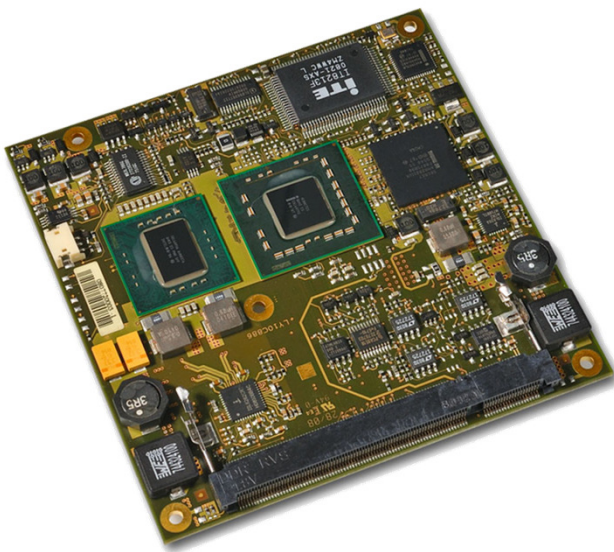


MSC CXC-GS45

Intel® Core™ 2 Duo Compact

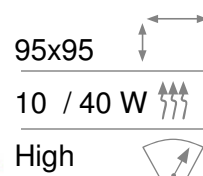


Description

The design of the MSC CXC-GS45 module is based on Intel's 45nm small form-factor dual core CPU technology enabling you to boost your embedded application to highest performance levels.

Different Core 2 Duo and Celeron processors in BGA package are supported. Besides an extensive set of interfaces and features, the MSC CXC-GS45 offers hardware and BIOS based security compliant to the requirements of TCG (Trusted Computing Group).

The compact format together with ultra-low-voltage processor models allow small system designs for mobile, fan-less or space saving industrial applications.



Highlights

- Intel® ULV Celeron 722 (1.20GHz), Intel® Core™ 2 Duo ULV SU9300 (1.20GHz), Intel® Core™ 2 Duo LV SL9400 (1.86GHz), Intel® Core™ 2 Duo SV SP9300 (2.26GHz)
- Intel® GS45 Chipset with integrated Mobile Intel® Graphics Media Accelerator 4500MHD
- Up to 4GB DDR2
- Four SATA-300, one PATA mass storage interfaces
- LVDS interface (24 Bit, dual channel),
- CRT interface
- Resolution up to 2048 x 1536
- Dual Independent Display supported
- Five PCI Express™ x1 lanes
- Eight USB 2.0 interfaces

Technical Data – MSC CXC-GS45

Module Standard

PICMG COM Express™ Standard COM.0

Type 2 compliant interface, “compact” form factor

Core Logic, Memory

CPU

Intel® ULV Celeron 722 (1.20GHz, 5.5W TDP),
Core™ 2 Duo ULV SU9300 (1.20GHz, 10W TDP),
Core™ 2 Duo LV SL9400 (1.86GHz, 17W TDP),
Core™ 2 Duo SV SP9300 (2.26GHz, 25W TDP)

Intel® Technologies: AMT 4.0 , Intel® 64 , Intel® Virtualization Technology*, VT-d Virtualized I/O Support*, Intel® Trusted Execution Technology*

Chipset

Intel® GS45, ICH9M (both in small form factor)

Memory

200-pin SO-DIMM socket for up to 4GB PC2-6400 (800MHz) DDR2 SDRAM

Storage Interfaces

SATA

4x SATA-2 channels (up to 300MB/s)

EIDE

1x Enhanced IDE port (ATA/UDMA166)

Bus Interfaces

USB

8 x USB 2.0

PCI Express™ Interfaces

Six channels PCI Express x1 (one channel reserved for Gbit Ethernet) , one PCI Express Graphic (PEG) x 16

PCI Bus

32 Bit, 33MHz standard interface (PCI 2.3)

LPC

Low Pin Count bus for legacy interfaces

Display Interface

Graphics Controller

Mobile Intel® Graphics Media Accelerator 4500MHD and Intel® Clear Video Technology (integrated in Intel® GS45), DirectX 10 and OpenGL 2.0 supported

