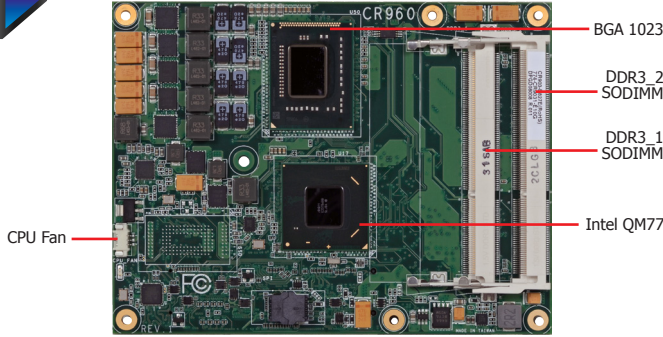




# CR960-QM77

QM77

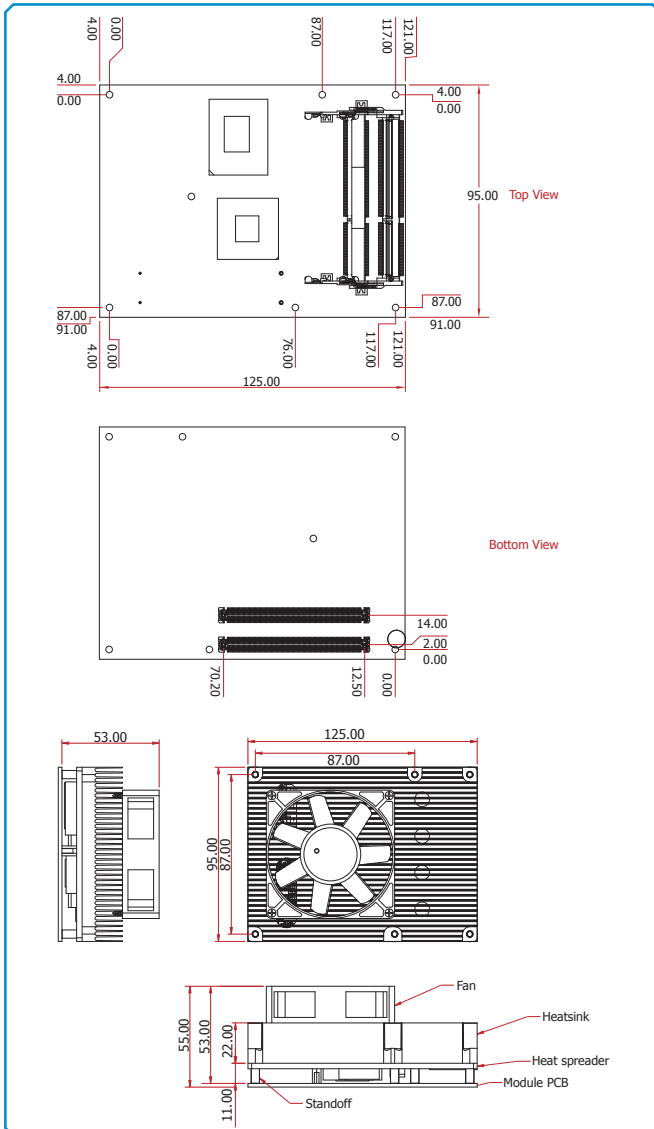


## Features

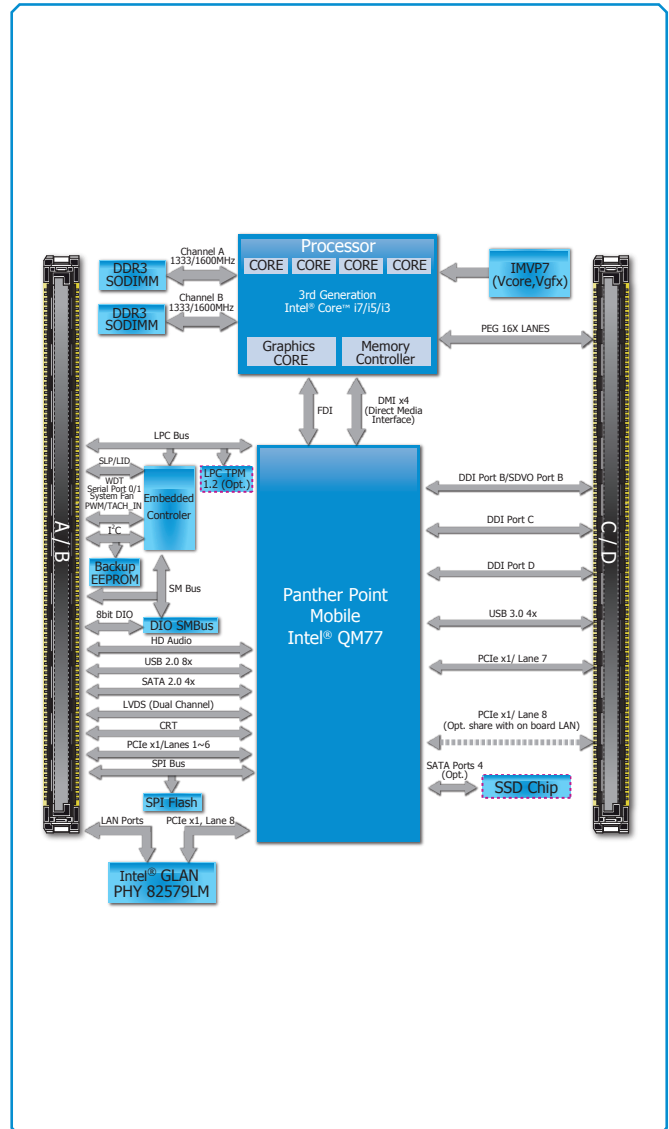
MEMORY	2 DDR3/DDR3L SODIMM up to 16GB
EXPANSION	1 PCIe x16, 7 PCIe x1 1 LPC, 1 SMBus, 1 I <sup>2</sup> C, 2 serial 1 VGA, 1 LVDS, 3 DDI (HDMI/DVI/DP/SDVO) 12 USB: 4 USB 3.0, 8 USB 2.0 4 SATA: 2 SATA 3.0, 2 SATA 2.0 SSD (optional) 4-bit input and 4-bit output GPIO
LAN	1 LAN
DIMENSIONS	COM Express® R2.1 Basic, Type 6 95mm x 125mm (3.74" x 4.9")



## Mechanical Drawing



## Block Diagram



# CR960-QM77

## ► Specifications \* Optional and is not supported in standard model. Please contact your sales representative for more information.

### PROCESSOR

- BGA 1023 packaging technology
- 3rd generation Intel® Core™ processors (22nm process technology)
- Please refer to the *Ordering Information* below

### CHIPSET

- Intel® QM77 Express Chipset

### SYSTEM MEMORY

- Two 204-pin DDR3/DDR3L SODIMM sockets
- Supports DDR3/DDR3L 1333/1600 MHz (i7/i5/i3)
- Supports DDR3/DDR3L 1066/1333/1600 MHz (i7 Quad Core)
- Supports dual channel memory interface
- Supports up to 16GB system memory
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC

### ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics 4000
- Supports VGA, LVDS and DDI interfaces
- VGA: resolution up to 2048x1536 @ 75Hz
- LVDS: Single Channel - 18/24-bit; Dual Channel - 36/48-bit, resolution up to 1920x1200 @ 60Hz
- Digital Display Interfaces: HDMI, DVI, DP or SDVO (for Port B)
- HDMI, DVI, DP: resolution up to 1920x1200 @ 60Hz
- Intel® Clear Video Technology
- DirectX Video Acceleration (DXVA) for accelerating video processing
- Full AVC/VC1/MPEG2 HW Decode
- Supports DirectX 11/10.1/10/9 and OpenGL 3.0

### ONBOARD AUDIO FEATURES

- Supports High Definition Audio interface

### ONBOARD LAN FEATURES

- Intel® 82579LM Gigabit Ethernet PHY
- Integrated 10/100/1000 transceiver
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

### SERIAL ATA (SATA) INTERFACE

- Supports 4 Serial ATA interfaces
- 2 SATA 3.0 with data transfer rate up to 6Gb/s
- 2 SATA 2.0 with data transfer rate up to 3Gb/s
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1/5/10

