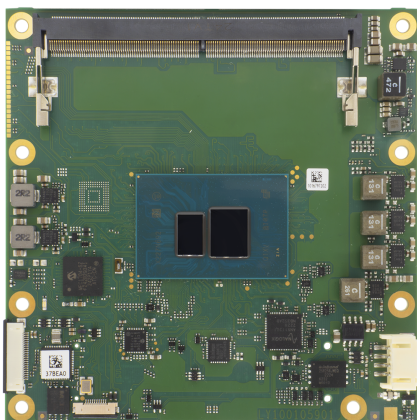


MSC C6C-ALN

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



95 x 95

tbd

0 +60

intel[®] COM Express

Description

The MSC C6C-ALN features the Intel[®] Atom[®] processors x7000E Series, Intel[®] Core™ i3 processor and Intel[®] Processors N Series. 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 MSC C6C-ALN can drive up to three independent displays with a maximum of 4k resolution. The COM Express Type 6 interface allows direct access to digital display interfaces including DisplayPort, HDMI, and the choice of LVDS versus eDP. With a maximum capacity of 16GB fast DDR5 memory the board satisfies even demanding applications. In-band ECC capability allows for protecting code and data kept in memory. High speed IO includes four PCIe Gen 3 lanes and two USB 3.2 interfaces. Mass storage is provided with the optional on-board eMMC memory and externally accessible via two SATA channels. The network interface based on Intel[®] i226 supports up to 2.5GbE bandwidth.

System investments are well protected through long-term availability of the module, designed, and manufactured by Avnet Embedded. In addition, 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 graphics, max. 32 executing units
- Up to 16GB DDR5-4800 SDRAM
- In-band ECC
- Two SATA 6Gb/s mass storage interfaces
- eMMC mass storage option
- DisplayPort/HDMI interface
- LVDS/Embedded DisplayPort interface
- Three independent displays supported
- Two USB 3.2 Gen2 (10Gb/s) and eight USB 2.0 interfaces
- Two UARTs
- Four PCI Express™ x1 lanes
- 1 / 2.5 Gb Ethernet port (Intel[®] i226)
- MIPI CSI camera interface
- TSN, TCC support
- UEFI Firmware
- Trusted Platform Module TPM 2.0

Technical Data - MSC C6C-ALN

Technology	x86
Formfactor	COM Express Compact
CPU	<p>Intel® Core™ i3-N305 Processor, 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</p> <p>Note: base frequency shown, other clock frequencies supported</p> <p>EUC - Intel Embedded Use Conditions PUC - Intel PC Client Use Conditions</p>
Chipset	SOC
RAM	1x 262-pin SO-DIMM socket for up to 16 GB DDR5-4800 In-band ECC
Flash	On-board eMMC mass storage option, scalable capacity up to 256GB
Storage Interfaces	2x SATA 6Gb/s
USB	2x USB 3.2 Gen2 (10Gb/s) 8x USB 2.0
Serial Interfaces	Two UARTS
Bus Interfaces	4x PCI Express x1 Gen 3, up to 4 root ports LPC bus (Low Pin Count bus; no DMA support)
Display Controller	Integrated Intel® UHD graphics Up to 32 execution units (EU)
Display Interfaces	Three independent displays supported: 2x Digital Display Interface (DP, HDMI) 1x Embedded DisplayPort (on variants without LVDS only); LVDS 24bit, dual-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	2x MIPI CSI camera interface (optional) Watchdog Timer: Initiates system reset, programmable Fan Supply: 4-pin header for CPU fan, PWM speed controlled and PWM speed control for system fan supported RTC battery: external System Monitoring: voltage, temperature, CPU fan, system fan
Feature Highlights	Type 6 pin-out
Firmware	AMI Aptio UEFI
OS Support	Windows 10 IoT Enterprise 2021 LTSC Yocto Project (LTS kernel 2021)
Power Requirement	Wide range input +8.5 ... +20V, 5V Stby optional, tbd W (typ.)
Environment	Ambient Temperature; 0° ... 60°C (operating), -25° ... 85°C (storage) Humidity: 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)
Dimensions	95mm x 95mm
Certificates	UL / CE
Cooling	Passive heat sink Active heat sink with fan Heat spreader with threaded or non-threaded standoffs
Carrier	Small carrier board (Mini-ITX) as part of a starter kit; Evaluation board in ATX form factor

Order Reference - MSC C6C-ALN

Order Number	Description	Reference	Cat*
114506	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Atom x7425E 4C, 1.5GHz, 12W TDP; Graphics: Intel® UHD Graphics 24 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; eMMC 32GB; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-X7425E-N5231C PCBFTX	PV
114508	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Atom x7213E 2C, 1.7GHz, 10W TDP; Graphics: Intel® UHD Graphics 16 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-X7213E-NN231C PCBFTX	PV
114510	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Atom x7211E 2C, 1.0GHz, 6W TDP; Graphics: Intel® UHD Graphics 16 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-X7211E-NN231C PCBFTX	PV
114512	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Core i3-N305 8C, 1.8GHz, 15W TDP; Graphics: Intel® UHD Graphics 32 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; eMMC 32GB; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3, 2x CSI; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-N305-N52J1C PCBFTX	PV
114514	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Processor N200 4C, 1.0GHz, 6W TDP; Graphics: Intel® UHD Graphics 32 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-N200-NN231C PCBFTX	OR
114516	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Processor N97 4C, 2.0GHz, 12W TDP; Graphics: Intel® UHD Graphics 24 EUs; 2x DP/HDMI; 1x LVDS; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-N97-NN231C PCBFTX	OR

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

Order Reference - MSC C6C-ALN

Order Number	Description	Reference	Cat*
114518	COM Express Type 6 Compact module (95mm x 95mm); CPU: Intel Processor N50 2C, 1.0GHz, 6W TDP; Graphics: Intel® UHD Graphics 16 EUs; 2x DP/HDMI; 1x eDP; Ethernet: Intel i226-LM Gbit; HD audio; TPM 2.0; 2x SATA, 2x USB3, 8x USB2, 4x PCIe Gen 3; 1x socket for DDR5 SO-DIMM; 0...+60°C	MSC C6C-ALN-N50-NN131C PCBFTX	OR

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

Accessories

Order Number	Description	Reference
Cooling Options		
98715	Passive Heatsink for C6C-ALN/ASL, consisting of a single-piece aluminum profile with fins, standoffs without thread (2.7mm inner diameter), screws and thermopad for the thermal contact to SOC.	MSC C6C-ALN-01 HSI-001
98716	Heatspreader for C6C-ALN/ASL. Single-piece aluminum profile with standoffs without thread (2.7mm inner diameter), screws and thermopad for the thermal contact to SOC.	MSC C6C-ALN-01 HSP-001
98717	Heatspreader for C6C-ALN/ASL. Single-piece aluminum profile with threaded standoffs (M2.5), screws and thermopad for the thermal contact to SOC.	MSC C6C-ALN-02 HSP-001
79809	Fan kit for Heatsink MSC HCA-ALP/RLP-0x HSI-xxx, MSC C6B-ALP/RLP-0x HSI-xxx, MSC C6B-TLH-0x HSI-xxx, MSC C6C-ALP/RLP-0x HSI-xxx, MSC C6C-TLU-0x HSI-xxx, MSC C6C-WLU-0x HSI-xxx, MSC C6C-ALN/ASL-0x HSI-xxx, MSC C6C-EL-0x HSI-xxx, MSC C6C-RYZx-0x HSI-xxx, PWM fan 80x80x15mm.	MSC C6C-FANKIT-01-HSF-001

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