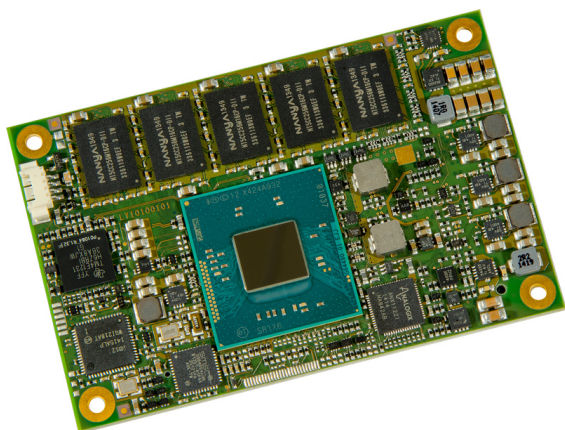


## MSC C10M-BT

Intel® Atom™ / Celeron® SOC



84 x 55

8 / 14W

-40 +85



IoT Solutions  
Alliance

COM Express

## Description

The MSC C10M-BT module is based on Intel's multi-core system-on-chip (SOC) Atom generation that integrates processor core, graphics, memory, and I/O interfaces into one solution. Based on 22nm processor technology it provides outstanding computing and graphics power and highest power efficiency.

The new MSC C10M-BT brings dual independent display support, DirectX 11.1 and fast DDR3L memory on a very compact, power saving and cost-efficient COM Express Mini module.

Different SOC's with single-, dual- and quad-core processors are supported by this design. Besides an extensive set of interfaces and features, the MSC C10M-BT optionally offers hardware based security compliant to the requirements of TCG (Trusted Computing Group).

Type 10 pin-out offers USB 3.0 support and digital display interfaces like DisplayPort, HDMI 1.4a and DVI.

The rugged design with soldered memory, optional ECC support and extended temperature range opens new application areas.

## Highlights

- Intel Atom E3845 quad-core 1.91GHz, 10W
- Intel Atom E3827 dual-core 1.75GHz, 8W
- Intel Atom E3826 dual-core 1.46GHz, 7W
- Intel Atom E3825 dual-core 1.33GHz, 6W
- Intel Atom E3815 single-core 1.46GHz, 5W
- Intel Atom E3805 dual-core 1.33GHz, 3W (no graphics)
- Intel Celeron N2807 dual-core 1.58/2.16GHz, 4.3W
- Intel Celeron N2930 quad-core 1.83/2.16GHz, 7.5W
- Intel Celeron J1900 quad-core 2.00/2.42GHz, 10W
- Integrated Intel Gen. 7 HD graphics
- Up to 8GB DDR3L SDRAM, ECC opt.
- Two SATA 3Gb/s mass storage interfaces
- eMMC SSD (optional)
- DisplayPort/HDMI/DVI interface
- LVDS/Embedded DisplayPort interface
- Two independent displays supported
- DirectX 11.1, OpenGL 3.2, OpenCL 1.1
- One USB 3.0 and up to seven USB 2.0 interfaces
- Two UARTs
- Trusted Platform Module (option)
- Extended temperature variants (on request)

## Technical Data - MSC C10M-BT

<b>Technology</b>	x86
<b>Formfactor</b>	COM Express Mini
<b>CPU</b>	Intel Atom E3845 quad-core 1.91GHz, 10W TDP Intel Atom E3827 dual-core 1.75GHz, 8W TDP Intel Atom E3826 dual-core 1.46GHz, 7W TDP Intel Atom E3825 dual-core 1.33GHz, 6W TDP Intel Atom E3815 single-core 1.46GHz, 5W TDP Intel Atom E3805 dual-core 1.33GHz, 3W TDP (no graphics) Intel Celeron N2807 dual-core 1.58/2.16GHz, 4.3W TDP Intel Celeron N2930 quad-core 1.83/2.16GHz, 7.5W TDP Intel Celeron J1900 quad-core 2.00/2.42GHz, 10W TDP
<b>Chipset</b>	SOC
<b>RAM</b>	up to 8GB DDR3L@1.35V SDRAM (DDR1333) soldered on board, ECC optional
<b>Flash</b>	eMMC optional
<b>Storage Interfaces</b>	2x SATA 3Gb/s
<b>USB</b>	1x USB 3.0, 4x USB 2.0, 3x USB 2.0 (optional hub)
<b>Serial Interfaces</b>	1x PCU UART 1x HS UART
<b>Bus Interfaces</b>	3x PCI Express x1 Gen 2, fourth channel is available if no GbE is used; LPC bus (Low Pin Count bus)
<b>Display Controller</b>	Integrated Intel HD graphics Gen. 7
<b>Display Memory</b>	UMA
<b>Display Interfaces</b>	1x Digital Display Interface (DP 1.1a (2560 x 1600), DVI/HDMI 1.4a (1920 x 1080)), 1x Embedded DisplayPort 1.3, 2560 x 1600 @ 60Hz (shared with LVDS), LVDS 24 bit, single-channel, 1366 x 768 @ 60Hz (shared with Embedded DisplayPort)
<b>Network Interface</b>	10/100/1000Base-TX (Intel i210)
<b>Audio Interface</b>	High Definition Audio
<b>Security Device</b>	TPM 1.2 (option)
<b>Miscellaneous</b>	Watchdog Timer: Initiates system reset, programmable RTC battery: external System Monitoring: voltage, temperature, CPU fan, system fan
<b>Feature Highlights</b>	Type 10 pin-out

