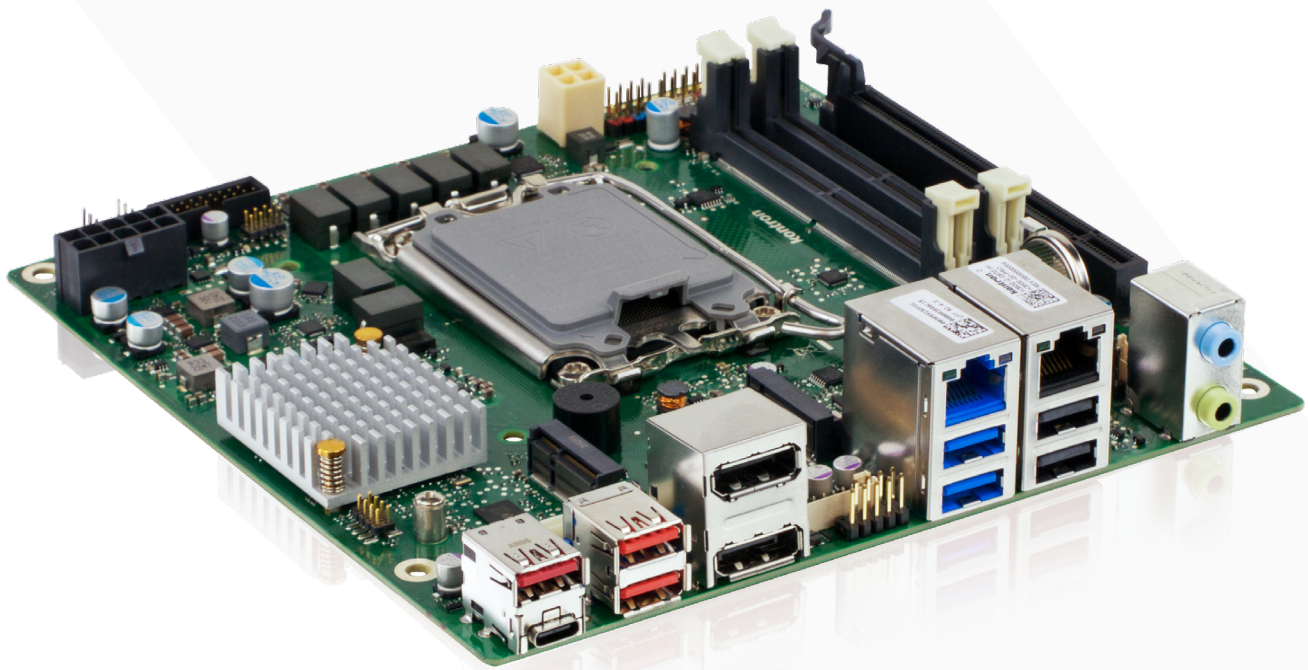


# K3832-Q mITX

## Industrial Series



### Intel® Q670E Chipset and Intel® Core™ processors (12th/13th/14th Gen)

- › 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 ATX12VO (Intel-compliant) PSU

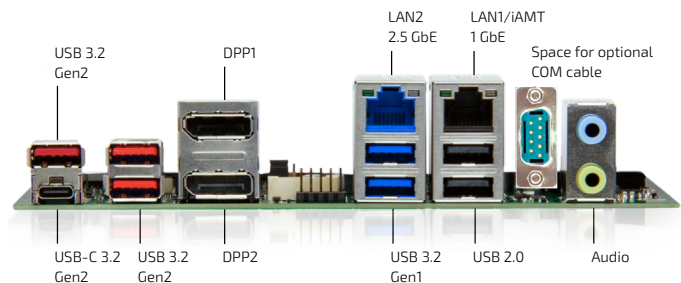
## K3832-Q mITX Industrial Series

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 processor (12th/13th/14th 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® Core™ processors (12th/13th/14th Gen)
- DDR5-4800/5600 SODIMM, max. 96 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

