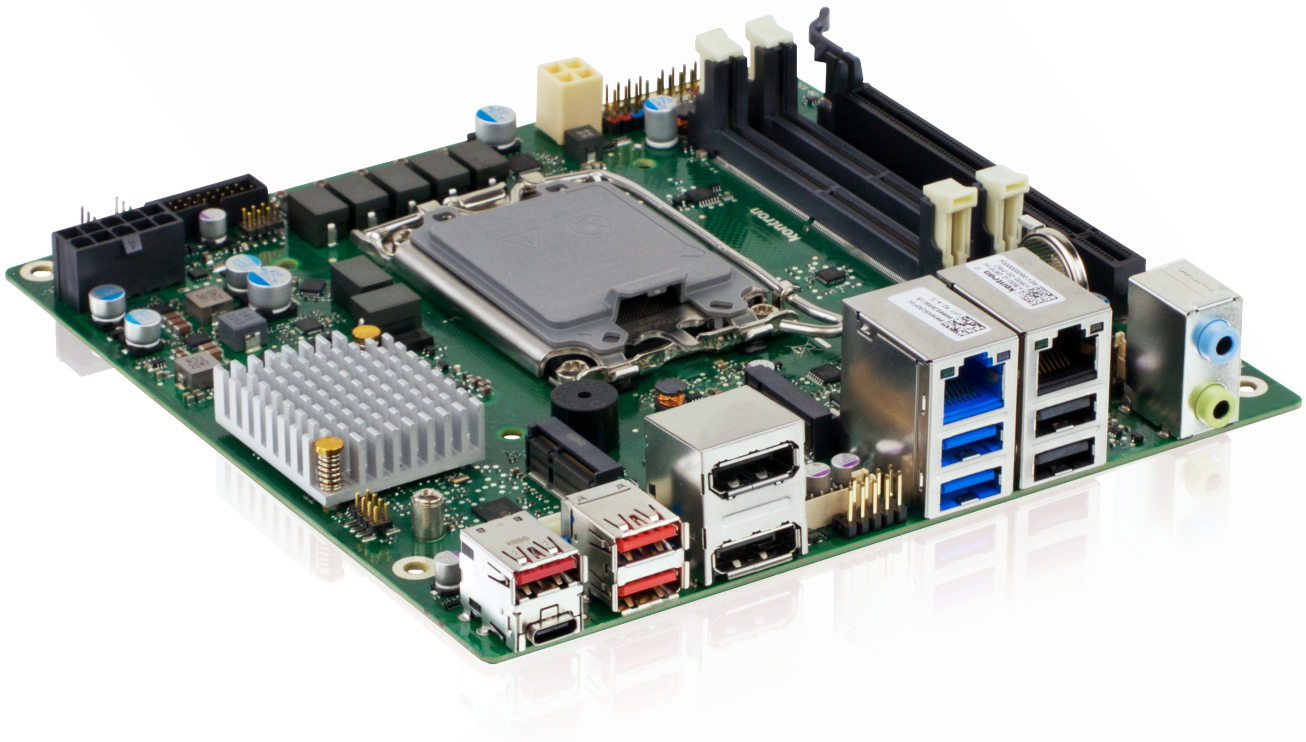


K3832-Q mITX

Industrial Series



Intel® Q670E Chipset and Intel® 12th & 13th Gen Core™ i3/i5/i7/i9 Processors

- ▶ Latest DDR5 memory technology for best-in-class system performance
- ▶ Intel® UHD Graphics 7xx driven by Xe Architecture; DPP-, eDP-, and LVDS- support
- ▶ Dual LAN 1GbE/2.5GbE incl. Teaming and TSN support
- ▶ M.2 Key-M & Key-E; Powerful USB 3.2 Gen2
- ▶ Combined Single 12 V PSU or ATX12V0 (Intel-compliant) PSU

