COM Express Type 10

![TRIA - AN AVNET COMPANY logo]

TRIA C10M-EL

Intel Atom® x6000 Series / Intel® Pentium® / Celeron® N and J Series

84 x 55

8 / 17W

-40-+85

![COM Express logo] ![intel logo]

Highlights

- Quad and dual core variants
- Power efficient processors, TDP 6 to 12W
- Extended temperature variants
- Integrated Intel UHD Graphics (Gen11), max. 32 executing units
- Up to 16GB LPDDR4x SDRAM
- In-band ECC option
- Two SATA 6Gb/s mass storage interfaces
- eMMC mass storage option
- DisplayPort/HDMI/DVI interface
- LVDS/Embedded DisplayPort interface
- Two independent displays supported
- DirectX 12, OpenGL 4.5/ES 3.x, OpenCL 1.2 driver support
- Two USB 3.0 and eight USB 2.0 interfaces
- Four PCI Express™ x1 Gen 3 lanes
- One Gb Ethernet port
- TSN, TCC support
- UEFI Firmware
- Trusted Platform Module TPM 2.0

COM Express Type 10

Technical Data

Technology	x86
Formfactor	COM Express Mini
CPU	Intel Atom® x6425RE, quad-core / 4T, 1.9GHz, 32EU, IBECC, TCC, 12W, IUC Intel Atom® x6414RE, quad-core / 4T, 1.5GHz, 16EU, IBECC, TCC, 9W, IUC Intel Atom® x6212RE, dual-core / 2T, 1.2GHz, 16EU, IBECC, TCC, 6W, IUC Intel Atom® x6425E, quad-core / 4T, 2.0/3.0GHz, 32EU, IBECC, 12W, EUC Intel Atom® x6413E, quad-core / 4T, 1.5/3.0GHz, 16EU, IBECC, 9W, EUC Intel Atom® x6211E, dual-core / 2T, 1.3/3.0GHz, 16EU, IBECC, 6W, EUC Intel® Pentium® J6426, quad-core / 4T, 2.0/3.0GHz, 32EUs, 10W, PUC Intel® Pentium® N6415, quad-core / 4T, 1.2/3.0GHz, 16EU, 6W, PUC Intel® Celeron® J6413 quad-core / 4T, 1.8/3.0GHz, 16EU, 10W, PUC Intel® Celeron® N6211 dual-core / 2T, 1.2/3.0GHz, 16EU, 6W, PUC IUC - Intel Industrial Use Conditions EUC - Intel Embedded Use Conditions PUC - Intel PC Client Use Conditions
Chipset	SOC
RAM	Up to 16GB LPDDR4x SDRAM, up to 4267MT/s, soldered on board In-band ECC (on selected variants)
Flash	Up to 256GB eMMC V5.1 Flash, soldered (optional)
Storage Interfaces	2x SATA 6Gb/s
USB	2x USB 3.0, 8 x USB 2.0
Serial Interfaces	Two UARTS
Bus Interfaces	4x PCI Express x1 Gen 3, LPC bus (Low Pin Count bus; no DMA support)
Display Controller	Integrated Intel UHD Graphics (Gen11) Up to 32 execution units (EU) DirectX 12, OpenGL 4.5/ES 3.x, OpenCL 1.2 driver support Media codec support: MPEG2, H.264 (L5.2), VC-1, WMV9, VP8, VP9, JPEG/MPEG, H.265 (HEVC)
Display Interfaces	Two independent displays supported: 1x Digital Display Interface (DP 1.2/1.3/1.4 (max. 4096 x 2160 @ 60Hz), HDMI 1.4b/ 2.0b (max. 4K @ 60Hz) 1x Embedded DisplayPort 1.3 (on variants without LVDS only); max. 4096 x 2160 @ 60Hz, LVDS 24bit, single-channel, 1366 x 768 @ 60Hz (shared with Embedded DisplayPort)
Network Interface	10/100/1000Base-T (SoC integrated controller)
Audio Interface	High Definition Audio
Security Device	TPM 2.0
Miscellaneous	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 GPIO, SDIO (multiplexed with GPIO)
Feature Highlights	Type 6 pin-out
Firmware	AMI Aptio UEFI

COM Express Type 10

OS Support	Windows 10 IoT Enterprise RS5 (64bit) Linux (Yocto Project) Kernel 5.4
Power Requirement	Wide range input +5 … +20V, 5V Stby optional, tbd W (typ.) up to tbd W (typ.)
Environment	Ambient Temperature; 0° … 60°C (operating, commercial), -40° … 85°C (operating, industrial), -40° … 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

