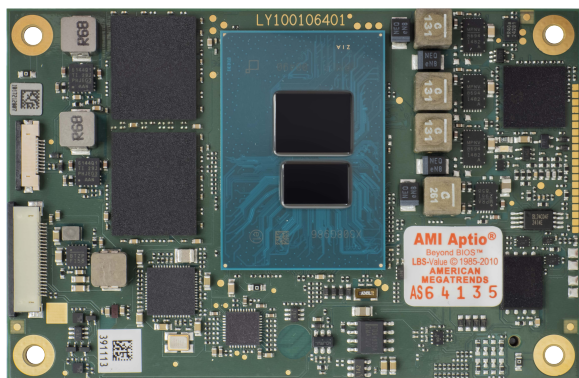



MSC C10M-ALN


Intel Atom[®] processors
x7000E / Intel[®] Core™ i3
processor / Intel[®] Processors N
Series



COM 
Express

intel

 84 x 55

 8 / 17W

 0 +60

Description

The new MSC C10M-ALN module features the Intel Atom[®] processors x7000E Series, Intel[®] Core™ i3 processor and Intel[®] Processors N Series (codenamed “Alderlake N”). The CPU architecture is based on the same Efficient-cores and Intel[®] UHD graphics driven by Xe architecture as the 12th Gen Intel[®] Core™ processors, thus easing up application migration across Intel[®] CPU performance and power ranges. With support for up to eight processor cores, the module fits to a wide range of applications including point-of-sales terminals, digital signage controllers, HMI solutions and medical equipment.

The new MSC C10M-ALN offers dual independent display support with a maximum of 4k resolution, fast LPDDR5 memory with up to 16GB and optional IB ECC capabilities, eMMC 5.1, USB 3.2 Gen 2 (10Gb/s) and PCIe Gen3 on a power saving and cost-efficient COM Express mini module.

Different SOCs with dual-, quad- and eight-core processors are supported by this design. In addition to an extensive set of interfaces and features, the MSC C10M-ALN offers Gigabit Ethernet based on Intel[®] i226 and supports up to 2.5GbE bandwidth.

System investments are well protected through long-term availability of the module, designed, and manufactured by Avnet Embedded. The COM Express standard enables performance scaling and migrating applications to future technology upgrades when they become available.

Highlights

- Up to eight processing cores
- Power efficient processors, TDP 6 to 15W
- Integrated Intel UHD Gen.12 graphics, max. 32 executing units
- Up to 16GB LPDDR5 SDRAM (IB ECC for Atom SKU's)
- 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

Technical Data - MSC C10M-ALN

Technology	x86
Formfactor	COM Express Mini
CPU	Intel® Core™ i3-N305, eight-core, 1.0GHz/1.8GHz, 32EU, 9/15W, PUC Intel Atom® x7425E, four-core, 1.5GHz, 24EU, TCC, 12W, EUC Intel Atom® x7213E, two-core, 1.7GHz, 16EU, TCC, 10W, EUC Intel Atom® x7211E, two-core, 1.0GHz, 16EU, TCC, 6W, EUC Intel® Processor N200, quad-core, 1.0GHz, 32EU, 6W, PUC Intel® Processor N97, quad-core, 2.0GHz, 24EU, 12W, PUC Intel® Processor N50, dual-core, 1.0GHz, 16EU, 6W, PUC EUC - Intel Embedded Use Conditions PUC - Intel PC Client Use Conditions
Chipset	SOC
RAM	Up to 16GB LPDDR5 SDRAM, up to 4800MT/s, IB ECC (only Atom SKU's), soldered
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)
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 (HD-A)
Security Device	TPM 2.0
Miscellaneous	Watchdog Timer: Initiates system reset RTC battery: external System Monitoring: voltage, temperature, system fan GPIO, GSPI (COM.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	Wide range input +5 ... +20V, 5V Stby optional, 8W (typ.) up to 17W (typ.)
Environment	Temperature Range: Commercial: 0° ... 60°C (operating) -20° ... 85°C (storage) Humidity: 5 ... 95% (operating, non-condensing) 5 ... 95% (storage, non-condensing)
Dimensions	84mm 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;

Order Reference - MSC C10M-ALN

Order Number	Description	Reference	Cat*
110136	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7211E dual-core 1.0/3.2GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 2GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C;	MSC C10M-ALN-x7211E-1N201C	PV
110134	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Processor N50 dual-core 1.0/3.4GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 2GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C;	MSC C10M-ALN-N50-1N201C	OR
110133	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Processor N200 quad-core 1.0/3.7GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 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-ALN-N200-24201C	OR
110137	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7211E dual-core 1.0/3.2GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 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-ALN-x7211E-24201C	OR
110138	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7213E dual-core 1.7/3.2GHz, 10W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 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-ALN-x7213E-24201C	PV
110141	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7425E quad-core 1.5/3.4GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C;	MSC C10M-ALN-x7425E-3N201C	OR
110140	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7425E quad-core 1.5/3.4GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; 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-ALN-x7425E-34101C	PV
110139	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7213E dual-core 1.7/3.2GHz, 10W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C;	MSC C10M-ALN-x7213E-3N101C	PV

*COM products are divided in two categories, „PV“ (preferred variant) and „OR“ (on request).

Order Reference - MSC C10M-ALN

Order Number	Description	Reference	Cat*
110135	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Processor N97 quad-core 2.0/3.6GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; Ethernet: 1Gbit; 8GB LPDDR5 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; 0 ... +60°C;	MSC C10M-ALN-N97-3N101C	OR
110111	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Core i3-N305 octal-core 1.8/3.8GHz, 15W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 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; 0 ... +60°C;	MSC C10M-ALN-i3-N305-45201C	PV
110354	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom x7425E quad-core 1.5/3.4GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; 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; 0 ... +60°C;	MSC C10M-ALN-x7425E-45201C	PV

*COM products are divided in two categories, „PV“ (preferred variant) and „OR“ (on request).

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