



CEQM77HD ECC Type 6 95x125mm COM, 3rd Gen Intel Core i7

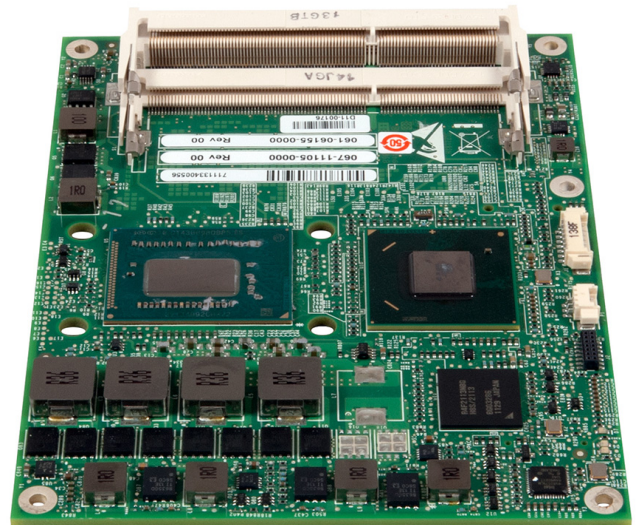
Type 6, 95x125mm COM, 3rd Gen Intel Core i7, HD, ECC

The CEQM77HD ECC provides extreme ruggedness and -40°C to +85°C temperature range combined with the third generation quad-core Intel Core i7 processor, error-correcting code (ECC) memory, and the Mobile Intel QM77 Express chipset to provide breakthrough processing performance on a basic size Type 6 COM Express Revision 2.0 module.

The basic size 95mm x 125mm module is ideal for compute-intensive applications requiring ECC memory such as communications and aerospace and defense equipment requiring high levels of processing performance, ECC memory and the extended -40C to +85C temperature range.

Radisys delivers the CEQM77HD ECC module in a COM Express Revision 2.0, Type 6 pin out, enabling customers to take advantage of new technology such as Digital Display Ports while boosting features and performance with up to 16GB memory, additional PCI Express lanes, and improved storage, graphics and audio. The CEQM77HD ECC module provides Trusted Platform Module (TPM) support as well as support for Intel Advanced Management Technology (AMT) enabling remote access and diagnostics via the Radisys Embedded Software Platform (eSP).

The Radisys CE family of COM Express products enable customers to start designing at the same time as processor release, saving months of development time and resources. OEM focus can remain on core competencies such as software and application development rather than high speed circuit design. Planned feature changes, demand fluctuations and performance upgrades can be handled without product re-designs using the CE family. CE modules can reduce service repair inventories, and simplify upgrades, contributing to the success of the product over its lifetime.



PROCESSORS

Module Specs	Description	Compare Modules
CEQM77HDE-3612-0	Intel Core i7 3615QE / 2.1GHz / 4 Core / 6MB Cache	
CEQM77HDE-3555-0	Intel Core i7 3555LE / 2.5GHz / 2 Core / 3MB Cache	
CEQM77HDE-3517-0	Intel Core i7 3517UE / 1.7GHz / 2 Core / 4MB Cache	

[Compare All](#)

COM EXPERT DESIGN SERVICES

OEMs can depend on the Radisys COM Expert team to support their design at every stage, from schematic checks to the handling of entire custom carrier and system designs.

Radisys COM Expert services include options for software utilities, custom BIOS, mechanical models, debug assistance and more to customers using Radisys CE processor modules. Design consulting and debug services are also available to support OEM product development at any stage; ask your Radisys Account Executive for more information.

