

MSC C10M-ASL

Intel® Atom processors x7000RE/C Series



84 x 55

8 / 14 W

-45 - +85°C



Highlights

- Up to eight processing cores
- Power efficient processors, TDP 6 to 14W
- Integrated Intel UHD Gen.12 graphics, max. 32 executing units
- SKUs without GPU (headless) available
- Up to 16GB LPDDR5 SDRAM with IBECC
- Up to 256GB eMMC 5.1 Flash (optional)
- 2x SATA-III interface (6Gbps)
- DisplayPort/HDMI/DVI interface
- LVDS/Embedded DisplayPort interface
- Dual Independent Display support
- MIPI-CSI Camera Interface
- 4x PCI Express x1 Gen. 3
- Two USB 3.2 Gen 2 (10Gb/s) and eight USB 2.0 interfaces
- One Gb Ethernet port (Intel® i226)
- TSN, TCC support
- UART, SPI, I2C, SMBus
- High Definition Audio (HD-A)
- UEFI Firmware
- Trusted Platform Module TPM 2.0

COM Express Type 10



Technical Data

Technology	x86
Formfactor	COM Express Mini
CPU	Intel Atom® x7835RE, octa-core, 1.3GHz, 32EU, TCC, 12W, IUC, ET Intel Atom® x7433RE, quad-core, 1.5GHz, 32EU, TCC, 9W, IUC, ET Intel Atom® x7213RE, dual-core, 2.0GHz, 16EU, TCC, 9W, IUC, ET Intel Atom® x7211RE, dual-core, 1.0GHz, 16EU, TCC, 6W, IUC, ET Intel Atom® x7405C, quad-core, 2.2GHz, no GPU, TCC, 12W, EUC, CT Intel Atom® x7203C, dual-core, 2.0GHz, no GPU, TCC, 9W, EUC, CT Note: base frequency shown, other frequencies supported ET- Extended temperature CT- Commercial temperature EUC - Intel Embedded Use Conditions IUC - Intel Industrial Use Conditions
Chipset	SoC
RAM	Up to 16GB LPDDR5 SDRAM, up to 4800MT/s, IB ECC
Flash	On-board eMMC mass storage option, scalable capacity up to 256GB
Storage Interfaces	2x SATA 6Gb/s
USB	2x USB 3.2 Gen 2 (10Gb/s) 8 x USB 2.0
Serial Interfaces	Two UARTS
Bus Interfaces	4x PCI Express x1 Gen 3 (1x PCI Express x4 Gen 3 on request) LPC bus (Low Pin Count bus; no DMA support) (eSPI on request)
Display Controller	Integrated Intel UHD Graphics (Gen12) Up to 32 execution units (EU) SKUs without GPU (headless) available
Display Interfaces	Two independent displays supported: 1x Digital Display Interface (DP, HDMI) 1x Embedded DisplayPort (on variants without LVDS only) LVDS 24bit, single-channel (not on all variants); max. 1920 x 1200 @ 60Hz
Network Interface	10/100/1000Base-TX, 2.5G ² based on Intel i226 ² Available bandwidths depending on carrier design
Audio Interface	High Definition Audio
Security Device	TPM 2.0
Miscellaneous	Watchdog Timer: Initiates system reset RTC battery: external System Monitoring: voltage, temperature, system fan GPIO, GSPICOM.0 Rev. 3.1)
Feature Highlights	Type 10 pin-out
Firmware	AMI Aptio UEFI
OS Support	Windows 10 IoT Enterprise 2021 LTSC Yocto Project (LTS kernel 2021)
Power Requirement	Voltage: +5V to+20V, +5V Stby optional Power Consumption: 8W to 14 W (typ., variant dependent)

COM Express Type 10



Environment	Ambient Temperature: -40° ... 85°C (operating) -25° ... 85°C (storage) Humidity: 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)
Dimensions	84 x 55mm
Certificates	UL / CE
Cooling	Passive heat sink Heat spreader with threaded or non-threaded standoffs
Carrier	Small carrier board (Mini-ITX) as part of a starter kit

Technical Data for MSC C10M-ASL

COM Express Type 10



Order Reference

Order No.	Description	Reference	Status*
114730	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7835RE octal-core 1.3GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 32EU; Ethernet: 1Gbit; 16GB LPDDR5 SDRAM, in-band ECC; 32GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7835RE-45201I PCBFTX	PV
114762	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7835RE octal-core 1.3GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; 32EU; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7835RE-34101I PCBFTX	PV
114764	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7433RE quad-core 1.5GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 32EU; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7433RE-34201I PCBFTX	OR
114766	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7433RE quad-core 1.5GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; 32EU; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7433RE-34101I PCBFTX	PV
114768	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7213RE dual-core 2.0GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; EU; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7213RE-34201I PCBFTX	PV
114770	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7213RE dual-core 2.0GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; EU; Ethernet: 1Gbit; 4GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7213RE-24101I PCBFTX	OR
114772	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7211RE dual-core 1.0GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; EU; Ethernet: 1Gbit; 4GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7211RE-24201I PCBFTX	PV
114726	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7211RE dual-core 1.0GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; EU; Ethernet: 1Gbit; 4GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C (recommended for 24/7 operation)	MSC C10M-ASL-x7211RE-2N101I PCBFTX	PV

COM Express Type 10



Order No.	Description	Reference	Status*
114728	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7203C dual-core 2.0GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and no interfaces; noEU; Ethernet: 1Gbit; 4GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C	MSC C10M-ASL-x7203C-24N01C PCBFTX	OR
115012	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7405C quad-core 2.2GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and no interfaces; noEU; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C	MSC C10M-ASL-x7405C-34N01C PCBFTX	OR

Ordering Information for MSC C10M-ASL *PV = Preferred variant; OR = on Request (in OEM quantities only)

COM Express Type 10



Accessories

Cooling Solutions

Order No.	Description	Reference
110195	Passive Heatsink for C10M-ALN and C10M-ASL (all versions), 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-ALN-01 HSI-001
110196	Heatspreader for C10M-ALN and C10M-ASL (all versions). Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC.	MSC C10M-ALN-01 HSP-001
110197	Heatspreader for C10M-ALN and C10M-ASL (all versions). Single-piece aluminum profile, standoffs with M2.5 thread and thermopad for the thermal contact to SOC.	MSC C10M-ALN-02 HSP-001

Cooling Devices for MSC C10M-ASL/ALN

Carrier Board

Order No.	Description	Reference
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

Carrier Options MSC C10M-EL/BT/BTC

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