|                                |                                                                            |                                                                                                                                                                                                                                                                                                           |
|--------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SYSTEM</b>                  | <b>PROCESSOR</b>                                                           | Intel® Core™ processors (12th/13th/14th Gen)<br>Intel® Pentium®/Intel® Celeron® processor series<br>Socket LGA1700, max. 65 W TDP<br>(For details on supported processors please refer to Kontron FTP Server)                                                                                             |
|                                | <b>CHIPSET<br/>MEMORY</b>                                                  | Intel® Q670E Chipset<br>2 SODIMM Sockets DDR5-4800/5600*, max. 96 GByte, Dual Channel unbuffered non-ECC.                                                                                                                                                                                                 |
| <b>VIDEO</b>                   | <b>GRAPHICS</b>                                                            | Intel® UHD Graphics 7xx (depends on installed processor),<br>2x DisplayPort V1.4a up to 8K; 1x eDP V1.4b @4K;<br>1x Dual Channel (24Bit) LVDS @Full HD                                                                                                                                                    |
| <b>AUDIO</b>                   | <b>AUDIO CODEC<br/>AUDIO INTERFACE</b>                                     | Tempo Semiconductor 92HD91B<br>High Definition Stereo Audio Codec**                                                                                                                                                                                                                                       |
| <b>NETWORK CONNECTION</b>      | <b>ETHERNET 1</b>                                                          | Intel® i219LM with 10/100/1000 MBit/s, iAMT features,<br>Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support                                                                                                           |
|                                | <b>ETHERNET 2</b>                                                          | 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                                                                                                           |
| <b>PERIPHERAL CONNECTION</b>   | <b>USB</b>                                                                 | 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)                                                                                      |
|                                | <b>SERIAL PORT<br/>OTHER I/Os</b>                                          | 2x (by header)***<br>1x 8-Bit GPIO                                                                                                                                                                                                                                                                        |
| <b>STORAGE &amp; EXPANSION</b> | <b>SATA<br/>M.2 PCIe/NVME<br/>M.2 WIRELESS<br/>PCIe/PCI SLOTS<br/>GPIO</b> | n. a.<br>1x M.2 2242 (Key-M, PCIe/NVME SSD modules)<br>1x M.2 2230 ((Key-E, WLAN/Bluetooth modules, incl. CNVi support)<br>PCIe x16: 1x 16 lanes, Gen5****<br>8 Bit GPIO (Input/Output); WLAN LED support, WLAN enable/disable support<br>3.3 V/5 V/12 V supply voltage output; SMBus controller PCA9554A |
| <b>POWER</b>                   | <b>CONNECTOR INPUT VOLTAGE</b>                                             | 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)                                                                                                                  |

\*) Support for DDR5-5600 with BIOS ≥ R2.13.0. Requires at least appropriate Intel® Core™ processor (13th/14th gen)

\*\*) 5.1 surround sound is supported via DisplayPort

\*\*\*) 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/DSR/RI (flow control)