Video Memory

UMA, up to 384MB

LCD Interface

LVDS 18/24 Bit, dual channel

CRT Interface

Resolution up to 2048 x 1536

Miscellaneous

Watchdog Timer

Initiates system reset (programmable, 0.4s ... 10min)

Fan Supply

3-pin header (12V), fan speed control

Real-Time Clock

Part of ICH9M, battery external

System Monitoring

Temperature, CPU fan

Network Interface

Ethernet

10/100/1000Base-TX (integrated in Intel® GS45 chipset)

Audio Interface

HD audio

Security Device

Infineon Trusted Platform Module 1.2 SLB 9635

Firmware, Software

Boot Options

Quick Boot, MultiBoot XP (FD, HD, CD, LAN, USB), Boot without keyboard, LAN Boot via PXE (RPL optional), Wake on LAN (WOL) supported

Security

TPM 1.2 support, MSeC Secure Boot Technology

Power Management

ACPI (S3, S4, S5 supported), Enhanced Intel SpeedStep® technology, CPU fan control

USB

USB legacy support (keyboard, mouse, storage)

Video

Video BIOS with flat panel extensions (EPI)

Setup

CMOS configuration backup in EEPROM

HW Programming I/F

UspEpc (Universal board support package for embedded PCs)

Board Support Package (BSP)

Microsoft Windows® XP embedded, Linux (on request)

Power Supply

Power Supply Voltage

+12V +/-10%, 5V Stby optional

Power Consumption

9W (typ.) up to 30 W (typ.)

Environment

Ambient Temperature

0° ... 60°C (operating)

-25° ... 85°C (storage)

Humidity

5 ... 95% (operating, non-condensing)

5 ... 95% (storage, non-condensing)

Mechanical

Dimensions

95mm x 95mm x13mm

* not on Celeron 722 model

Order Reference – MSC CXC-GS45

Order Number	Description	Reference
32352	Intel® Core™ 2 Duo SL9400, 10/100/1000Base-TX, TPM 1.2	MSC CXC-GS45-SL9400-1100
32331	Intel® Core™ 2 Duo SP9300, 10/100/1000Base-TX, TPM 1.2	MSC CXC-GS45-SP9300-1100
32353	Intel® Core™ 2 Duo SU9300, 10/100/1000Base-TX, TPM 1.2	MSC CXC-GS45-SU9300-1100
32375	Intel® Celeron 722, 10/100/1000Base-TX, TPM 1.2	MSC CXC-GS45-722-1100

Accessories

Order Number	Description	Reference
	Cooling	
1073526	Heat spreader for CXC-GS45 with through-hole standoffs	MSC CXC-GS45-01 HSP-001
on request	Heat spreader for CXC-GS45 with threaded standoffs M2.5	MSC CXC-GS45-02 HSP-001
1074771	Heat sink for CXC-GS45 with through-hole standoffs (optional fan kit is not included)	MSC CXC-GS45-01 HSI-001
36057	Fan kit for heat sinks	MSC CXC-GS45-01 FKT-001
	Carrier Boards	
32367	COM Express Industrial Platform with PCI and PCI Express x1; Dual LAN,VGA/DVI, Quad USB, COM1/2, HD-Audio; MiniPCI, SATA, CF onboard,170x170mm (mini-ITX)	MSC CX-MB-IP1 PCBFTX
	Memory Modules*	
1050983	DDR2 SODIMM, 1GB, PC667, 128Mx64, 1.8V, 64Mx16 based, 2rank	HYMP112S64CP6-Y5
1051494	DDR2 SODIMM, 1GB, PC800, 128Mx64, 1.8V, 2rank	HYMP112S64CP6-S6
850414	DDR2 SODIMM,1GB,unb.,PC2-5300/PC667,128Mx64	MSCDD6E28D412EE0X-3BG EL
1050984	DDR2 SODIMM, 2GB, PC667, 256Mx64, CL5, 1.8V, FBGA, 128Mx8 based, 2rank	HYMP125S64CP8-Y5
1051495	DDR2 SODIMM, 2GB PC800, 256Mx64, 128Mx8, CL5, 1.8V	HYMP125S64CP8-S6
*	Pre-qualified memory modules for the CPU product above	

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