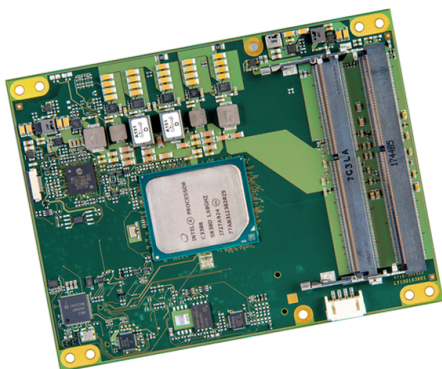


MSC C7B-DVL

Intel Atom[®] C3000 Series



125 x 95



20 / 40 W



-40 +85

IoT Solutions
AllianceCOM  Express

Description

The MSC C7B-DVL is equipped with Intel[®] C3000 series processors, offering broadest scalability from four to sixteen processor cores as well as low-cost entry-level models.

The modules have up to five Ethernet interfaces, four of which offer transfer rates of 10Gb, up to 14 PCIe lanes and up to 96 GB DDR4 ECC memory. Some variants that support industrial-level temperatures (-40 to +85°C) are also thought for use in harsh environmental conditions. For evaluation purposes and for starter kits, MSC offers a matching Type 7 ATX form factor carrier board. This feature-rich carrier board brings not only numerous PCI Express slots, four 10Gb Ethernet ports, SATA and other interfaces, but also an optional BMC (Board Management Controller) for remote maintenance. Up to 15 years long-term supply.

Highlights

- Intel Atom[®] C3958 16C, 20HSIO, 4x 10G, 31W TDP
- Intel Atom[®] C3858 12C, 20HSIO, 4x 10G, 25W TDP
- Intel Atom[®] C3758 8C, 20HSIO, 4x 10G, 25W TDP
- Intel Atom[®] C3558 4C, 12HSIO, 2x 10G, 16W TDP
- Intel Atom[®] C3538 4C, 12HSIO, 2x 10G, 15W TDP
- Intel Atom[®] C3808 12C, 20HSIO, 4x 10G, 25W TDP, ext. temp
- Intel Atom[®] C3708 8C, 20HSIO, 4x 10G, 17W TDP, ext. temp
- Up to 96GB DDR4-2400 SDRAM (ECC optional)
- Up to four 10GbE and one 1GbE interfaces
- Two SATA 6Gb/s mass storage interfaces
- Up to 14 PCI Express[™] lanes routed from CPU to COM Express buckets 0, 3
- Up to two USB 3.0 and four USB 2.0 interfaces
- Trusted Platform Module
- UEFI Firmware
- Extended temperature variants

Technical Data - MSC C7B-DVL

Technology	x86
Formfactor	COM Express Basic
CPU	<p>Intel Atom® C3958 16C, 2.0GHz, 20HSIO, 4x 10G, 31W TDP, QAT 20Gb/s, DDR4-2400</p> <p>Intel Atom® C3858 12C, 2.0GHz, 20HSIO, 4x 10G, 25W TDP, QAT 20Gb/s, DDR4-2400</p> <p>Intel Atom® C3758 8C, 2.2GHz, 20HSIO, 4x 10G, 25W TDP, QAT 10Gb/s, DDR4-2400</p> <p>Intel Atom® C3558 4C, 2.2GHz, 12HSIO, 2x 10G, 16W TDP, QAT 5Gb/s, DDR4-2133</p> <p>Intel Atom® C3538 4C, 2.1GHz, 12HSIO, 2x 10G, 15W TDP, QAT 5Gb/s comp. only, DDR4-2133</p> <p>Intel Atom® C3808 12C, 2.0GHz, 20HSIO, 4x 10G, 25W TDP, QAT 20Gb/s, DDR4-2133, ext. temp</p> <p>Intel Atom® C3708 8C, 1.7GHz, 20HSIO, 4x 10G, 17W TDP, QAT 10Gb/s, DDR4-2133, ext. temp</p> <p>QAT (Intel® Quick Assist Technology) up to 20Gbps; Intel® x86 64-bit Software Support; VT-x and VT-d support</p>
Chipset	Inside SoC
RAM	3x 260-pin SO-DIMM socket for up to 3x 32GB DDR4 SDRAM; DDR4-2400 or DDR4-2133 max bandwidth depending on processor variant; dual channel operation; ECC option;
Flash	eMMC up to 64GB
Storage Interfaces	2x SATA channels (up to 6Gb/s)
USB	Up to 2x USB 3.0, 4x USB 2.0
Serial Interfaces	2x high-speed serial ports
Bus Interfaces	Up to 14 PCI Express lanes Gen. 3 (from SoC), routed to COM Express PCIe buckets 0, 3, various lane bifurcation options
Network Interface	Up to four 10GBASE-KR (SKU dependent), one 10/100/1000Base-TX (Intel i210)
Security Device	Infineon TPM 2.0 on SPI bus
Miscellaneous	<p>Watchdog Timer: Multi-stage watchdog, initiates system reset, programmable timeouts</p> <p>Fan Supply: 4-pin header for 12V CPU fan, PWM speed controlled and PWM speed control for system fan supported</p> <p>RTC battery: External</p> <p>System Monitoring: Voltage, temperature, CPU fan, system fan</p>

