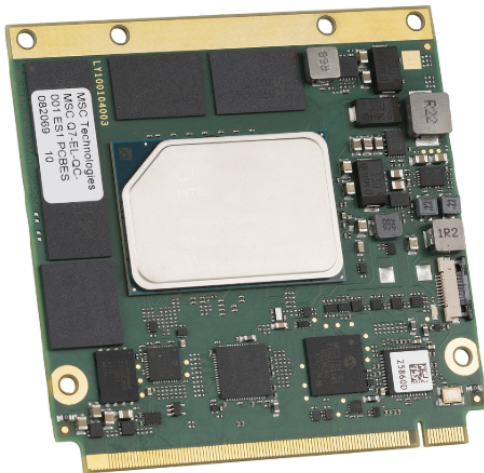


# TRIA Q7-EL

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

70 x 70 mm



⚡ 6 / 12 W

 -40 +85



## 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

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>         | x86                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Formfactor</b>         | Qseven                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>CPU</b>                | <p>Intel Atom x6425RE Processor, quad-core 1.9GHz, 32EU, TCC, IBECC, 12W, IUC<br/> Intel Atom x6416RE Processor, quad-core 1.7GHz, 16EU, TCC, IBECC, 9W, IUC<br/> Intel Atom x6414RE Processor, quad-core 1.5GHz, 16EU, TCC, IBECC, 9W, IUC<br/> Intel Atom x6214RE Processor, dual-core 1.4GHz, 16EU, TCC, IBECC, 6W, IUC<br/> Intel Atom x6212RE Processor, dual-core 1.2GHz, 16EU, TCC, IBECC, 6W, IUC<br/> Intel Atom x6425E Processor, quad-core 2.0/3.0GHz, 32EU, IBECC, 12W, EUC<br/> Intel Atom x6413E Processor, quad-core 1.5/3.0GHz, 16EU, IBECC, 9W, EUC<br/> Intel Atom x6211E Processor, dual-core 1.3/3.0GHz, 16EU, IBECC, 6W, EUC<br/> Intel Pentium J6426 Processor, quad-core 2.0/3.0GHz, 32EU, 10W, PUC<br/> Intel Pentium N6415 Processor, quad-core 1.2/3.0GHz, 16EU, 6.5W, PUC<br/> Intel Celeron J6413 Processor, quad-core 1.8/3.0GHz, 16EU, 10W, PUC<br/> Intel Celeron N6211 Processor, quad-core 1.2/3.0GHz, 16EU, 6.5W, PUC</p> <p>Intel® Technologies:<br/> Enhanced Intel® SpeedStep® Technology<br/> Intel® Virtualization Technology (VTx-2, VT-d)<br/> Intel® Trusted Execution Engine (TXE)<br/> Intel® Time Coordinated Computing (TCC)<br/> Precision Time Measurement (PTM)<br/> Precision Time Measurement (PTP)</p> <p>IUC - Intel Industrial Use Conditions<br/> EUC - Intel Embedded Use Conditions<br/> PUC - Intel PC Client Use Conditions</p> |
| <b>Chipset</b>            | Integrated in SOC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>RAM</b>                | Up to 16GB LPDDR4x SDRAM, up to 4267MT/s, IBECC (only Atom SKU's), soldered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Flash</b>              | Up to 256GB eMMC 5.1 Flash (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Storage Interfaces</b> | 2x SATA-III 6Gbps<br>1x SD 3.01/SDIO 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>USB</b>                | 2x USB 3.1, 6x USB 2.0, 1x Dual Role Port (Host/Device)* or<br>1x USB 3.1, 8x USB 2.0, 1x Dual Role Port (Host/Device)*<br>*One USB 3.1 port according to Qseven Rev. 2.1 (only SS signals)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Serial Interfaces</b>  | 1x UART (no handshake)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Bus Interfaces</b>     | Up to 4x PCI-Express x1 Gen. 3 lanes<br>1x LPC Bus<br>1x I2C Bus<br>1x SPI Bus<br>1x SMBus<br>1x CAN-FD (Flexible Data-Rate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Display Controller</b> | Integrated Intel UHD Graphics (Gen11)<br>Up to 32 execution units (EU)<br>3D Acceleration: DirectX, OpenGL 4.5, OpenCL 1.2, Vulkan 1.0<br>Video Decode: MPEG-2, H.265/HEVC (L5.1), H.264, (L5.2), VC-1, WMV9, VP8, VP9, MVC, JPEG/MJPEG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Display Interfaces</b> | Three independent displays supported<br>1x DP++<br>2x eDP 1.3 (1x DP)/ MIPI-DSI 1.2 / 1x dual channel LVDS<br>Dual-Channel LVDS 24/18 bit up to 1920 x 1200 @ 60Hz or<br>Embedded DisplayPort 1.3 up to 4096 x 2160 @ 60Hz and<br>MIPI-DSI x4 Interface up to 2560 x 1600 @ 60Hz (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Network Interface</b>  | 10/100/1000Base-T<br>1x SGMII Interface on SATA-Port1 (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Audio Interface</b>    | High Definition Audio                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Security Device</b>    | Infineon Trusted Platform Module 2.0 (optional)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                           |                                                                                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Miscellaneous</b>      | Watchdog Timer:<br>Initiates system reset, (programmable, 1s ... 255h)<br>Fan Supply:<br>PWM Speed Control for system fan on carrier board<br>RTC battery:<br>external<br>System Monitoring:<br>Voltage, Temperature, CPU Fan, System Fan |
| <b>Feature Highlights</b> | Qseven Rev.2.1 compliant                                                                                                                                                                                                                  |
| <b>Firmware</b>           | AMI Aptio UEFI                                                                                                                                                                                                                            |
| <b>OS Support</b>         | Windows 10 IoT Enterprise RS5 (64bit)<br>Windows 10 IoT Core RS5 (64bit)<br>Linux (Yocto Project)                                                                                                                                         |
| <b>Power Requirement</b>  | +5V +/-5%<br>+5V Standby                                                                                                                                                                                                                  |
| <b>Environment</b>        | Temperature Range:<br>0° ... 60°C (operating)<br>-25° ... 85°C (storage)<br>-40° ... 85°C (operating industrial)<br>Humidity:<br>5 ... 95% (operating, non-condensing)<br>5 ... 95% (storage, non-condensing)                             |
| <b>Dimensions</b>         | 70 x 70 mm                                                                                                                                                                                                                                |
| <b>Certificates</b>       | UL / CE                                                                                                                                                                                                                                   |
| <b>Cooling</b>            | Heatspreader<br>Heatsink                                                                                                                                                                                                                  |
| <b>Carrier</b>            | TRIA Q7-MB-EP5<br>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

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