RadiSys®

FEATURE SUMMARY

- Intel® Core™ i5 and i7 Processor options
  - Intel Core™ i7 610E 2.53GHz
  - Intel Core™ i7 620LE 2.0GHz
  - Intel Core™ i7 620UE 1.06GHz
  - Intel Core™ i5 520E 2.4GHz

- Mobile Intel® QM57 Express chipset

- Dual–channel DDR3, up to 8GB

- Type 2 and Type 3 pin–out options

- TPM

- Support for SSDDR (Solid State Disk on SODIMM form factor) for up to 32 GB NAND flash memory or up to 8 GB DDR3 memory

- Six PCI Express x1 ports, one PCI Express x8 port (or a build–option to support PCI Express x16 expansion port)

- Single or dual Gigabit Ethernet options

Procelerant CEQM57

Next Generation Performance

The Procelerant® CEQM57 combines the next generation performance Intel® Core™ i5 and i7 processors and the Mobile Intel® QM57 Express chipset with RadiSys design expertise to provide breakthrough processing performance on a basic size COM Express module. The compact 95mm x 125mm module is ideal for compute intensive applications such as medical imaging, communications, military–aerospace and test and measurement applications that require high levels of performance. RadiSys delivers the CEQM57 module in a Type 2 and Type 3 pin out, enabling customers to easily upgrade from their previous generation module while boosting features and performance with up to 8GB memory, SSDDR3 options, additional PCI Express lanes, and improved storage, graphics and audio. The CEQM57 module can support error–correcting code (ECC) for applications where memory integrity is required.

The RadiSys Procelerant® 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 Procelerant CE family. Procelerant CE modules can reduce service repair inventories, and simplify upgrades, contributing to the success of the product over its lifetime.

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 Procelerant® CE processor modules. Design consulting and debug services are also available to support OEM product development at any stage. Ask your RadiSys Sales Manager for more information.

KICKSTART YOUR APPLICATION DEVELOPMENT WITH COM EXPRESS STARTER KITS

Accelerate a product's development, improve its time to market and reduce overall cost by minimizing the design team's installation requirements and maximizing their efficiency. Procelerant® COM Express Starter Kits arrive integrated onto a CR202 or CR203 development carrier board with heatsink, memory modules, hard drive, DVD drive, and power supply—all using only a single order code.

Procelerant CEQM57 Specifications

FEATURE	FUNCTION	DESCRIPTION
PROCESSOR	610E	Core™ i7 610E 2.53GHz / 4MB cache / 1067MHz FSB/ 35W
	520E	Core™ i5 520E 2.4GHz / 3MB cache 1067MHz FSB / 35W
	620LE	Core™ i7 620LE 2.0GHz / 4MB Cache / 1067MHz FSB/ 25W
	620UE	Core™ i7 620UE 1.06GHz / 4MB Cache / 800MHz FSB /18W
CHIPSET	Mobile Intel® QM57 Express chipset	
MEMORY	Type	Two 204-pin right-angle SO-DIMM sockets for DDR3-1067 and DDR3-800.
	Capacity	Up to 4GB per channel, for a maximum of 8GB memory
FLASH	4MB system flash for BIOS storage	
SSDDR3	Option for 1GB DDR3 + 8GB SSD Option for 2GB DDR3+ 8GB SSD	
VIDEO	Intel® Gen 5.0 integrated graphics engine	Dual LVDS supports (2) 18 bit or (2) 24 bit panel support resolutions up to 1920x1200 pixels at 60 Hz
		VGA
		One SDVO interface (default) support resolutions up to 1920x1200 pixels at 60 Hz
	External	Build option to support one x16 PCI Express interface for external PCIe x16 graphics device, Embedded Display Port eDP mux'ed with PEG interface
NETWORKING	Type 2	One 10/100/1000BaseT
	Type 3 (Build Option)	Two 10/100/1000BaseT
AUDIO	High Definition Audio	
	Speaker Out	
STORAGE	SATA	4 SATA ports supporting both 1.5 and 3.0 Gbps operation Supports RAID 0, 1, 5 and 10
	Other	SSDDR3 with 8-32GB NAND flash (option)
	USB	One microSD socket (option)
PCI EXPRESS	Six 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 4–5 configurable as two x1 or one x2 ports

One PCI Express x8 from PCI Express graphics port supports x1, x2, x4 and x8 devices (Build Option) One PCI Express x16 Graphics Expansion Port

PCI	One PCI 2.3 compliant 32-bit, 33MHz bus
USB	Eight USB 2.0 expansion ports (Build Option for 4 additional USB 2.0 via on–board headers)
LPC	One LPC interface
TPM	Nuvoton (Windbond) WPCT210A
POWER	+12 power rail, primary input Supports 9.0V–16.8V power supply
POWER MANAGEMENT	ACPI 3.0 supporting states G0/S0, G1/S3, G2/S5, and G3
MISCELLANEOUS	One 100KHz SMBus from PCH
	One 400KHz I^2C bus from MCU
	Eight GPIO (four GPI and four GPO)
	Watchdog timer
BIOS	AMI EFI Firmware
OS	Windows XP®	Embedded Professional Professional 64bit
	Windows Vista	Ultimate Edition Ultimate Edition 64bit
	Windows 7	Ultimate Edition Ultimate Edition 64bit
	Red Hat Linux	Enterprise Enterprise 64bit
	Microware® Hypervisor	

Physical Specifications

PHYSICAL	Dimensions	95mm x 125mm	
	Compliance	PICMG COM Express R1.0 Basic Form Factor	
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), 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: 0.004g2/Hz ramping up to 0.04g2/Hz 20Hz to 1000Hz: 0.04g2/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
			Shall meet RoHS at time of production
	EMC		EN55024, EN55022, and FCC Part 15, Subpart B, Class B
WARRANTY	Standard		Two years, parts only

Ordering Information

Module Order Codes:

- CEQM57–610E–0: Core™ i7 610E 2.53GHz, 4MB cache, Type 2, single LAN, SDVO, TPM
- CEQM57–520E–0: Core™ i5 520E 2.4GHz, 3MB cache, Type 2, single LAN, SDVO, TPM
- CEQM57–620L–0: Core™ i7 620LE 2.0GHz, 4MB cache, Type 2, single LAN, SDVO, TPM
- CEQM57–620U–0: Core™ i7 620UE 1.06GHz, 4MB cache, Type 2, single LAN,SDVO, TPM

Supporting Products:

- S–CEQM57XTE–AHS: Active heatsink assembly
- S–CE–1GB–DDR3: 1GB DDR3 SODIMM Memory
- S–CE–2GB–DDR3: 2GB DDR3 SODIMM Memory
- S–CE–4GB–DDR3: 4GB DDR3 SODIMM Memory
- S–CE–1DDR3+8SSD: SSDR with 1GB DDR3 and 8GBSSD
- S–CE–2DDR3+8SSD: SSDR with 2GB DDR3 and 8GBSSD

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