Feature Highlights	Type 7 pin-out
Firmware	<p>UEFI Firmware: AMI Aptio® V</p> <p>Security: UEFI Secure boot TPM 2.0 support TCG compliant</p> <p>Power Management: ACPI Active fan control</p> <p>USB: USB legacy support (keyboard, mouse, storage)</p> <p>Monitoring: System Monitoring Health Monitoring</p> <p>MSC Adv. Boot Device Selection: Boot device priority setting based on physical interfaces</p>
OS Support	<ul style="list-style-type: none"> - Microsoft Windows® 10 IoT Enterprise (using add. Graphics card or BMC VGA) - Windows Server 2016 - Windows Server 2012 R2 (on request) - Linux (Yocto)
Power Requirement	<p>Voltage: +12V +/-10%, 5V Stby optional,</p> <p>Power Consumption: 20 W to 40 W (typ.)</p>
Environment	<p>Ambient Temperature; 0° ... 60°C (commercial operating), -40 ... 85°C (extended operating), -25° ... 85°C (storage)</p> <p>Humidity: 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)</p>
Dimensions	125mm x 95mm x 17mm
Certificates	UL / CE

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

Order Reference - MSC C7B-DVL

Order Number	Description	Reference	Cat*
78967	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3958, 16 cores, 2.0GHz, 31W TDP; Ethernet: 4x 10GbE, 1x 1GbE; 2x SATA; 2x USB3, 4x USB2; 14x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2400; 0° ... 60°C	MSC C7B-DVL-C3958-NN1N51C PCBFTX	OR
78965	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3858, 12 cores, 2.0GHz, 25W TDP; Ethernet: 4x 10GbE, 1x 1GbE; 2x SATA; 2x USB3, 4x USB2; 14x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2400; 0° ... 60°C	MSC C7B-DVL-C3858-NN1N51C PCBFTX	OR
78961	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3758, 8 cores, 2.2GHz, 25W TDP; Ethernet: 4x 10GbE, 1x 1GbE; 2x SATA; 2x USB3, 4x USB2; 14x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2400; 0° ... 60°C	MSC C7B-DVL-C3758-NN1N51C PCBFTX	OR
78957	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3558, 4 cores, 2.2GHz, 16W TDP; Ethernet: 2x 10GbE, 1x 1GbE; 2x SATA; 1x USB3, 4x USB2; 8x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2133; 0° ... 60°C	MSC C7B-DVL-C3558-NN1N01C PCBFTX	OR
78955	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3538, 4 cores, 2.1GHz, 15W TDP; Ethernet: 2x 10GbE, 1x 1GbE; 2x SATA; 1x USB3, 4x USB2; 8x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2133; 0° ... 60°C	MSC C7B-DVL-C3538-NN1N01C PCBFTX	PV
78963	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3808, 12 cores, 2.0GHz, 25W TDP; Ethernet: 4x 10GbE, 1x 1GbE; 2x SATA; 2x USB3, 4x USB2; 14x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2133; -40° ... 85°C	MSC C7B-DVL-C3808-NN1N51I PCBFTX	PV
78959	COM Express Type 7 Basic module (125mm x 95mm); CPU: Intel Atom C3708, 8 cores, 1.7GHz, 17W TDP; Ethernet: 4x 10GbE, 1x 1GbE; 2x SATA; 2x USB3, 4x USB2; 14x PCIe Gen 3; TPM 2.0; no eMMC; 3x socket for DDR4 or DDR4ECC SO-DIMM; DDR4-2133; -40° ... 85°C	MSC C7B-DVL-C3708-NN1N51I PCBFTX	PV

Accessories

Order Number	Description	Reference
95547	8GB DDR4-2400 SoDimm, 1.2V, ECC, sorting wide Temp.	MOD SODIMM DDR4 8GB PC4-19200 CL17 1B
95548	8GB DDR4-2400 SoDimm, 1.2V, 1Gx8 based, sorting wide Temp.	MOD SODIMM DDR4 8GB PC4-19200 CL17 1B
Carrier Options		
73278	COM Express Type 7 Evaluation Carrier Board with 7x PCI Express slot (x4/x8); 2x 10GbE (SFP+), 2x 10GbE (RJ45), 1x GbE; 2x SATA, four USB, SD Card, Super IO; slot for optional BMC card; POST code display; ATX power connector and single power jack. Dimensions: 305mm x 244mm (ATX form factor) 0° ... 70°C	MSC C7-MB-EV-001 PCBFTX
Cooling Options		
1142659	Active Heatsink for C7B-DV, C7B-DVL, consisting of a single-piece aluminum profile with fins, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to SOC and switch. PWM fan 80x80x15mm.	MSC C7B-DV-01 HSF-001
1142740	Passive Heatsink for C7B-DV, C7B-DVL, consisting of a single-piece aluminum profile with fins, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to SOC and switch.	MSC C7B-DV-01 HSI-001
1142741	Heatspreader for C7B-DV, C7B-DVL. Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to SOC and switch. No fan, no SO-DIMM cutout.	MSC C7B-DV-01 HSP-001
1142742	Heatspreader for C7B-DV, C7B-DVL. Single-piece aluminum profile, standoffs with M2.5 thread, screws and thermopads for the thermal contact to SOC and switch. No fan, no SO-DIMM cutout.	MSC C7B-DV-02 HSP-001
Starter Kits		
78029	Starterkit for COM Express Type 7 modules with Intel C3000 series processors. Consists of the MSC C7-MB-EV platform board for Type 7 modules, suitable heatsink with fan, two 4GB DDR4 memory modules, a graphics card and a suitable power supply with cable kit. Please order separately the COM Express C7B-DV or C7B-DVL module of your choice.	MSC C7-SK-DV-EV-KIT001 SETPAC

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