<b>Firmware</b>	AMI Aptio UEFI
<b>OS Support</b>	Windows 7 Windows 10 Windows 10 IOT Core BSP for Linux on request EAPI (HW Programming Interface)
<b>Power Requirement</b>	Wide range input +5 ... +20V, 5V Stby optional, 8 W (typ.) up to 14 W (typ.)
<b>Environment</b>	Ambient Temperature; 0° ... 60°C (operating, commercial), -40° ... 85°C (operating, industrial), -40° ... 85°C (storage) Humidity: 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)
<b>Dimensions</b>	84mm x 55mm

## Order Reference - MSC C10M-BT

Order Number	Description	Reference	Cat
67761	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3815 single-core 1.46GHz, 0.5MB L2, 5W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 1GB DDR3 SDRAM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1;	MSC C10M-BT-2001 PCBFTX	OR
68389	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3827 dual-core 1.75GHz, 1MB L2, 8W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and eDP interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 ECC SDRAM; 16GB eMMC; TPM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1; -40...+85°C	MSC C10M-BT-37E4 PCBFTX	OR
68403	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3845 quad-core 1.91GHz, 2MB L2, 10W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and eDP interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 ECC SDRAM; 16GB eMMC; TPM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1; -40...+85°C	MSC C10M-BT-37E5 PCBFTX	PV
68335	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3805 dual-core 1.33GHz, 1MB L2, 3W TDP; Graphics: no; Ethernet: Intel i210 Gbit; 8GB DDR3 ECC SDRAM; 32GB eMMC (SD); TPM; HD audio; 2x SATA, 1x USB3, 7x USB2, 3x PCIe x1; -40...+85°C	MSC C10M-BT-37J9 PCBFTX	OR
49217	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Celeron J1900 quad-core 2.0/2.42GHz, 2MB L2, 10W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 SDRAM; 16GB eMMC; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1;	MSC C10M-BT-20E7 PCBFTX	OR
49215	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3845 quad-core 1.91GHz, 2MB L2, 10W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 ECC SDRAM; 16GB eMMC; TPM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1; -40...+85°C	MSC C10M-BT-33E5 PCBFTX	PV
49219	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3827 dual-core 1.75GHz, 1MB L2, 8W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 SDRAM; 4GB eMMC; TPM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1; -40...+85°C	MSC C10M-BT-3164 PCBFTX	PV

## Order Reference - MSC C10M-BT

Order Number	Description	Reference	Cat
49223	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3825 dual-core 1.33GHz, 1MB L2, 6W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 4GB DDR3 SDRAM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1;	MSC C10M-BT-2022 PCBFTX	OR
49213	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3815 single-core 1.46GHz, 0.5MB L2, 5W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 2GB DDR3 SDRAM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1;	MSC C10M-BT-2011 PCBFTX	OR
49221	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel E3815 single-core 1.46GHz, 0.5MB L2, 5W TDP; Graphics: integrated Intel HD Gen 7; DP/HDMI and LVDS interfaces; Ethernet: Intel i210 Gbit; 2GB DDR3 SDRAM; HD audio; 2x SATA, 1x USB3, 7x USB2, 1x PCU UART, 1x HS UART; 3x PCIe x1; -40...+85°C	MSC C10M-BT-2111 PCBFTX	PV

## Accessories

Order Number	Description	Reference
<b>Carrier Options</b>		
67293	COM Express Type 10 Evaluation Carrier Board with PCI Express x4 slot, USB 3.0/2.0, GbE, SATA, DisplayPort, eDP/LVDS and HD audio interfaces; Mini PCI Express socket, SD card slot, ATX power connector and single 12V power jack. Dimensions: 170mm x 170mm (Mini-ITX form factor)	MSC C10-MB-EV-001 PCBFTX
<b>Cooling Options</b>		
1126980	Passive Heatsink for C10M-BT and C10M-BTC consisting of a single-piece aluminum pin cooler, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC. With threaded mounting holes for an optional fan.	MSC C10M-BT-01 HSI-001
1124457	Heatspreader for C10M-BT. Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC.	MSC C10M-BT-01 HSP-001
82109	Passive Heatsink for C10M-BT and C10M-BTC consisting of a single-piece aluminum pin cooler, standoffs with M2.5 thread and thermopad for the thermal contact to SOC. With threaded mounting holes for an optional fan.	MSC C10M-BT-02 HSI-001
1124458	Heatspreader for C10M-BT. Single-piece aluminum profile, standoffs with M2.5 thread and thermopad for the thermal contact to SOC.	MSC C10M-BT-02 HSP-001
<b>Starter Kits</b>		
65357	COM Express Type 10 Starterkit for all C10M-BT modules; uses the new C10-MB-EV platform for Type 10 modules (Mini-ITX format); includes suitable Heatspreader for C10M-BT modules	MSC C10-SK-BT-EV

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