5 GByte/s)
- Supports AHCI

### IDE Interface

- Up to two IDE devices
- Ultra ATA 100/66/33

### Rear Panel I/O Ports

- Mini-DIN-6 PS/2 keyboard port
- Mini-DIN-6 PS/2 mouse port
- 2x DB9 serial ports
- 1x DB-15 VGA port
- 1x DVI port
- 2x RJ45 LAN ports
- 4x USB 2.0 ports
- Mic-In, Line-In and Line-Out

### I/O Connectors

- 2x Connectors for additional four USB 2.0 ports
- 1x LCD brightness control
- 1x LVDS LCD panel
- 1x LCD/inverter power
- 1x LCD AUX power
- 1x Digital IO
- 1x Front audio (Line-Out, Mic-In)
- 1x CD-In internal audio
- 1x S/PDIF
- 3x SATA, 1x 40-pin IDE
- 1x 20-pin ATX power
- 1x Front panel
- 1x Chassis open
- 2x Fan

### BIOS

- AMI BIOS
- 4 Mbit Flash memory

### Monitoring

- Temperature, voltages, fans, failures
- Watchdog

### Temperature

- Operating: 0° C to +60° C
- Storage: -40° C to +85° C

### Humidity

- Operating: 10% to 90%

### PCB

- Dimensions
  - Mini-ITX form factor
  - 170 mm x 170 mm (6.7" x 6.7")

## Ordering Information

### MIE96500P2201

Mini-ITX embedded motherboard with PCI slot for PGA processors without memory

## About GE Fanuc Intelligent Platforms

GE Fanuc Intelligent Platforms is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Intelligent Platforms has the breadth, experience and 24/7 support to deliver what you need. For more information, visit [www.gefanuc.com](http://www.gefanuc.com).

## GE Fanuc Intelligent Platforms Information Centers

Americas:  
1 800 322 3616 or 1 256 880 0444

Asia Pacific:  
+81 3 5544 3973

EMEA:  
Germany: +49 821 5034-0  
UK: + 44 1327 359444

## Additional Resources

For more information, please visit the GE Fanuc Intelligent Platforms web site at:

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