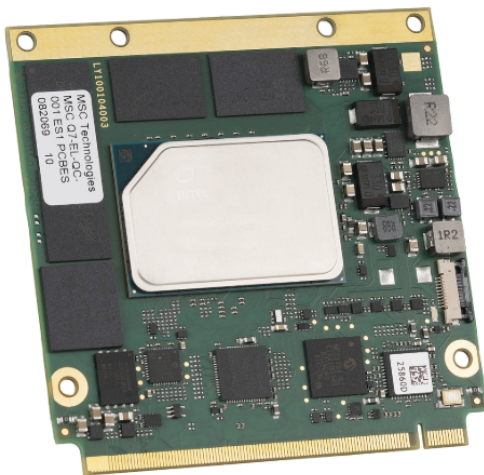


TRIA Q7-EL

Intel® Atom™ x6000E / Pentium® / Celeron® N and J Series SOC

70 x 70 mm



6 / 12 W

-40 +85

Q S E V E N



Highlights

- Intel Atom x6xxxRE, Real-time Embedded SKU's, dual/quad-core (6W-12W)
- Intel Atom x6xxxE, Embedded SKU's, dual/quad-core (6W-12W)
- Intel Pentium/Celeron J64xx, PC Client SKU's, quad-core (6W-12W)
- Intel Pentium/Celeron N6xxx, PC Client SKU's, dual/quad-core (6.5W-12W)
- Integrated Intel UHD Graphics (Gen11)
- Up to 16GB LPDDR4x SDRAM with IBECC (only Atom SKU's)
- Up to 256GB eMMC 5.1 Flash (optional)
- 2x SATA-III interface (6Gbps)
- 1x DP++, 2x eDP 1.3 (1x DP) / MIPI-DSI 1.2 / 1 x dual channel LVDS
- Triple Independent Display support
- DirectX, OpenGL 4.5, OpenCL 1.2, Vulkan v1.1
- Up to 4x PCI Express x1/x2/x4 Gen. 3
- 2x USB 3.1 Host interfaces
- up to 8x USB 2.0 Host interfaces
- 1x USB 3.0/2.0 Dual Role Port (Host/Device)
- 1x Gigabit Ethernet with TSN/TCC
- 1x SGMII Interface on SATA-Port1 (optional)
- UART, LPC, SPI, I2C, SMBus, 1x CAN-FD, HD Audio, SDIO
- Qseven Rev. 2.1 compliant

Technical Data

Technology	x86
Formfactor	Qseven
CPU	Intel Atom x6425RE Processor, quad-core 1.9GHz, 32EU, TCC, IBECC, 12W, IUC Intel Atom x6416RE Processor, quad-core 1.7GHz, 16EU, TCC, IBECC, 9W, IUC Intel Atom x6414RE Processor, quad-core 1.5GHz, 16EU, TCC, IBECC, 9W, IUC Intel Atom x6214RE Processor, dual-core 1.4GHz, 16EU, TCC, IBECC, 6W, IUC Intel Atom x6212RE Processor, dual-core 1.2GHz, 16EU, TCC, IBECC, 6W, IUC Intel Atom x6425E Processor, quad-core 2.0/3.0GHz, 32EU, IBECC, 12W, EUC Intel Atom x6413E Processor, quad-core 1.5/3.0GHz, 16EU, IBECC, 9W, EUC Intel Atom x6211E Processor, dual-core 1.3/3.0GHz, 16EU, IBECC, 6W, EUC Intel Pentium J6426 Processor, quad-core 2.0/3.0GHz, 32EU, 10W, PUC Intel Pentium N6415 Processor, quad-core 1.2/3.0GHz, 16EU, 6.5W, PUC Intel Celeron J6413 Processor, quad-core 1.8/3.0GHz, 16EU, 10W, PUC Intel Celeron N6211 Processor, quad-core 1.2/3.0GHz, 16EU, 6.5W, PUC Intel® Technologies: Enhanced Intel® SpeedStep® Technology Intel® Virtualization Technology (VTx-2, VT-d) Intel® Trusted Execution Engine (TXE) Intel® Time Coordinated Computing (TCC) Precision Time Measurement (PTM) Precision Time Measurement (PTP) IUC - Intel Industrial Use Conditions EUC - Intel Embedded Use Conditions PUC - Intel PC Client Use Conditions
Chipset	Integrated in SOC
RAM	Up to 16GB LPDDR4x SDRAM, up to 4267MT/s, IBECC (only Atom SKU's), soldered
Flash	Up to 256GB eMMC 5.1 Flash (optional)
Storage Interfaces	2x SATA-III 6Gbps 1x SD 3.0/SDIO 3.0
USB	2x USB 3.1, 6x USB 2.0, 1x Dual Role Port (Host/Device)* or 1x USB 3.1, 8x USB 2.0, 1x Dual Role Port (Host/Device)* *One USB 3.1 port according to Qseven Rev. 2.1 (only SS signals)
Serial Interfaces	1x UART (no handshake)
Bus Interfaces	Up to 4x PCI-Express x1 Gen. 3 lanes 1x LPC Bus 1x I2C Bus 1x SPI Bus 1x SMBus 1x CAN-FD (Flexible Data-Rate)
Display Controller	Integrated Intel UHD Graphics (Gen11) Up to 32 execution units (EU) 3D Acceleration: DirectX, OpenGL 4.5, OpenCL 1.2, Vulkan 1.0 Video Decode: MPEG-2, H.265/HEVC (L5.1), H.264, (L5.2), VC-1, WMV9, VP8, VP9, MVC, JPEG/MJPEG
Display Interfaces	Three independent displays supported 1x DP++ 2x eDP 1.3 (1x DP)/ MIPI-DSI 1.2 / 1x dual channel LVDS Dual-Channel LVDS 24/18 bit up to 1920 x 1200 @ 60Hz or Embedded DisplayPort 1.3 up to 4096 x 2160 @ 60Hz and MIPI-DSI x4 Interface up to 2560 x 1600 @ 60Hz (optional)
Network Interface	10/100/1000Base-T 1x SGMII Interface on SATA-Port1 (optional)
Audio Interface	High Definition Audio
Security Device	Infineon Trusted Platform Module 2.0 (optional)

