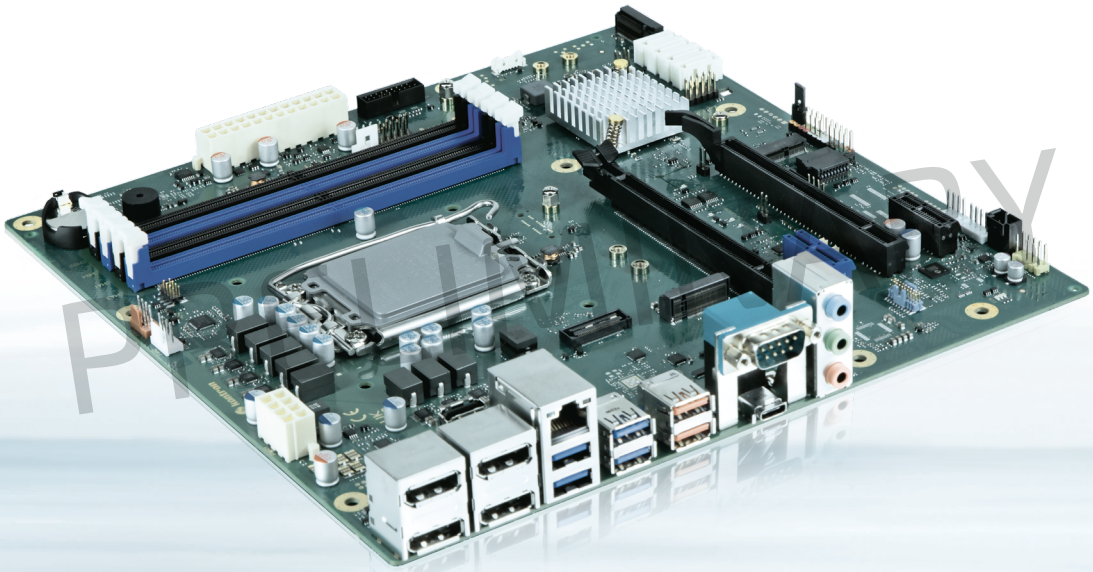
K3842-Q µATX

Extended Lifecycle Series



Intel® Q670 Chipset and Intel® 12th Gen Core™ i3/i5/i7/i9 Processors

- Latest DDR5 memory technology for best-in-class system performance
- Supporting Intel® vPro® Essentials features (Intel® i219LM GbE)
- Intel® UHD Graphics 7xx driven by X^{e} Architecture
- Dual M.2 Key-M SSD & single M.2 Key-E WLAN sockets onboard
- Powerful USB 3.2 Gen 2/Type-C, 1x COM (RS-232)

POSSIBILITIES START HERE kontron S&T Group

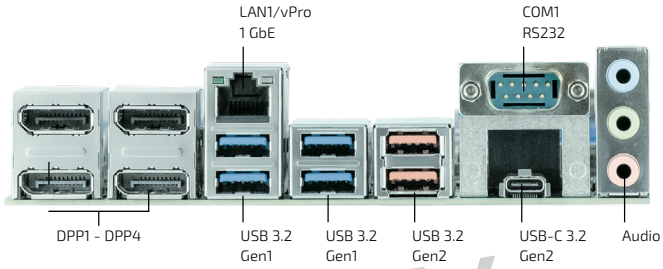
K3842-Q µATX

Extended Lifecycle Series

The Extended Lifecycle Motherboard K3842-Q µATX is equipped with the highly performant Intel® Q670 Chipset. It also offers a multitude of supporting processors such as the Intel® Core™ i9/i7/i5/i3 (12th Gen) and the Intel® Pentium®/Intel® Celeron® processor series. Designed and approved for 24/7 continuous operation. It offers basic manageability based on selected Intel® vPro® Essentials features.

PRODUCT HIGHLIGHTS

- Intel® 12th Gen Core™ Processor Series
- DDR5-4800 UDIMM, max. 128 GByte
- cTDP – Easy & flexible reduction of CPU TDP
- Supporting selected Intel® vPro® Essentials features
- PCI Express® x16 (Gen5 @ CPU, Gen4 @ PCH)
- 1x Intel® GbE LAN
- Intel® UHD Graphics 7xx driven by Xᵉ Architecture; 4x DisplayPort V1.4a @4k
- Intel® High Definition 5.1 Audio; Intel® integrated TPM V2.0
- 1x COM port
- 3x USB 3.2 Gen 2, 6x USB 3.2 Gen1, 2x USB 2.0, 1x USB 2.0 stick socket
- 4x SATA 6G incl. RAID support
- 2x M.2 2230/2242/2280 (Key-M, PCIe/NVME SSD modules), incl. NVME RAID support
- M.2 2230 (Key-E, WLAN/Bluetooth modules, incl. CNVi support)
- BIOS-POST/-Boot & OS – HW Watchdog onboard



