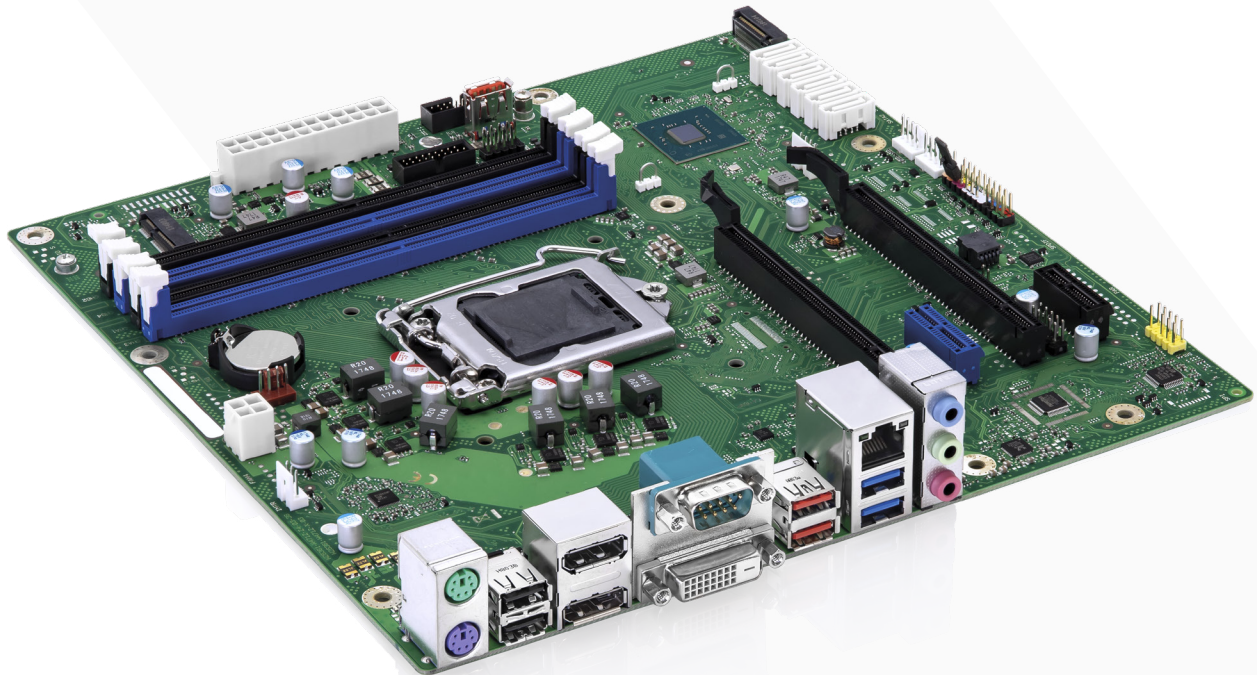


# D3644-B $\mu$ ATX

## Extended Lifecycle Series



## Intel® C246 Express Chipset and Intel® Xeon®/Intel® 8th/9th Gen Core™ i3/i5/i7/i9 Processors

- cTDP – Easy & flexible reduction of CPU TDP
- Supporting Intel® AMT 12.0/vPro
- 6x SATA/RAID
- M.2 SSD & M.2 WLAN Slots onboard
- Powerful USB 3.1 Gen2

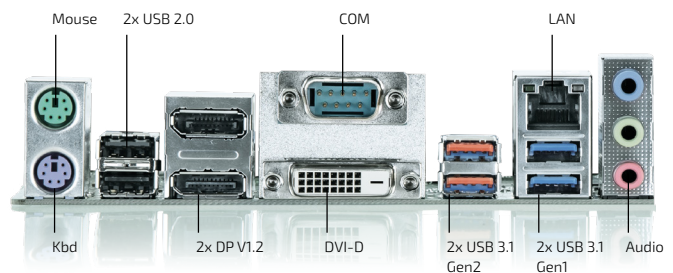
## D3644-B µATX Extended Lifecycle Series

The Motherboard D3644-B µATX of the Extended Lifecycle Series is the best solution for demanding requirements. It supports the Intel® Xeon® E-21xx/E-22xx processor series, the Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) and the Intel® Pentium®/Intel® Celeron®

processor series. The D3644-B µATX is made in Germany. Furthermore, it provides highest performance and functionality while keeping energy consumption at an extraordinary low level.