Miscellaneous	Watchdog Timer: Initiates system reset, (programmable, 1s ... 255h) Fan Supply: PWM Speed Control for system fan on carrier board RTC battery: external System Monitoring: Voltage, Temperature, CPU Fan, System Fan
Feature Highlights	Qseven Rev.2.1 compliant
Firmware	AMI Aptio UEFI
OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise LTSC 2024 Linux (Yocto Project)
Power Requirement	+5V +/-5% +5V Standby
Environment	Temperature Range: 0° ... 60°C (operating) -25° ... 85°C (storage) -40° ... 85°C (operating industrial) Humidity: 5 ... 95% (operating, non-condensing) 5 ... 95% (storage, non-condensing)
Dimensions	70 x 70 mm
Certificates	UL / CE
Cooling	Heatspreader Heatsink
Carrier	TRIA Q7-MB-EP5 TRIA Q7-MB-EP6

Technical Data for TRIA Q7-EL

Order Reference

Order No.	Description	Reference	Status*
76106	Qseven 2.1 module with Intel Atom x6425RE, Quad-Core (1.9GHz), 12W, 16GB LPDDR4x (3200 MT/s), IBECC, 32EU, TCC, 64GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, IUC (Industrial use conditions), industrial temperature -40...+85°C	MSC Q7-EL-x6425RE-46N0211I PCBFTX	PV
76102	Qseven 2.1 module with Intel Atom x6414RE, Quad-Core (1.5GHz), 9W, 4GB LPDDR4x (3733 MT/s) IBECC, 16EU, TCC, 32GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, IUC (Industrial use conditions), industrial temperature -40...+85°C	MSC Q7-EL-x6414RE-25N0211I PCBFTX	PV
76098	Qseven 2.1 module with Intel Atom x6212RE, Dual-Core (1.2GHz), 6W, 4GB LPDDR4x (3733 MT/s) IBECC, 16EU, TCC, 16GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, IUC (Industrial use conditions), industrial temperature -40...+85°C	MSC Q7-EL-x6212RE-24N0211I PCBFTX	PV
76104	Qseven 2.1 module with Intel Atom x6425E, Quad-Core (2.0GHz/3.0GHz), 12W, 16GB LPDDR4x (3200 MT/s), IBECC, 32EU, 64GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, EUC (Embedded use conditions), extended temperature -25°C...+85°C	MSC Q7-EL-x6425E-46N0211E PCBFTX	PV
76100	Qseven 2.1 module with Intel Atom x6413E, Quad-Core (1.5GHz/3.0GHz), 9W, 8GB LPDDR4x (3733 MT/s), IBECC, 16EU, 32GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, EUC (Embedded use conditions), extended temperature -25°C...+85°C	MSC Q7-EL-x6413E-35N0211E PCBFTX	PV
76096	Qseven 2.1 module with Intel Atom x6211E, Dual-Core (1.3GHz/3.0GHz), 6W, 4GB LPDDR4x (3733 MT/s), IBECC, 16EU, 16GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, EUC (Embedded use conditions), extended temperature -25°C...+85°C	MSC Q7-EL-x6211E-24N0211E PCBFTX	PV
98119	Qseven 2.1 module with Intel Atom x6425E, Quad-Core (2.0GHz/3.0GHz), 12W, 16GB LPDDR4x (3200 MT/s), IBECC, 32EU, no eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, eDP, IUC (Industrial use conditions), industrial temperature -40...+85°C	MSC Q7-EL-x6425E-4NN0111I PCBFTX	OR
93069	Qseven 2.1 module with Intel Atom x6425E, Quad-Core (2.0GHz/3.0GHz), 12W, 8GB LPDDR4x (3733 MT/s), IBECC, 32EU, no eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, EUC (Embedded use conditions), extended temperature -25°C...+85°C	MSC Q7-EL-x6425E-3NN0211E PCBFTX	OR
95692	Qseven 2.1 module with Intel Atom x6425RE, Quad-Core (1.9GHz), 12W, 16GB LPDDR4x (3200 MT/s), IBECC, 32EU, TCC, no eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, eDP, IUC (Industrial use conditions), industrial temperature -40...+85°C	MSC Q7-EL-x6425RE-4NN0111I PCBFTX	OR
76094	Qseven 2.1 module with Intel Pentium J6426, Quad-Core (2.0GHz/3.0GHz), 10W, 16GB LPDDR4x (3200 MT/s), 32EU, 64GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, PUC (PC Client use conditions), standard temperature 0...+60°C	MSC Q7-EL-J6426-46N0211C PCBFTX	OR
76108	Qseven 2.1 module with Intel Celeron J6413, Quad-Core (1.8GHz/3.0GHz), 10W, 8GB LPDDR4x (3733 MT/s), 16EU, 16GB eMMC, 1x GbE LAN, 2x USB 3.1, 6x USB 2.0 (1x Host/Device), TPM 2.0, LVDS, PUC (PC Client use conditions), standard temperature 0...+60°C	MSC Q7-EL-J6413-34N0211C PCBFTX	OR