TECHNICAL INFORMATION

PRELIMINARY

SYSTEM	PROCESSOR	Intel® Core™ i9/i7/i5/i3 (12th Gen) processor series Intel® Pentium®/Intel® Celeron® processor series Socket LGA1700, max. 125 W TDP (For details on supported processors please refer to Kontron FTP Server)
	CHIPSET	Intel® Q670 Chipset
	MEMORY	4 DIMM Sockets DDR4-4800, max. 128 GByte, Dual Channel unbuffered, non-ECC Effective memory speed of DDR5-4800 modules according Intel® specification: 1x DIMM per channel = max. DDR5-4400 2x DIMM per channel (single rank) = max. DDR5-4000 2x DIMM per channel (dual rank) = max. DDR5-3600
VIDEO	GRAPHICS	Intel® UHD Graphics 7xx (depends on installed processor), 4x DPP V1.4a VGA output possible via optional VGA extension card D3653-A
AUDIO	AUDIO CODEC AUDIO INTERFACE	Tempo Semiconductor 92HD91B 5.1- channel, High Definition Audio Codec
NETWORK CONNECTION	ETHERNET	Intel® i219LM with 10/100/1000 MBit/s, vPro Essentials support, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display
PERIPHERAL CONNECTION	USB	2x USB 3.2 Gen 2 (rear I/O, Type-A), 1x USB 3.2 Gen 2 (rear I/O, Type-C with locking option), 4x USB 3.2 Gen1 (rear I/O, Type-A), 2x USB 3.2 Gen1 (by header), 2x USB 2.0 (by header), 1x USB 2.0 (internal Type-A stick socket)
	SERIAL PORT	1x RS232 (rear I/O)
STORAGE & EXPANSION	SATA M.2 PCIe/NVME	4x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI, RAID 0/1/5/10 2x M.2 2230/2242/2280 (Key-M, PCIe/NVME SSD modules), incl. NVME RAID support
	M.2 WIRELESS	1x M.2 2230 ((Key-E, WLAN/Bluetooth modules, incl. CNVi support)
	PCIe/PCI SLOTS	PCIe x16: 1x 16 lanes, Gen5/1x 4 lanes, Gen4 PCIe x1: 1x Gen3, "open slot"/1x Gen3, "closed slot"
POWER	CONNECTOR INPUT VOLTAGE	ATX (Multirail) plus 8-pin socket (12 V for CPU)

TECHNICAL INFORMATION

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. HW Watchdog support No legacy OS support, no MBR installation (UEFI only)
	WATCHDOG	Recovery BIOS, System and BIOS Password, Boot Sequence Control
	REAL TIME CLOCK	Integrated
	TPM	TPM V2.0 (Intel® integrated); socket for optional TPM module
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 Linux-64 No legacy OS support, no MBR installation (UEFI only)
MECHANICAL	DIMENSIONS (L x W)	µATX: 9.6" x 9.6" (243.8 x 243.8 mm)
ENVIRONMENTAL	OPERATION TEMPERATURE	10 °C - 50 °C
CERTIFICATION	EMC & SAFETY	Planned: cTÜVus acc. IEC62368-1, CE Class B, UKCA