FEATURES

- Intel Core i7 and i5 Processor options
 - Intel Core i7 3612QE, 2.1GHz
 - Intel Core i7 3555LE, 2.5GHz
 - Intel Core i7 3517UE, 1.7GHz
- Mobile Intel QM77 Express chipset
- Dual-channel DDR3 ECC memory, up to 16GB
- -40C to +85C temperature range
- Type 6 COM Express Revision 2.0
- Basic 95mm x 125mm size

- Seven PCI Express x1 ports
- One PCI Express x16 PEG port (Gen3)
- Three Digital Display Interfaces (DDI)
- Single Gigabit Ethernet
- 8 USB ports, including 4 USB 3.0 ports
- TPM and AMT support

SPECIFICATIONS

Feature	Function	Description
Pin-Out	Type	Type 6, 95mm x 125mm
	Compliance	PICMG COM Express R2.0 Basic Form Factor
Processor	3612QE	Core™ i5 3612QE 2.1GHz / 4 Core / 6MB cache / 35W
	3555LE	Core™ i7 3555LE 2.5GHz / 2 Core / 4MB cache / 25W
	3517UE	Core™ i7 3517UE 2.7GHz / 2 Core / 4MB cache / 17W
Chipset	Mobile Intel® QM77 Express chipset	
Memory	Type	Two 204-pin right-angle SO-DIMM sockets 1600 MT/s, 1333MT/s
	Capacity	16GB maximum, up to 8GB per channel
Flash	16MB system flash for BIOS storage	
Video	Intel® Gen 7th integrated graphics engine	LVDS supports 18 bit or 24 bit single/dual channel panel with resolutions up to 1920×1200 pixels at 60 Hz
		VGA with resolutions up to 1920×1200 pixels at 60Hz

Up to 3 Digital Display Interfaces

- DDI 1 (PCH Port B) supports DisplayPort, HDMI or SDVO
 - DDI 2 (PCH Port C) supports DisplayPort or HDMI
 - DDI 3 (PCH Port D) supports DisplayPort, HDMI or eDP
 - The resolutions of DisplayPort can support upto 2560×1600 pixels at 60Hz
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External

One x16 PCI Express interface for external PCIe x16 graphics device,

Networking

Single LAN

One 10/100/1000Base T

Audio

High Definition Audio

Speaker Out

Ethernet

One 10/100/1000BaseT Giga LAN

Storage

SATA

4 SATA ports supporting both 1.5 and 3.0 Gbps operation
Supports RAID 0, 1, 5 and 10
The first two ports supporting 6Gb/s transfer rate

PCI Express

PCI Express x1

Seven PCI Express x1 Ports:

- Ports 0–3 configurable as one x4, or two x2; or one x2 and two x1; or four x1 ports.
 - Ports 4-6 can be configured as three x1 or one x2 and one x1 ports
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PCI Express x16

One PCI Express x16 Graphics Expansion Port – Configurable as two x8 or one x8 and two x4 ports

USB

Four USB3.0 expansion ports with transfer rate up to 5Gb/s
Eight USB 2.0 expansion ports (first four ports combine with USB3.0 ports)

LPC

One LPC interface

TPM	ATMEL AT97SC3204 compliant with TPM1.2	
Power	+12 power rail, primary input Supports 9.0V–16.8V power supply	
Power Management	ACPI 4.0 supporting states 50, 53, 54, 55 63 and C0, C1, C3, C6, C7 AMT support Intel ME Power States M0, M3, Mox	
Miscellaneous	One 100KHz SMBus from PCH	
	One 400KHz I2C bus from MCU	
	Eight GPIO (four GPI and four GPO)	
	Watchdog timer	
BIOS	AMI Aptio EFI Firmware	
OS	Windows XP®	Embedded Professional 32bit Professional 64bit
	Windows 7	32bit 64bit
	Red Hat Enterprise Linux	32bit 64bit
	Fedora Linux	32bit and 64bit
Feature	Function	Description
Pin-Out	Type	Type 6, 95mm x 125mm
	Compliance	PICMG COM Express R2.0 Basic Form Factor
Processor	3612QE	Core™ i5 3612QE 2.1GHz / 4 Core / 6MB cache

/ 35W

3555LE Core™ i7 3555LE 2.5GHz / 2 Core / 4MB cache / 25W

3517UE Core™ i7 3517UE 2.7GHz / 2 Core / 4MB cache / 17W

Chipset Mobile Intel® QM77 Express chipset

Memory Type Two 204-pin right-angle SO-DIMM sockets 1600 MT/s, 1333MT/s

Capacity 16GB maximum, up to 8GB per channel

Flash 16MB system flash for BIOS storage

Video Intel® Gen 7th integrated graphics engine LVDS supports 18 bit or 24 bit single/dual channel panel with resolutions up to 1920×1200 pixels at 60 Hz