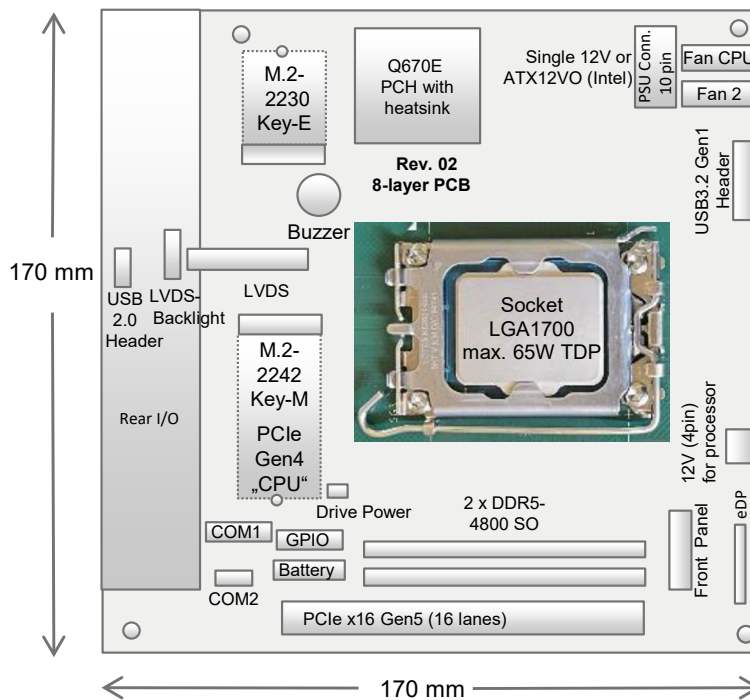
\*\*\*\*) PCIe x16 slot: Gen5 support prepared, but not validated

|                       |                              |                                                                                                                                                                                                                                                                                                          |
|-----------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FIRMWARE</b>       | <b>BIOS</b>                  | 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. |
|                       | <b>WATCHDOG</b>              | No legacy OS support, no MBR installation (UEFI only)                                                                                                                                                                                                                                                    |
|                       | <b>REAL TIME CLOCK</b>       | BIOS POST-/BIOS BOOT-/OS-HW Watchdog                                                                                                                                                                                                                                                                     |
|                       | <b>TPM</b>                   | Integrated                                                                                                                                                                                                                                                                                               |
| <b>SYSTEM CONTROL</b> | <b>FP HEADER</b>             | TPM V2.0 (Intel® integrated)                                                                                                                                                                                                                                                                             |
|                       | <b>SECURITY</b>              | 1x Header for Reset button, HDD LED & External Speaker, Power button, Power LED                                                                                                                                                                                                                          |
|                       |                              | Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature),                                                                                                                                           |
| <b>SOFTWARE</b>       | <b>OS SUPPORT</b>            | Trusted Platform Module (TPM)                                                                                                                                                                                                                                                                            |
|                       |                              | MS Windows® 10, MS Windows® 10 IoT (LTSC), MS Windows® 11, MS Windows® 11 IoT (LTSC), Linux 64                                                                                                                                                                                                           |
| <b>MECHANICAL</b>     | <b>DIMENSIONS (L x W)</b>    | No legacy OS support, no MBR installation (UEFI only)                                                                                                                                                                                                                                                    |
| <b>ENVIRONMENTAL</b>  | <b>OPERATION TEMPERATURE</b> | Mini-ITX: 6.7" x 6.7" (170 x 170 mm)                                                                                                                                                                                                                                                                     |
| <b>CERTIFICATION</b>  | <b>EMC &amp; SAFETY</b>      | 0 °C - 60 °C                                                                                                                                                                                                                                                                                             |
|                       |                              | 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                                   |
| ATX12V0     | + 12 V    | 0 A          | + 5 %/-7 %             | 3.000 µF                    | 13 A                                   |
|             | + 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

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

\*) 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® Core™ processors (12th/13th/14th Gen), 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_<br>OpenCableEnd | F5000-K014         | Universal DC input power connection (10-pin, 250 mm) for K3832-Q                             |
| DC-IN AdapterCable_<br>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)                 |
| M.2 KEY-E/A SATA ADDON                    | F5000-M004         | AddOn for M.2 Key-E/A slot to provide two SATA 6G ports<br>Kit contains 40 x adapter K1201-A |
| SLIM HEATSINK LGA1700 65W                 | F5000-C030         | Box contains 40x cooler plus 40x backplate                                                   |

## Global Headquarters

Kontron Europe GmbH

Gutenbergstraße 2  
85737 Ismaning, Germany  
Tel.: + 49 821 4086-0  
info@kontron.com

www.kontron.com