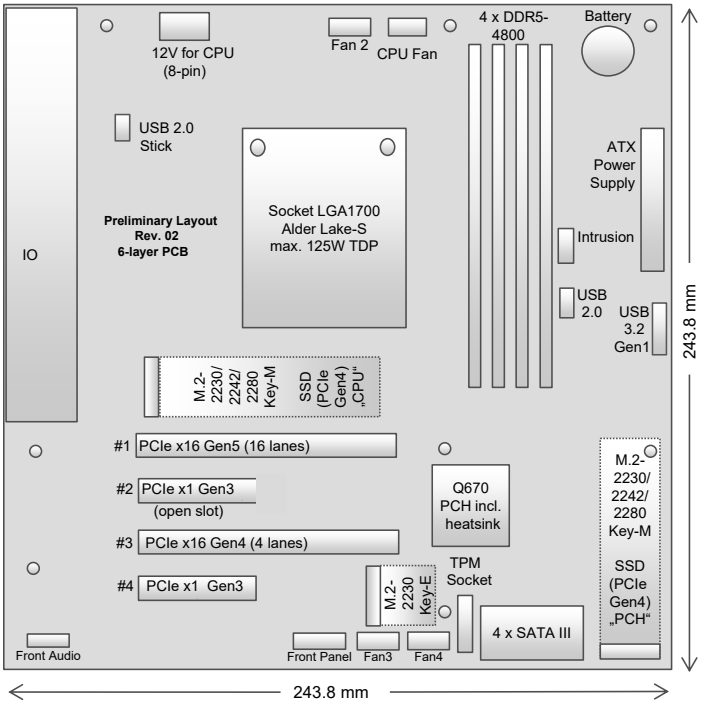
PRELIMINARY

POWER SUPPLY REQUIREMENTS

SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continous)
Main Power Supply	+ 12 V	0 A	± 5 %	2.500 µF	26 A
	- 12 V	0 A	± 10 %	-	0.3 A
	+ 5 V	0 A	± 5 %	1.900 µF	6.0 A
	+ 3.3 V	0 A	± 5 %	1.100 µF	0.5 A
Aux	+ 5 Vaux	0 A	± 5 %	1.900 µF	2.5 A

*) Processor 125 W TDP: Max. Cont. Current = 26 A; max. Surge Current = 39 A (< 10ms)
Processor 65 W TDP: Max. Cont. Current = 23 A; max. Surge Current = 34 A (< 10ms)
Processor 35 W TDP: Max. Cont. Current = 11 A; max. Surge Current = 19 A (< 10ms)

CONNECTOR / SOCKET DIAGRAM



TECHNICAL INFORMATION

FEATURES		
	Board Size / Chipset	µATX / Q670
	VGA* / DVI-I / DVI-D / DPP / 2nd DPP / 3rd DPP / 4th DPP / LVDS / eDP	- / - / + / + / + / + / + / - / -
	Stereo Audio / 5.1 Multichannel Audio / Front Panel Audio	- / + / +
	Buzzer / int. Speaker Support (mono)	- / +
	Single GbE LAN / Dual 2.5GbE LAN / WoL / LAN Boot / Teaming / TSN	+ / - / + / + / + / - / -
	Intel® Standard Manageability / vPro Essentials / iAMT*****	+ / + / + / -
	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	+ / + / + / -
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)***	10 °C – 50 °C
INTERNAL CONNECTORS		
	DIMM Sockets (DDR5-4800) / ECC-Support	4 / -
	PCI Express® x16: 16lanes-Gen5 / PCI Express® x16: 4lanes-Gen4	1 / 1
	PCI Express® x1: Gen3-"open" / PCI Expres® x1: Gen3-"closed"	1 / 1
	PCI Slots (32 Bit, 33 MHz, Rev. 2.3) / Mini-PCIe	- / -
	SATA-600 / M.2 Key-M (NVME SSD) / M.2 Key-B	4 / 2 / -
	M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth)	1
	S/PDIF (digital Audio) OUT / IN	- / -
	Front Panel Audio (9-Pin, HD Audio)	1
	USB 2.0 / USB 3.2 (Gen1) / USB 2.0 Stick / USB 3.2 (Gen2) Stick****	1 / 1 / 1 / -
	Fan CPU / AUX1 / AUX2 / AUX3	1 / 1 / 1 / 1
	Intrusion (Case Open) / GPIO (8Bit) / SM-Bus (Case Temp.)	1 / - / -
	Serial Port Header (COM, RS-232) / Parallel Port Header / PS2 Header **	- / - / -
	Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin compatible)	1
	Multirail PSU (24 pin + 8 pin) / Single 12 V PSU	+ / -
EXTERNAL CONNECTORS		
	VGA Sub D* / DVI-I / DVI-D / DisplayPort V1.4a	- / - / - / 4
	Audio Mic. In / Line in / Line out (or driver configuration)	1 / 1 / 1
	LAN (RJ-45)	1
	PS/2 Mouse / Keyboard	- / -
	USB 2.0 / USB 3.2 (Gen1) / USB 3.2 (Gen2)	- / 4 / 3
	Serial (COM1, RS-232)	1
	Parallel (EPP/ECP)	-

*) VGA possible via optional Extension Card D3653-A or DP-VGA-converter (dongle)
**) Internal PS/2 header (either keyboard or mouse useable)
***) Forced cooling required, see technical documentation for details
****) Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)
*****) vPro Essentials: Selected features only

PRELIMINARY

ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
K3842-Q µATX	F5110-V191	Intel® 12th Gen Core™ Processor Series, Intel® Q670E Chipset
ACCESSORIES		
VGA EXTENSION CARD	F5000-R009	D3653-A
M.2 CARRIER BOARD	F5000-M001	D3352-A1

GLOBAL HEADQUARTERS

Kontron Europe GmbH

Gutenbergstraße 2
85737 Ismaning, Germany
Tel.: + 49 821 4086-0
Fax: + 49 821 4086-111
info@kontron.com

www.kontron.com

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