VGA with resolutions up to 1920×1200 pixels at 60Hz

Up to 3 Digital Display Interfaces

- DDI 1 (PCH Port B) supports DisplayPort, HDMI or SDVO
- DDI 2 (PCH Port C) supports DisplayPort or HDMI
- DDI 3 (PCH Port D) supports DisplayPort, HDMI or eDP
- The resolutions of DisplayPort can support upto 2560×1600 pixels at 60Hz

External One x16 PCI Express interface for external PCIe x16 graphics device,

Networking Single LAN One 10/100/1000Base T

Audio High Definition Audio

Speaker Out

Ethernet	One 10/100/1000BaseT Giga LAN
Storage	<p>SATA</p> <p>4 SATA ports supporting both 1.5 and 3.0 Gbps operation Supports RAID 0, 1, 5 and 10 The first two ports supporting 6Gb/s transfer rate</p>
PCI Express	<p>PCI Express x1</p> <p>Seven PCI Express x1 Ports:</p> <ul style="list-style-type: none"> • Ports 0–3 configurable as one x4, or two x2; or one x2 and two x1; or four x1 ports. • Ports 4-6 can be configured as three x1 or one x2 and one x1 ports
	<p>PCI Express x16</p> <p>One PCI Express x16 Graphics Expansion Port – Configurable as two x8 or one x8 and two x4 ports</p>
USB	<p>Four USB3.0 expansion ports with transfer rate up to 5Gb/s Eight USB 2.0 expansion ports (first four ports combine with USB3.0 ports)</p>
LPC	One LPC interface
TPM	ATMEL AT97SC3204 compliant with TPM1.2
Power	+12 power rail, primary input Supports 9.0V–16.8V power supply
Power Management	ACPI 4.0 supporting states 50, 53, 54, 55 63 and C0, C1, C3, C6, C7 AMT support Intel ME Power States M0, M3, Mox
Miscellaneous	<p>One 100KHz SMBus from PCH</p> <p>One 400KHz I2C bus from MCU</p> <p>Eight GPIO (four GPI and four GPO)</p> <p>Watchdog timer</p>
BIOS	AMI Aptio EFI Firmware

OS	Windows XP®	Embedded Professional 32bit Professional 64bit	
	Windows 7	32bit 64bit	
	Red Hat Enterprise Linux	32bit 64bit	
	Fedora Linux	32bit and 64bit	
Physical	Dimensions	95mm x 125mm	
	Compliance	PICMG COM Express R2.0 Basic Form Factor, Type 6	
Environment	Cooling	Forced air	Class EAC1 as defined in the ANSI/VITA 47-2005
		Conduction	Class ECC1 as defined in the ANSI/VITA 47-2005
	Temperature	Operating	Up to 2300m (7500 ft), -40°C to +85°C Derated -1.1 C per 305 m (1000 ft) above 2300 m (7500 ft)
		Non-operating	-40°C to +85°C
	Shock	Operating	30G, half sine shock pulse, 11ms duration, 3 times per face
		Non-Operating/Unpacked	40G, half sine shock pulse, 11ms duration, 3 times per face (unpacked)
Transportation/Packaged		Drop test, 10-up bulk packaging, 30in free-fall,	