- Intel® 8th/9th Gen Core™ Processor Series
- DDR4 2666 SDRAM, max. 64 GByte
- cTDP – Easy & flexible reduction of CPU TDP
- Supporting Intel® AMT 12.0/vPro
- PCI Express® x16 (Gen.3)
- Intel® GbE LAN
- Intel® UHD Graphics (DX12)
- 1x DVI-D, 2x DP V1.2
- Intel® High Definition 5.1 Audio; Infineon TPM V2.0
- 1x COM port
- 4x USB 2.0, 6x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1x USB 3.1 Gen2 stick socket
- 6x SATA 6G incl. RAID support

- M.2 2280 (PCIe-based SSD modules)
- M.2 2230 (WLAN/Bluetooth modules)
- BIOS-POST/-Boot & OS – HW Watchdog onboard



## Technical Information

<b>SYSTEM</b>	<b>PROCESSOR</b>  <b>CHIPSET MEMORY</b>	Intel® Xeon® E-21xx/E-22xx processor series Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series** Intel® Pentium®/Intel® Celeron® processor series Socket LGA1151, max. 95 W TDP (For details on supported processors please refer to Konron FTP Server) Intel® C246 Express Chipset 4 DIMM Sockets DDR4-2666 (1.2V), max. 64 GByte, Dual Channel DDR4 -2666 (CL19)/-2400 (CL17)/-2133 (CL15) SDRAM, unbuffered, ECC/non-ECC Note: 128 GByte memory configuration (4x 32 GByte modules) not supported Effective memory speed depends on installed processor
<b>VIDEO</b>	<b>GRAPHICS</b>	Intel® UHD Graphics (depends on installed processor), DX12 2x DP V1.2, 1x DVI-D VGA output possible via optional VGA extension card D3653-A
<b>AUDIO</b>	<b>AUDIO CODEC AUDIO INTERFACE</b>	Realtek ALC671 5.1- channel, High Definition Audio Codec
<b>NETWORK CONNECTION</b>	<b>ETHERNET</b>	Intel® i219LM with 10/100/1000 MBit/s Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display
<b>PERIPHERAL CONNECTION</b>	<b>USB SERIAL PORT</b>	4x USB 2.0, 6x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1x USB 3.1 Gen2 stick socket 1x RS232 (by header)
<b>STORAGE &amp; EXPANSION</b>	<b>SATA PCIe/PCI SLOTS</b>	6x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI, RAID 0/1/5/10, 1x M.2 PCIe (2280), 1x M.2 Key-E (2230) PCIe x16: 1x 16 lanes, Gen3/1x 4 lanes, Gen3 PCIe x1: 1x Gen3, "open"/1x Gen3, "closed"
<b>POWER</b>	<b>CONNECTOR INPUT VOLTAGE</b>	ATX- 24 Pin or ATX- 20 Pin + 4 Pin (12 V) Power Connector required 12 V and 3.3 V Supply Voltage on PCIe Slots 3.3 V Auxiliary Supply Voltage on PCIe Slots (Wake-Up Function)
<b>FIRMWARE</b>	<b>BIOS</b>  <b>WATCHDOG REAL TIME CLOCK TPM</b>	AMI Aptio 5.x (UEFI) BIOS modified and adapted by Fujitsu Technology Solutions; 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 & BIOS integrated HW Diagnostic Tool. No legacy OS support, no MBR installation (UEFI only) Recovery BIOS, System and BIOS Password, Boot Sequence Control Integrated TPM V2.0 (Infineon SLB9670; TCG compliant)

<b>SYSTEM CONTROL</b>	<b>FP HEADER</b>	1x Header for Reset button, HDD LED & External Speaker, Power button, Power LED
	<b>SECURITY</b>	
<b>SOFTWARE</b>	<b>OS SUPPORT</b>	MS Windows 10, MS Windows 11 Linux-64
<b>MECHANICAL</b>	<b>DIMENSIONS (L x W)</b>	µATX: 9.6" x 9.6" (243.8 x 243.8 mm)
<b>ENVIRONMENTAL</b>	<b>OPERATION TEMPERATURE</b>	10 °C - 50 °C
<b>CERTIFICATION</b>	<b>EMC &amp; SAFETY</b>	cTÜVus acc. IEC62368-1, CE Class B, FCC-B verified

\*) MS Windows 11 "runnable", but not validated by Kontron

## Power Supply Requirements

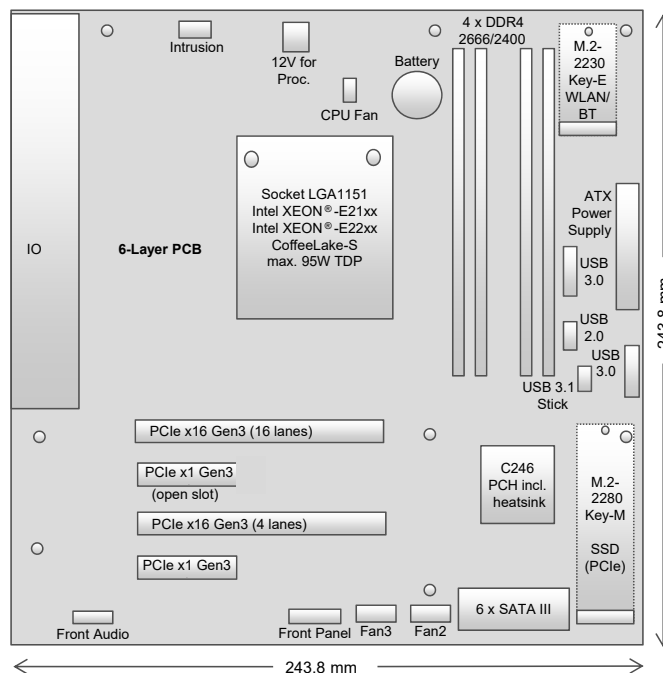
SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continous)
Main Power Supply	+ 12 V	0.05 A	± 5 %	5.000 µF	10 A / 18 A*
	- 12 V	0 A	± 10 %	470 µF	0.3 A
	+ 5 V	0.2 A	± 5 %	3.000 µF	6.0 A
	+ 3.3 V	0 A	± 5 %	3.000 µF	0.5 A
Aux	+ 5 Vaux	0 A	+ 5 % / - 3 %	3.000 µF	2.5 A