### SSD\*

- 2GB/4GB/8GB/16GB/32GB/64GB
- Write: 30MB/sec (max), Read: 70MB/sec (max)
- SATA to SSD onboard

### TRUSTED PLATFORM MODULE (TPM)\*

- Provides a Trusted PC for secure transactions
- Provides software license protection, enforcement and password protection

### EXPANSION INTERFACES

- Supports 4 USB 3.0 ports
- Supports 8 USB 2.0 ports
- Supports 1 PCIe x16 interface
- Supports 7 PCIe x1 interfaces
- Supports LPC interface
- Supports I<sup>2</sup>C interface
- Supports SMBus interface
- Supports 2 serial interfaces (TX/RX)
- Supports 4-bit input and 4-bit output GPIO

### BIOS

- 64Mbit SPI BIOS

### WATCHDOG TIMER

- Watchdog timeout programmable via software from 1 to 255 seconds

### POWER

- Input: 5VSB\*, 12V, VCC\_RTC

### POWER CONSUMPTION

- CR960-QM77BS0-3120ME: 45.46W with i3-3120ME at 2.4GHz and 2x 4GB DDR3L SODIMM

### OS SUPPORT

- Windows XP Professional x86 & SP3 (32-bit)
- Windows XP Professional x64 & SP2 (64-bit)
- Windows 7 Ultimate x86 & SP1 (32-bit)
- Windows 7 Ultimate x64 & SP1 (64-bit)
- Windows 8 Enterprise x86 (32-bit)
- Windows 8 Enterprise x64 (64-bit)

### TEMPERATURE

- 0°C to 60°C

### HUMIDITY

- 5% to 90%

### PCB

- Dimensions: 95mm (3.74") x 125mm (4.9")
- Compliance: PICMG COM Express® R2.1 basic form factor, Type 6

## ► Ordering Information

Model Name	Processor	SODIMM	SSD	Power	Thermal	Temperature
CR960-QM77BS0-3120ME	Intel® Core™ i3-3120ME, 3M Cache, 2.4GHz, 35W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C
CR960-QM77BS0-3615QE	Intel® Core™ i7-3615QE, 6M Cache, 2.3GHz (3.3GHz), 45W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C
CR960-QM77BS0-3612QE	Intel® Core™ i7-3612QE, 6M Cache, 2.1GHz (3.1GHz), 35W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C
CR960-QM77BS0-3517UE	Intel® Core™ i7-3517UE, 4M Cache, 1.7GHz (2.8GHz), 17W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C
CR960-QM77BS0-3610ME	Intel® Core™ i5-3610ME, 3M Cache, 2.7GHz (3.3GHz), 35W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C
CR960-QM77BS0-3555LE	Intel® Core™ i7-3555LE, 4M Cache, 2.5GHz (3.2GHz), 25W	2 (16GB DDR3L)	None	ATX/AT	Fan	0°C to 60°C

The following specifications will be available upon request. Please contact your sales representative for more information.

Model Name	Chipset	Temperature	Memory	SSD	Processors
CR960	- QM77	B	S	0	- 3615QE
		B: 0°C to 60°C	S: Socket	0: None 2: 2GB 4: 4GB 8: 8GB 1: 16GB 3: 32GB 6: 64GB	3615QE: Intel® Core™ i7-3615QE, 6M Cache, 2.3GHz (3.3GHz), 45W 3612QE: Intel® Core™ i7-3612QE, 6M Cache, 2.1GHz (3.1GHz), 35W 3555LE: Intel® Core™ i7-3555LE, 4M Cache, 2.5GHz (3.2GHz), 25W 3517UE: Intel® Core™ i7-3517UE, 4M Cache, 1.7GHz (2.8GHz), 17W 3610ME: Intel® Core™ i5-3610ME, 3M Cache, 2.7GHz (3.3GHz), 35W 3120ME: Intel® Core™ i3-3120ME, 3M Cache, 2.4GHz, 35W

## ► Packing List

- 1 CR960 board
- 1 DVD
- Heat spreader with heat sink and fan: 761-CR9601-000G

## ► Optional Items

- COM331-B carrier board kit: 770-COM331-000G