one drop on each of six faces

Vibration (random)	Operating	Random 5Hz to 2KHz, 12.07 grms, 1hour in each of 3 axes 5Hz – 20Hz: 0.004g ² /Hz ramping up to 0.04g ² /Hz 40Hz to 100Hz: 0.04g ² /Hz ramping up to 0.1g ² /Hz (3dB/Oct) 100Hz to 1000Hz: 0.1g ² /Hz 1000Hz to 2000Hz: 0.1g ² /Hz ramping down to 0.025g ² /Hz (6dB/Oct)
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	Non-Operating/Storage	Random 5Hz to 2KHz, 12.07 grms, 1hr in in each of 3 axes 5Hz – 40Hz: 0.04g ² /Hz 40Hz – 100Hz: 0.04g ² /Hz ramping up to 0.1g ² /Hz (3dB/oct) 100Hz to 1000Hz: 0.1g ² /Hz 1000Hz to 2000Hz: 0.1g ² /Hz ramping down to 0.025g ² /Hz (6dB/oct) 5-500 Hz swept sine, 2.5 g (0-p), 25.4mm(p-p) MAX displacement, 5 min dwell at 3 resonances in each of 3 axes
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Humidity	Operating	5% to 95% non-condensing. 95%RH@30C, linear derating to 25%RH@85C
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	Non-Operating/Storage	5% to 95% non-condensing
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Altitude	Operating	To 15,000ft (4570m)
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	Non-Operating/Storage	To 40,000ft (12000m)
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Regulatory	Safety	UL60950-1, EN60950-1, IEC60950-1
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		RoHS compliant
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EMC		EN55024, EN55022, and FCC Part 15, Subpart B, Class B
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Warranty	Standard	Two years, parts only
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Physical Specifications

Physical	Dimensions	95mm x 125mm	
	Compliance	PICMG COM Express R2.0 Basic Form Factor, Type 6	
Environment	Cooling	Forced air	Class EAC1 as defined in the ANSIVITA 47-2005
		Conduction	Class ECC1 as defined in the ANSIVITA 47-2005
	Temperature	Operating	Up to 2300m (7500 ft), 0 to 60C Derated -1.1 C per 305 m (1000 ft) above 2300 m (7500 ft)
		Non-operating	-40°C to +85°C
	Shock	Operating	30G, half sine shock pulse, 11ms duration, 3 times per face
		Non-Operating/Unpacked	40G, half sine shock pulse, 11ms duration, 3 times per face (unpackaged)
Transportation/Packaged		Fixtured assembly: 50G, 17.4 ms trapezoidal pulse Drop test, 10-up bulk packaging, 30in free-fall, one drop on each of six faces	
Vibration (random)	Operating	Random 5Hz to 2KHz, 7.7 grms, 10min in each of 3 axes 5Hz – 20Hz: 0.004g ² /Hz ramping up to 0.04g ² /Hz 20Hz to 1000Hz: 0.04g ² /Hz	

1000Hz to 2000Hz:
0.04g²/Hz ramping down to
0.01g²/Hz

Non-Operating/Storage

Random 5Hz to 2KHz, 9.7
grms, 10min in each of 3
axes
5Hz – 20Hz: 0.006g²/Hz
ramping up to 0.06g²/Hz
20Hz to 1000Hz: 0.06g²/Hz
1000Hz to 2000Hz:
0.06g²/Hz ramping down to
0.02g²/Hz

Humidity

Operating

5% to 95% non-condensing.
95%RH@30C, linear
derating to 25%RH@60C

Non-Operating/Storage

5% to 95% non-condensing

Altitude

Operating

To 15,000ft (4570m)

Non-Operating/Storage

To 40,000ft (12000m)

Regulatory

Safety

UL60950-1, EN60950-1, IEC60950-1

RoHS compliant

EMC

EN55024, EN55022, and FCC Part 15, Subpart B, Class B

MORE DETAILS

Order Codes:

- CEQM77HDE-3612-0: Core i7-3612QE, 2.1GHz, 2 Core, 6M Cache, HDG3000, TPM, ECC, -40c to +85C
- CEQM77HDE-3555-0: Core i7-3555LE, 2.7GHz, 2 Core, 4M Cache, HDG3000, TPM, ECC, -40C to +85C
- CEQM77HDE-3517-0: Core i7-3517UE, 1.5GHz, 2 Core, 4M Cache, HDG3000, TPM, ECC, -40C to 85C

Supporting Products:

- CE-2GB-DDR3ITE: 2GB DDR3 SODIMM ECC Memory, -40C to +85C
- CE-4GB-DDR3ITE: 4GB DDR3 SODIMM ECC Memory, -40C to +85C
- CE-8GB-DDR3ITE: 8GB DDR3 SODIMM ECC Memory, -40C to +85C
- CEQM67-77-AHS: Active Heat Sink
- CEQM67-77-HSP: Heatspreader
- CR300: Type 6 COM Express Development Carrier

SUPPORT DOWNLOADS