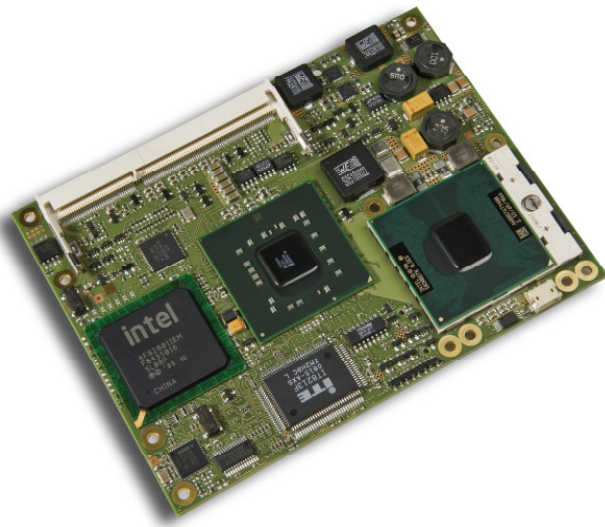


MSC CXB-GM45

Intel® Core™ - 2 Duo Basic






Description

The design of the MSC CXB-GM 45 module is based on Intel's 45nm dual core CPU technology enabling you to boost your embedded application to high performance levels.

Different Core 2 Duo and Celeron processors are supported by this design. Besides an extensive set of interfaces and features, the MSC CXB-GM45 offers hardware and BIOS based security compliant with the requirements of TCG (Trusted Computing Group).

The widely adopted „Basic“ form factor together with standard voltage processor models and dual channel DDR3 memory allow powerful system designs at reasonable costs.



95x125 
30 / 50 W 
High 

Highlights

- Intel® Celeron 575 (2.00GHz), Intel® Celeron T3100 (dual core, 1.90GHz), Intel® Core™ 2 Duo T9400 (2.53GHz) Intel® Core™ 2 Duo P8400 (2.26GHz)
- Intel® GM45 or GL40 Chipset with integrated Intel® GMA 4500MHD
- Up to 2x 4GB DDR3 SDRAM, dual channel
- Four SATA-300 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 CXB-GM45/-GL40

Module Standard

PICMG COM Express™ Standard COM.0

Type 2 compliant interface, "basic" form factor

Core Logic, Memory

CPU

Intel® Celeron 575 (2.00GHz, 1MB L2 cache, 31W TDP),
Celeron T3100 (dual core, 1.90GHz, 1MB L2 cache, 35W TDP),
Core™ 2 Duo P8400 (2.26GHz, 3MB L2 cache, 25W TDP),
Core™ 2 Duo T9400 (2.53GHz, 6MB L2 cache, 35W TDP)

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

Chipset

Intel® GM45, ICH9M or
Intel® GL40, ICH9M (with Celeron 575)

Memory

2x 204-pin SO-DIMM socket for up to 8GB DDR3 SDRAM
(DDR667/800/1066); dual channel operation **

Storage Interfaces

SATA

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

PATA

1x Enhanced IDE port (ATA/UDMA166)

Bus Interfaces

USB

8 x USB 2.0

PCI Express™

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

PCI Bus

32 Bit, 33MHz standard interface (PCI 2.3)

LPC

Low Pin Count bus for legacy interfaces

Display Interfaces

Graphics Controller

Mobile Intel® Graphics Media Accelerator 4500MHD and Intel®
Clear Video Technology (integrated in Intel® GM45/GL40),
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

Voltage, temperature, CPU fan

* not on Celeron models

** Celeron 575 modul supports up to 4GB memory

Network Interface

Ethernet

10/100/1000Base-TX (integrated in Intel® GM45 chipset)

Audio Interface

HD audio

Security Device

Infineon Trusted Platform Module

Firmware, Software

Boot Options

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

Microsoft Windows® XP embedded, Linux (on request)

Power Supply

Power Supply Voltage

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

Power Consumption

35W (typ.) up to 50 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

125mm x 95mm x13mm

Order Reference – MSC CXB-GM45/-GL40

Order Number	Description	Reference	Cat. ¹⁾
32383	Intel® Celeron 575 (PGA, socketed), GL40, Gbit LAN, TPM 1.2	MSC CXB-GL40-575-1101	OR
32394	Intel® Celeron 575 (PGA, socketed), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-575-1101	OR
32425	Intel® Celeron T3100 Dual Core (PGA, socketed), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-T3100-1101	PV
32463	Intel® Celeron T3100 Dual Core (BGA, soldered), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-T3100-1100	OR
32404	Intel® Core™ 2 Duo P8400 (PGA, socketed), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-P8400-1101	PV
32378	Intel® Core™ 2 Duo T9400 (PGA, socketed), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-T9400-1101	PV
32382	Intel® Core™ 2 Duo T9400 (BGA, soldered), GM45, Gbit LAN, TPM 1.2	MSC CXB-GM45-T9400-1100	OR
	¹⁾ PV = Preferred variant; OR = on Request (in OEM quantities only)		

Accessories

Order Number	Description	Reference
	Cooling	
1019293	Passive Heatsink for CXB-GM45, -GL40 (socketed PGA-CPU) with spring mounted self aligning cooler element connecting the processor die. Extruded aluminium plate with fins; distance sleeves (2.7mm inner diameter); screws and thermopads for GMCH and ICH bridges.	MSC CXB-GM45-01 HSI-001
36040	Passive low-profile Heatsink for CXB-GM45, -GL40 (socketed PGA-CPU) with spring mounted self aligning cooler element connecting the processor die. Extruded aluminium plate with fins; distance sleeves (2.7mm inner diameter); screws and thermopads for GMCH and ICH bridges.	MSC CXB-GM45-03 HSI-001
36044	Passive low-profile Heatsink for CXB-GM45, -GL40 (soldered BGA-CPU) with spring mounted self aligning cooler element connecting the processor die. Extruded aluminium plate with fins; distance sleeves (2.7mm inner diameter); screws and thermopads for GMCH and ICH bridges.	MSC CXB-GM45-04 HSI-001
36052	Fan kit - suitable for Heat sink MSC CXB-GM45-01 HSI-* only! The kit consists of a 80x80mm fan, spacers and screws.	MSC CXB-GM45-01 FKT-001
36054	Fan kit - suitable for Heat sink MSC CXB-GM45-03 HSI-* and MSC CXB-GM45-04 HSI-* only! The kit consists of a 80x80mm fan, spacers and screws.	MSC CXB-GM45-02 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 ²⁾	
1073588	DDR3 SODIMM, 1GB, 128Mx64, PC3-8500/PC1066	M471B2873FHS-CF8
1055074	DDR3 SODIMM, 2GB, 256Mx64, PC3-8500/PC1066	M2N2G64CB8HA5N-BE
1053219	DDR3 SODIMM, 2GB, 256Mx64, PC3-8500/PC1066	HMT125S6AFP8C-G7N0
	²⁾ Pre-qualified memory modules for the CPU product above	

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