MSC C6B-8SB
Intel® Core™- 5th Generation Type 6 Pin-out

Description
The MSC C6B-8SB module is based on Intel’s 5th generation of Core™ processors manufactured in 14 nm technology. It supports triple independent displays, DirectX 11.1, fast low-power DDR3L-1600 memory and USB 3.0 on a COM Express module.

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

This design supplements the 4th generation platform at the high end with two quad-core i7 processors. Besides an extensive set of interfaces and features, the MSC C6B-8SB 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 6 pin-out allows direct access to the latest digital display interfaces like DisplayPort, HDMI and DVI. Four USB 3.0 interfaces support the fastest peripheral devices currently available.

95x125
55 W
High

Highlights
- Intel® Core™i7-5850EQ (quad-core, 2.7/3.4GHz), Intel® Core™i7-5700EQ (quad-core, 2.6/3.4GHz)
- Intel® HD Graphics GT2 or GT3e
- Intel® 8-Series chipset
- Up to 16GB DDR3L-1600 SDRAM, dual channel
- Four SATA mass storage interfaces, up to 6Gb/s
- Three DisplayPort/HDMI/DVI interfaces
- Two Embedded DisplayPort interfaces
- LVDS (24 Bit, dual channel) and CRT interface
- Triple independent display support
- DirectX 11.1, OpenGL 3.2, OpenCL 1.2
- Resolution up to 4096 x 2304
- Seven PCI Express™ x1 lanes
- Four USB 3.0/2.0 and four USB 2.0 interfaces
- UEFI Firmware
- Intel® Intelligent Systems Framework Ready
## Technical Data – MSC C6B-8SB

### Module Standard
- **PICMG COM Express™ Standard COM.0**
  - Type 6 compliant interface, “basic” form factor

### Core Logic, Memory
- **CPU**
  - Intel® Core™ i7-5850EQ (quad-core, 2.7/3.4GHz, 6MB L3, 47W),
  - Intel® Core™ i7-5700EQ (quad-core, 2.6/3.4GHz, 6MB L3, 47W)

  - *not on all models

- **Chipset**
  - Intel® 8-Series Platform Controller Hub (PCH) QM87

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

### Storage Interfaces
- **SATA**
  - 4x SATA channels (up to 6Gb/s)

### Bus Interfaces
- **USB**
  - 4 x USB 3.0/2.0
  - 4 x USB 2.0

- **PCI Express™**
  - Seven channels PCI Express x1, Gen. 2
  - one PCI Express Graphics (PEG) x 16, Gen. 3

- **LPC**
  - Low Pin Count bus for legacy interfaces

### Display Interfaces
- **Graphics Controller**
  - Intel® HD Graphics GT2 or GT3e; on processor die with i7 processors (supporting Graphics Turbo Boost and Accelerated Encode/Decode)

- **DirectX 11.1, OpenGL 3.2 and OpenCL 1.2 supported**
  - Triple independent display support

- **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/DVI Interfaces**
  - 3x Digital Display Interface, usable as DisplayPort 1.2, two are also usable as HDMI or DVI
  - Resolution up to 6096 x 2304 @ 60Hz

### 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**
  - 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

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www.msc-technologies.eu · info@msc-technologies.eu
Order Reference – MSC C6B-8SB

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Description</th>
<th>Reference</th>
<th>Cat. 1)</th>
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<tbody>
<tr>
<td>65565</td>
<td>Intel® Core™ i7-5850EQ, 47W TDP, GbE, TPM 1.2, Type 6</td>
<td>MSC C6B-8SB-011</td>
<td>tbd</td>
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<tr>
<td>65563</td>
<td>Intel® Core™ i7-5700EO, 47W TDP, GbE, TPM 1.2, Type 6</td>
<td>MSC C6B-8SB-008</td>
<td>tbd</td>
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1) PV = Preferred variant; OR = on Request (in OEM quantities only)

Accessories

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<tr>
<td>46417</td>
<td>COM Express Type 6 starter kit consisting of a Type 6 baseboard, the active heatsink with fan for the COM-Express Type 6 module, and two DDR3 SO-DIMM memory modules. Please order separately the COM-Express C6B-8S or C6B-8SB module of your choice.</td>
<td>MSC C6-SK-8S-T6T2-KIT001</td>
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Carrier Boards

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<tr>
<td>41886</td>
<td>COM Express Type 6 Small Test and Evaluation Board with one PCI Express socket, USB 3.0, GbE, SATA, DisplayPort, HDMI, VGA and HD audio interfaces; ATX power connector. Also usable as Type 6 to Type 2 converter on MSC CX-MB-EVA2. Dimensions: 140 x 184 mm</td>
<td>MSC C6-AD-T6T2</td>
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<tr>
<td>41857</td>
<td>COM Express Type 6 Evaluation board with various PCI Express interfaces, SATA and mSATA USB 2.0/3.0, Display Port and eDP, HDMI/DVI, HD-Audio, POST code display. ATX form factor</td>
<td>MSC C6-MB-EVA</td>
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Cooling

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<td>1110030</td>
<td>Passive Heatsink for C6B-8S, consisting of a single-piece aluminum profile with fins, pressed in standoffs without thread (2.7 mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset.</td>
<td>MSC C6B-8S-01 HSI-001</td>
</tr>
<tr>
<td>1111682</td>
<td>Active Heatsink for C6B-8S, consisting of a single-piece aluminum profile with fins, pressed in standoffs without thread (2.7 mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset. PWM fan 80x80x15mm.</td>
<td>MSC C6B-8S-01 HSF-001</td>
</tr>
<tr>
<td>1120478</td>
<td>Heatspreader for C6B-8S and CXB-8S. Single-piece aluminum profile, pressed in standoffs without thread (2.7 mm inner diameter), screws and thermopads for the thermal contact to CPU and chipset. No fan, no SO-DIMM cutout.</td>
<td>MSC C6B-8S-01 HSP-001</td>
</tr>
<tr>
<td>1120479</td>
<td>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.</td>
<td>MSC C6B-8S-02 HSP-001</td>
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Memory Modules

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<tr>
<td>1110591</td>
<td>DDR3 SODIMM, 2GB/1600, 256Mx64, CL9, 256Mx8 based, 1 rank, 1.35V</td>
<td>HMT325S6EFR8A-PBN0</td>
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<tr>
<td>1102661</td>
<td>DDR3 SODIMM, 4GB PC1600; 512Mx64, based on 512Mx8, single rank, 1.35V</td>
<td>HMT451S6AFR8A-PBN0</td>
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