

MSC CXB-8S

Intel® Core™ - 4th Generation
Type 2 Pin-out



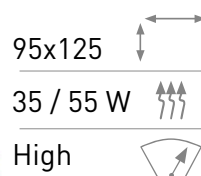
Description

The MSC CXB-8S module is based on Intel's 4th generation of Core™ processors. Compliant to the Type 2 pin-out specification it supports LVDS and VGA displays, PEG slot, USB 2.0, SATA as well as PCI bus and PATA on a COM Express module.

This product family brings a significant gain in computing and graphics performance compared to its predecessors.

Various Core i3, i5, i7 and Celeron processors are supported by this design. Besides an extensive set of interfaces and features, the MSC CXB-8S offers turbo boost capabilities for CPU and graphics controller, accelerated video encoding / decoding and hardware based security compliant to the requirements of TCG (Trusted Computing Group).

The Type 2 pin-out ensures compatibility to existing system and carrier board designs.



Highlights

- Intel® Core™ i7-4700EQ (quad-core, 2.4/3.4GHz), Intel® Core™ i5-4400E (dual-core, 2.7/3.3GHz), Intel® Core™ i5-4402E (dual-core, 1.6/2.7GHz), Intel® Core™ i3-4100E (dual-core, 2.4GHz), Intel® Core™ i3-4102E (dual-core, 1.6GHz), Intel® Celeron® 2000E (dual-core, 2.2GHz), Intel® Celeron® 2002E (dual-core, 1.5GHz)
- Intel® HD Graphics 4600 (GT2)
- Intel® HD Graphics (GT1) with Celerons
- Intel® 8-Series chipset
- Up to 16GB DDR3L-1600 SDRAM, dual channel
- Up to four SATA 6Gb/s mass storage interfaces
- One PATA/IDE mass storage interface
- LVDS (24 Bit, dual channel) and CRT interface
- Triple independent display support (option)
- DirectX 11.1, OpenGL 3.2, OpenCL 1.2
- Resolution up to 3800 x 2400
- Six PCI Express™ x1 lanes
- PCI Bus
- Eight USB 2.0 interfaces
- Trusted Platform Module
- UEFI Firmware

Technical Data – MSC CXB-8S

Module Standard

PICMG COM Express™ Standard COM.0

Type 2 compliant interface, "basic" form factor

Core Logic, Memory

CPU

Intel® Core™ i7-4700EQ (quad-core, 2.4/3.4GHz, 6MB L3, 47/37W),
Intel® Core™ i5-4400E (dual-core, 2.7/3.3GHz, 3MB L3, 37W),
Intel® Core™ i5-4402E (dual-core, 1.6/2.7GHz, 3MB L3, 25W),
Intel® Core™ i3-4100E (dual-core, 2.4GHz, 3MB L3, 37W),
Intel® Core™ i3-4102E (dual-core, 1.6GHz, 3MB L3, 25W),
Intel® Celeron® 2000E (dual-core, 2.2GHz, 2MB L3, 37W),
Intel® Celeron® 2002E (dual-core, 1.5GHz, 2MB L3, 25W)

Intel® Technologies: AMT 9.0, Intel® 64,
Intel® Virtualization Technology*, VT-d Virtualized I/O Support*,
Intel® Trusted Execution Technology*,
Intel® Advanced Vector Extensions, Intel® Adv. Encryption Standard
AES-NI*, Intel® Turbo Boost Technology 2.0**

* not on all models

Chipset

Intel® 8-Series Platform Controller Hub (PCH) QM87 (i5 and i7) or
HM86 (i3 and Celeron)

Memory

2x 204-pin SO-DIMM socket for up to 16GB DDR3L SDRAM (DDR3L-
1333/1600); dual channel operation

Storage Interfaces

SATA

4x SATA-2 channels (up to 6Gb/s) with QM87 chipset; 3x SATA with
HM86 based variants

PATA

1x PATA interface

Bus Interfaces

USB

8 x USB 2.0

PCI Express™

Six channels PCI Express x1, Gen. 2
one PCI Express Graphics (PEG) x 16, Gen. 2

PCI Bus

32 Bit, 33MHz standard interface (PCI 2.3)

LPC

Low Pin Count bus for legacy interfaces

Display Interfaces

Graphics Controller

Intel® HD Graphics GT2 (4600); on processor die with i3, i5, i7
processors (supporting Graphics Turbo Boost and Accelerated
Encode/Decode)