Ordering Information for TRIA Q7-EL

*PV = Preferred variant; OR = on Request (in OEM quantities only)

Accessories

Carrier Options

Order No.	Description	Reference
67690	Qseven Rev. 2.0 compatible embedded platform (148 x 102mm), 10-28V input voltage, 1x RS232 on DB9 connector, 1x RS485 on pin header, 1x RS232 no handshake on pin header, dual RJ45 LAN connector with LED, 1x SATA, 1x mSATA slot, SD card holder, 1x USB 3.0 connector, 2x USB 2.0 connector, 1x USB 2.0 on pin row, 1x microUSB 2.0 OTG, CAN, I2C, LPC/ GPIO on pin header, I2C/SMBus, SPI, DisplayPort connector, LVDS/eDP on JLI30 connector, regulated backlight supply, mini PCI Express slot, HD Audio, CMOS battery. Commercial temperature range 0...+70°C	MSC Q7-MB-EP6-601 PCBFTX

Carrier Options for TRIA Q7-EL/AL/BT/BW

Cooling Options

Order No.	Description	Reference
82416	Passive Heatsink for Q7-EL (only variants with Atom) with through-hole distance bolts, consisting of a single-piece aluminium profile with fins and thermo pad for the thermal contact to the CPU, M3 mounting holes for an optional fan	MSC Q7-EL-01 HSI-001
84847	Heatspreader for Q7-EL (only variants with Atom) with throughhole distance bolts, only offers a 70x65mm aluminium plane to mount a heatsink or thermally connect to a cooler	MSC Q7-EL-01 HSP-001
84848	Passive Heatsink for Q7-EL (only variants with Pentium/Celeron) with through-hole distance bolts, consisting of a single-piece aluminium profile with fins and thermo pad for the thermal contact to the CPU, M3 mounting holes for an optional fan	MSC Q7-EL-02 HSI-001
84849	Heatspreader for Q7-EL (only variants with Pentium/Celeron) with through-hole distance bolts, only offers a 70x65mm aluminium plane to mount a heatsink or thermally connect to a cooler	MSC Q7-EL-02 HSP-001
97724	Heatspreader for Q7-EL (only variants with Atom) with through-hole distance bolts and 4 through-holes in the heatrail part, all holes for countersunk screws, only offers a 70x65mm aluminium plane to mount a heatsink or thermally connect to a cooler	MSC Q7-EL-03 HSP-001
1053769	Heat rail for Q7 baseboards. Recommended for conductive heat transfer from the Q7 module to the Q7 baseboard. Already assembled on all MSC baseboards.	MSC Q7-XXX-01 HTR-001

Cooling Options for TRIA Q7-EL

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