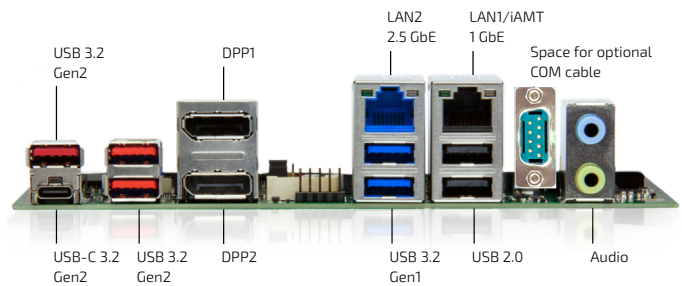
K3832-Q mITX Industrial Series

The Industrial Motherboard K3832-Q mITX is equipped with the highly performant Intel® Q670E Chipset. It also offers a multitude of supporting processors such as the Intel® Core™ i9/i7/i5/i3 (12th/13th Gen) and the Intel® Pentium®/Intel® Celeron® processor series. The motherboard impresses with iAMT-based out-of-band management features, TSN and real-time support (TCC) for specific

industrial applications, and support for the latest standards, such as PCI Express® Gen5 and DDR5 memory technology. Designed and approved for 24/7 continuous operation and an enhanced temperature range up to 60 °C the K3832-Q mITX fits perfectly with special requirements of certain markets.

- Intel® 12th/13th Gen Core™ Processor Series
- DDR5-4800/5600 SODIMM, max. 64 GByte
- cTDP – Easy & flexible reduction of CPU TDP
- Supporting Intel® iAMT features and Intel® Time Coordinated Computing (TCC)
- PCI Express® x16 (Gen5 prepared)
- 1x Intel® GbE LAN, 1x 2.5GbE incl. Teaming and TSN
- Intel® UHD Graphics 7xx driven by Xe Architecture; 2x DisplayPort V1.4a up to 8K; 1x eDP V1.4b @4K; 1x Dual Channel LVDS
- Intel® High Definition 5.1 Audio; Intel® integrated TPM V2.0
- 8 Bit GPIO; 2x COM port
- 4x USB 3.2 Gen 2, 4x USB 3.2 Gen1, 4x USB 2.0
- 1x M.2 2242 (Key-M, PCIe/NVME SSD modules)

- M.2 2230 (Key-E, WLAN/Bluetooth modules, incl. CNVi support)
- BIOS-POST/-Boot & OS – HW Watchdog onboard



Technical Information

SYSTEM	PROCESSOR	Intel® Core™ i9/i7/i5/i3 (12th/13th Gen) processor series Intel® Pentium®/Intel® Celeron® processor series Socket LGA1700, max. 65 W TDP (For details on supported processors please refer to Kontron FTP Server)
	CHIPSET MEMORY	Intel® Q670E Chipset 2 SODIMM Sockets DDR5-4800/5600***, max. 64 GByte, Dual Channel unbuffered, non-ECC
VIDEO	GRAPHICS	Intel® UHD Graphics 7xx (depends on installed processor), 2x DisplayPort V1.4a up to 8K; 1x eDP V1.4b @4K; 1x Dual Channel (24Bit) LVDS @Full HD
AUDIO	AUDIO CODEC AUDIO INTERFACE	Tempo Semiconductor 92HD91B High Definition Stereo Audio Codec****
NETWORK CONNECTION	ETHERNET 1	Intel® i219LM with 10/100/1000 MBit/s, iAMT features, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support
	ETHERNET 2	Intel® i226LM with 10/100/1000/2500 MBit/s, TSN Support, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support
PERIPHERAL CONNECTION	USB	3x USB 3.2 Gen 2 (rear I/O, Type-A), 1x USB 3.2 Gen 2 (rear I/O, Type-C with locking option), 2x USB 3.2 Gen1 (rear I/O, Type-A), 2x USB 3.2 Gen1 (by header), 2x USB 2.0 (rear I/O, Type-A), 2x USB 2.0 (by header)
	SERIAL PORT OTHER I/Os	2x (by header)* 1x 8-Bit GPIO
STORAGE & EXPANSION	SATA M.2 PCIe/NVME M.2 WIRELESS PCIe/PCI SLOTS GPIO	n. a. 1x M.2 2242 (Key-M, PCIe/NVME SSD modules) 1x M.2 2230 ((Key-E, WLAN/Bluetooth modules, incl. CNVi support) PCIe x16: 1x 16 lanes, Gen5** 8 Bit GPIO (Input/Output); WLAN LED support, WLAN enable/disable support 3.3 V/5 V/12 V supply voltage output; SMBus controller PCA9554A
POWER	CONNECTOR INPUT VOLTAGE	Dual supply option: Single 12 V PSU ("DC In") or ATX12V0 (Intel-compliant) PSU 10-pin socket (Single DC 12 V or 12V1-DC/12VSB/PS-On/PWR_OK) plus 4-pin socket (12 V CPU power connector)