Intel® HD Graphics GT1 with Celeron® processors

DirectX 11.1, OpenGL 3.2 and OpenCL 1.2 supported
Up to three independent displays supported

Video Memory

UMA

LCD Interface

LVDS 18/24 Bit, dual channel; shared with Embedded DisplayPort
interface

CRT Interface

Resolution up to 1920 x 2000

Display Port and HDMI Interfaces

3x Display Port/HDMI interfaces, connected to PEG signals (option)

Miscellaneous

Watchdog Timer

Initiates system reset, programmable

Fan Supply

4-pin header (12V), PWM fan speed control

Real-Time Clock

Integrated in PCH, battery external

System Monitoring

Voltage, temperature, CPU fan

Network Interface

Ethernet

10/100/1000Base-TX (integrated in PCH, Intel® 82579LM PHY)

Audio Interface

HD audio

Security Device

Infineon Trusted Platform Module

Firmware, Software

UEFI Firmware

AMI Aptio®

Security

TPM 1.2 support, TCG compliant

Power Management

ACPI

Active fan control

USB

USB legacy support (keyboard, mouse, storage)

Video

Intel® Video BIOS

HW Programming I/F

EAPI

Board Support Package (BSP)

Microsoft Windows® Embedded Standard 7, Linux (on request)

Power Supply

Power Supply Voltage

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

Power Consumption

35W (typ.) up to 55 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 x 13mm

Order Reference – MSC CXB-8S

Order Number	Description	Reference	Cat. ¹⁾
47256	Intel® Core™ i7-4700EQ, 47/37W TDP, QM87, GbE, TPM 1.2, Type 2	MSC CXB-8S-008	tbd
47254	Intel® Core™ i5-4400E, 37W TDP, QM87, GbE, TPM 1.2, Type 2	MSC CXB-8S-005	tbd
47258	Intel® Core™ i5-4402E, 25W TDP, QM87, GbE, TPM 1.2, Type 2	MSC CXB-8S-012	tbd
47252	Intel® Core™ i3-4100E, 37W TDP, HM86, GbE, TPM 1.2, Type 2	MSC CXB-8S-004	tbd
47250	Intel® Core™ i3-4102E, 25W TDP, HM86, GbE, TPM 1.2, Type 2	MSC CXB-8S-003	tbd
47246	Intel® Celeron® 2000E, 37W TDP, HM86, GbE, TPM 1.2, Type 2	MSC CXB-8S-001	tbd
47248	Intel® Celeron® 2002E, 25W TDP, HM86, GbE, TPM 1.2, Type 2	MSC CXB-8S-002	tbd
	¹⁾ PV = Preferred variant; OR = on Request (in OEM quantities only)		

Accessories

Order Number	Description	Reference
	Carrier Boards	
32367	COM Express Type 2 Industrial Platform with PCI and PCI Express x1; Dual LAN, VGA, Quad USB, COM1/2, HD-Audio; MiniPCI, SATA, CF onboard, 170x170mm (mini-ITX)	MSC CX-MB-IP1 PCBFTX
32273	COM Express Type 2 Evaluation board with PCI and PCI Express interfaces; serial I/F controller; POST display; HD-Audio and debugging support;	MSC CX-MB-EVA2 PCBFTX
	Cooling	
1110030	Passive Heatsink for C6B-8S and CXC-8S, consisting of a single-piece aluminum profile with fins, pressed in standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset.	MSC C6B-8S-01 HSI-001
1111682	Active Heatsink for C6B-8S and CXC-8S, consisting of a single-piece aluminum profile with fins, pressed in standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset. PWM fan 80x80x15mm.	MSC C6B-8S-01 HSF-001
1120478	Heatspreader for C6B-8S and CXB-8S. Single-piece aluminum profile, pressed in standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset. No fan, no SO-DIMM cutout.	MSC C6B-8S-01 HSP-001
1120479	Heatspreader for C6B-8S and CXB-8S. Single-piece aluminum profile, pressed in standoffs with M2.5 thread, screws and thermopads for the thermal contact to CPU and chipset. No fan, no SO-DIMM cutout.	MSC C6B-8S-02 HSP-001
	Memory Modules	
1102661	DDR3 SODIMM 4GB PC1600; 512Mx64, based on 512Mx8; single rank, 1,35V	HMT451S6AFR8A-PBN0



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