Technical Data for TRIA C10M-EL

COM Express Type 10

Order Reference

Order No.	Description	Reference	Status*
93852	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6425RE quad-core 1.9GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 16GB LPDDR4 SDRAM, in-band ECC; 32GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6425RE-45201I PCBFTX	OR
93850	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6425RE quad-core 1.9GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR4 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6425RE-34201I PCBFTX	PV
93846	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6414RE quad-core 1.5GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR4 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6414RE-34201I PCBFTX	PV
95183	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6414RE quad-core 1.5GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR4 SDRAM, in-band ECC; no eMMC; HD audio; no TPM; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6414RE-3N200I PCBFTX	PV
95179	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6212RE dual-core 1.2GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR4 SDRAM, in-band ECC; no eMMC; HD audio; no TPM; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6212RE-3N200I PCBFTX	OR
93842	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6212RE dual-core 1.2GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 4GB LPDDR4 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6212RE-24201I PCBFTX	PV

COM Express Type 10

Order No.	Description	Reference	Status*
93848	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6425E quad-core 2.0/3.0GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 16GB LPDDR4 SDRAM, in-band ECC; 32GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C;	MSC C10M-EL-X6425E-45201I PCBFTX	PV
93844	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6413E quad-core 1.5/3.0GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 4GB LPDDR4 SDRAM, in-band ECC; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C;	MSC C10M-EL-X6413E-24201I PCBFTX	OR
95181	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6413E quad-core 1.5/3.0GHz, 9W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; Ethernet: 1Gbit; 4GB LPDDR4 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C;	MSC C10M-EL-X6413E-2N101I PCBFTX	OR
93840	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6211E dual-core 1.3/3.0GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; Ethernet: 1Gbit; 2GB LPDDR4 SDRAM, in-band ECC; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1; -40 ... +85°C;	MSC C10M-EL-X6211E-1N101I PCBFTX	PV
93836	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Celeron J6413 quad-core 1.8/3.0GHz, 10W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 8GB LPDDR4 SDRAM; 16GB eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1;	MSC C10M-EL-J6413-34201C PCBFTX	PV
93838	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Celeron N6211 dual-core 1.2/3.0GHz, 6.5W TDP; Graphics: Intel UHD; DP/HDMI and eDP interfaces; Ethernet: 1Gbit; 2GB LPDDR4 SDRAM; no eMMC; HD audio; TPM 2.0; 2x SATA, 2x USB3/2, 6x USB2, 2x UART; 4x PCIe x1;	MSC C10M-EL-N6211-1N101C PCBFTX	OR
110428	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6212RE dual-core 1.2GHz, 6W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 4GB LPDDR4 SDRAM, in-band ECC; 32GB eMMC; HD audio; TPM 2.0; 2x SATA; 2x USB3/2; 6x USB2; 1x UART; 1xCAN; 4x PCIe x1; -40... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6212RE-25201I PCBFTX	PV

COM Express Type 10

Order No.	Description	Reference	Status*
110430	COM Express Type 10 Mini module (84mm x 55mm); CPU: Intel Atom X6425RE quad-core 1.9GHz, 12W TDP; Graphics: Intel UHD; DP/HDMI and LVDS interfaces; Ethernet: 1Gbit; 16GB LPDDR4 SDRAM, in-band ECC; 64GB eMMC; HD audio; TPM 2.0; 2x SATA; 2x USB3/2; 6x USB2; 1x UART; 1x CAN 4x PCIe x1; CAN; -40... +85°C; (recommended for 24/7 operation)	MSC C10M-EL-X6425RE-46201I PCBFTX	PV

Ordering Information for TRIA C10M-EL

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

COM Express Type 10

Accessories

Carrier Options

Order No.	Description	Reference
67293	COM Express Type 10 Evaluation Carrier Board with PCI Express x4 slot, USB 3.0/2.0, GbE, SATA, DisplayPort, eDP/LVDS and HD audio interfaces; Mini PCI Express socket; SD card slot, ATX power connector and single 12V power jack. Dimensions: 170mm x 170mm (Mini-ITX form factor)	MSC C10-MB-EV-001 PCBFTX

Carrier Options for Tria COM Express Type 10 modules

Cooling Solutions

Order No.	Description	Reference
91456	Passive Heatsink for C10M-EL (Atom versions only), consisting of a single-piece aluminum pin cooler, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC. With threaded mounting holes for an optional fan.	MSC C10M-EL-01 HSI-001
95968	Heatspreader for C10M-EL (Atom versions only). Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC.	MSC C10M-EL-01 HSP-002
91458	Passive Heatsink for C10M-EL (Pentium/Celeron versions only), consisting of a single-piece aluminum pin cooler, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC. With threaded mounting holes for an optional fan.	MSC C10M-EL-02 HSI-001
95969	Heatspreader for C10M-EL (Pentium/Celeron versions only). Single-piece aluminum profile, standoffs with M2.5 thread and thermopad for the thermal contact to SOC.	MSC C10M-EL-02 HSP-002
95970	Heatspreader for C10M-EL (Pentium/Celeron versions only). Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter) and thermopad for the thermal contact to SOC.	MSC C10M-EL-03 HSP-002

Cooling Devices for TRIA C10M-EL

Tria Technologies GmbH
Industriestr. 16
76297 Stutensee
info@tria-technologies.com
tria-technologies.com