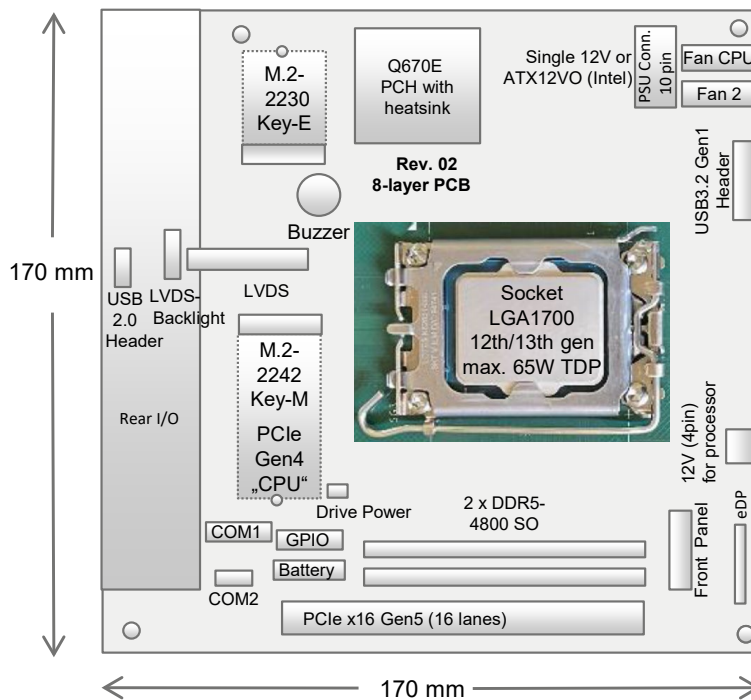
*) COM1: Full RS-232 feature support; requires extension cable with integrated COM transceiver (signal level converter) e.g. F5000-K011
COM2: Reduced RS-232 feature set without DCD/DIR/DSR/RI (flow control)
**) PCIe x16 slot: Gen5 support prepared, but not validated
***) Support for DDR5-5600 pending. Requires Intel® Core™ i7 or i9 processor (13th gen) and single rank 50-DIMM modules
****) 5.1 surround sound is supported via DisplayPort

FIRMWARE	BIOS	AMI Aptio 5.x (UEFI) BIOS modified and adapted by Kontron; Recovery BIOS, SM-BIOS (DMI), BIOS and CPU Microcode Update, Quick Boot, Logo Boot, Quiet Boot, Plug & Play, Automatic DRAM and PCIe Configuration, BIOS Support for S.M.A.R.T., Advanced Power Management, ACPI S3/S4, Wake on time from S5. No legacy OS support, no MBR installation (UEFI only)
	WATCHDOG	BIOS POST-/BIOS BOOT-/OS-HW Watchdog
	REAL TIME CLOCK	Integrated
	TPM	TPM V2.0 (Intel® integrated)
SYSTEM CONTROL	FP HEADER	1x Header for Reset button, HDD LED & External Speaker, Power button, Power LED
	SECURITY	Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), Trusted Platform Module (TPM)
SOFTWARE	OS SUPPORT	MS Windows 10, MS Windows 11, MS Windows 10 IOTG, Linux-64 No legacy OS support, no MBR installation (UEFI only)
MECHANICAL	DIMENSIONS (L x W)	Mini-ITX: 6.7" x 6.7" (170 x 170 mm)
ENVIRONMENTAL	OPERATION TEMPERATURE	0 °C - 60 °C
CERTIFICATION	EMC & SAFETY	Planned: cTÜVus acc. IEC62368-1, CE Class B incl. Industrial Immunity, UKCA, FCC-B verified

Power Supply Requirements

SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continuous)*
Single 12 V	+ 12 V	0 A	± 5 %	3.000 µF	13 A (tbd)
ATX12V0	+ 12 V	0 A	+ 5 %/-7 %	3.000 µF	13 A (tbd)
	+ 12 Vaux	0 A	+ 5 %/-7 %	3.000 µF	1.5 A

*) Max. motherboard input current incl. processor and DRAM memory. Additional power for drives, USB devices, PCIe cards, eDP etc. is not included!
 Note: BIOS provides option to reduce CPU TDP/Turbo power in order to use PSU with limited loadability.
 Processor 65 W TDP: Max. Cont. Current < 13 A; max. Surge Current = 26 A (full Turbo Mode)
 Processor 35 W TDP: Max. Cont. Current < 8 A; max. Surge Current = 20 A (full Turbo Mode)