\*) Processor 95 W TDP: Max. Cont. Current = 10 A; max. Surge Current = 16 A (< 100sec) / 18 A (< 10ms)  
 Processor 65 W TDP: Max. Cont. Current = 7 A; max. Surge Current = 14 A (< 100sec) / 18 A (< 10ms)  
 Processor 35 W TDP: Max. Cont. Current = 4 A; max. Surge Current = 10 A (< 100sec) / 14 A (< 10ms)

<b>FEATURES</b>	Board Size / Chipset VGA* / DVI-I / DVI-D / DP V1.2 / 2nd DP V1.2 / LVDS Stereo Audio / 5.1 Multichannel Audio / Front Panel Audio Buzzer / int. Speaker Support (mono) LAN Gbit / 100 Mbit / 10 Mbit / WoL / LAN Boot / Teaming AMT 12.0 vPro / Intel Standard Manageability / DASH V1.1 SATA / SATA RAID / eSATA Support / mSATA / M.2 SSD (PCIe) USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 FAN controlled & monitored PSU** / CPU / AUX1 / AUX2 / AUX3 TEMP monitored CPU / Onboard Sensors / External Sensor	µATX / iC246 - / - / + / + / + / - - / + / + - / + + / + / + / + / + / - + / + / + + / + / + / - / + + / + / + - / + / + / + / - + / + / -
<b>SPECIAL FEATURES</b>	Silent Fan / System Guard / cTDP Recovery BIOS / Desk 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
<b>INTERNAL CONNECTORS</b>	DIMM Sockets (DDR4 2666MHz) PCI Express® x16: 16lanes-gen3 / PCI Express® x16: 4lanes-gen3 PCI Express® x1: gen3-"open" / PCI Express® x1: gen3-1 lane-"closed" PCI Slots (32 Bit, 33 MHz, Rev. 2.3) / Mini-PCIe SATA-600 / mSATA / M.2 SSD 2280 (Key-M, PCIe/NVME) 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 3.1 (Gen1) / USB 3.1 (Gen2) / USB 3.1 (Gen2) Stick***** FAN PSU / CPU / AUX1 / AUX2 / Aux3 Intrusion (Case Open) / GPIO (8Bit) / SM-Bus (Case Temp.) Serial (COM, RS-232) / Parallel Port Pin Header Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin compatible) ATX Power Supply (24 pin + 4 pin) / 12 V-only Power Supply	4 1 / 1 1 / 1 - / - 6 / - / 1 1 - / - 1 1 / 2 / - / 1 - / 1 / 1 / 1 / - 1 / - / - - / - 1 + / -
<b>EXTERNAL CONNECTORS</b>	VGA Sub D* / DVI-I / DVI-D / DP V1.2 Audio Mic. In / Line in / Line out (or driver configuration) LAN (RJ-45) PS/2 Mouse / Keyboard USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2) Serial (COM1, RS-232) Parallel (EPP/ECP)	- / - / 1 / 2 1 / 1 / 1 1 1 / 1 2 / 2 / 2 1 -

\*) VGA possible via optional Extension Card D3653-A or DP-VGA-converter (dongle)  
 \*\*) Not supported by standard Power Supplies  
 \*\*\*) Planned for factory shipments from 05/2019  
 \*\*\*\*) Forced cooling required, see technical documentation for details  
 \*\*\*\*\*) Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)

## Connector/Socket Diagram



# Ordering Information

D3644-B µATX

ARTICLE	PART NO.	DESCRIPTION
D3644-B µATX	F5110-V162	Intel® 8th/9th Gen Core™ & Intel® Xeon® processor series, Intel® C246 Chipset, Realtek Audio Codec

## Accessories

VGA EXTENSION CARD	S26361-F5000-R009	D3653-A
M.2 CARRIER BOARD	S26361-F5000-M001	D3352-A1

## Global Headquarters

Kontron Europe GmbH

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

www.kontron.com