Technical Details

FEATURES	Board Size / Chipset VGA* / DVI / DPP / LVDS / eDP Stereo Audio / 5.1 Multichannel Audio / Front Panel Audio Buzzer / int. Speaker Support (mono) GbE LAN / 2.5GbE LAN / Dual 2.5GbE LAN WoL / LAN Boot / Teaming / TSN Intel® Standard Manageability / iAMT / vPro SATA / SATA RAID / M.2 SSD (NVME) / NVME RAID USB 2.0 / USB 3.2 Gen1 / USB 3.2 Gen2 / USB 3.2 Type-C FAN controlled & monitored / CPU / AUX1 / AUX2 / AUX3 TEMP monitored CPU / Onboard Sensors / External Sensor	Mini-ITX / Q670E - / - / + / + / + + / - / - + / + + / + / - + / + / + / + + / + / - - / - / + / - + / + / + / + + / + / - / - + / + / -
SPECIAL FEATURES	Silent Fan / System Guard / cTDP Recovery BIOS / Flash Update / Multi Boot HDD Password / EraseDisk / TPM V2.0 BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog Logo Boot Option High Efficiency Core Voltage Regulator Design Operating Mode 24-7 / 8-5 (hrs per day - days per week) Motherboard operating temperature range (chassis inside)**	+ / + / + + / + / + + / + / + + / + / + + + + / - 0 °C - 60 °C
INTERNAL CONNECTORS	SODIMM Sockets (DDR5-4800/5600) / ECC-Support PCI Express® x16: 16 lanes - Gen5 SATA-600 / M.2 Key-M (NVME SSD) / M.2 Key-B M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth) S/PDIF (digital Audio) OUT / IN Front Panel Audio (9-Pin, HD Audio) USB 2.0 / USB 3.2 (Gen1) / USB 2.0 Stick / USB 3.2 (Gen2) Stick*** Fan CPU / AUX1 / AUX2 / AUX3 Intrusion (Case Open) / GPIO (8Bit) / SM-Bus (Case Temp.) Serial Port Header (COM, RS-232)**** / Parallel Port Header / PS2 Header Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin compatible) SATA Drive Power Connector (2 pin; 5V/GND) Multirail PSU (24 pin + 4 pin) / Single 12V PSU / ATX12VO *****	2 / - 1 - / 1 / - 1 - / - - 1 / 1 / 0 / 0 1 / 1 / - / - - / 1 / - 2 / - / - 1 1 - / + / +
EXTERNAL CONNECTORS	VGA Sub D* / DVI-I / DVI-D / DisplayPort V1.4a Audio Mic. In / Line in / Line out (or driver configuration) LAN (RJ-45) PS/2 Mouse / Keyboard USB 2.0 / USB 3.2 (Gen1) / USB 3.2 (Gen2) Serial (COM1, RS-232) Parallel (EPP/ECP)	- / - / - / 2 - / 1 / 1 2 - / - 2 / 2 / 4 (1) ***** -

*) VGA possible via DP-VGA-converter (dongle)
 **) Forced cooling required, see technical documentation for details
 ***) Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)
 ****) COM1 requires extension cable with integrated COM transceiver (signal level converter) e.g. F5000-K011
 *****) Single 12V or ATX12VO: 10 pin + 4 pin PSU connectors
 *****) COM1: Connector within rear I/O area with COM cable F5000-K011

Ordering Information

K3832-Q mITX

ARTICLE	PART NO.	DESCRIPTION
K3832-Q mITX	F5120-V195	Intel® 12th/13th Gen Core™ Processor Series, Intel® Q670E Chipset

Accessories

RISERCARD	S26361- F5000-R006	1x PCIe x4 (D3318-A)
COM1 EXTENSION CABLE	S26361- F5000-K011	Cable with integrated COM transceiver; length = 75 mm
INTERNAL COM2 CABLE	S26361- F5000-K010	400 mm; fullsize slot bracket
DC-IN AdapterCable_10PIN_ OpenCableEnd	F5000-K014	Universal DC input power connection (10-pin, 250 mm) for K3832-Q
DC-IN AdapterCable_ 10PIN_24PIN	F5000-K015	DC input adapter cable 10-pin to 24-pin for K3832-Q (100 mm)
DRIVE POWER CABLE 5V	F5000-K016	Provides +5V/GND for 2x SATA drives and one SLIM DVD drive (200 mm + 200 mm)

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