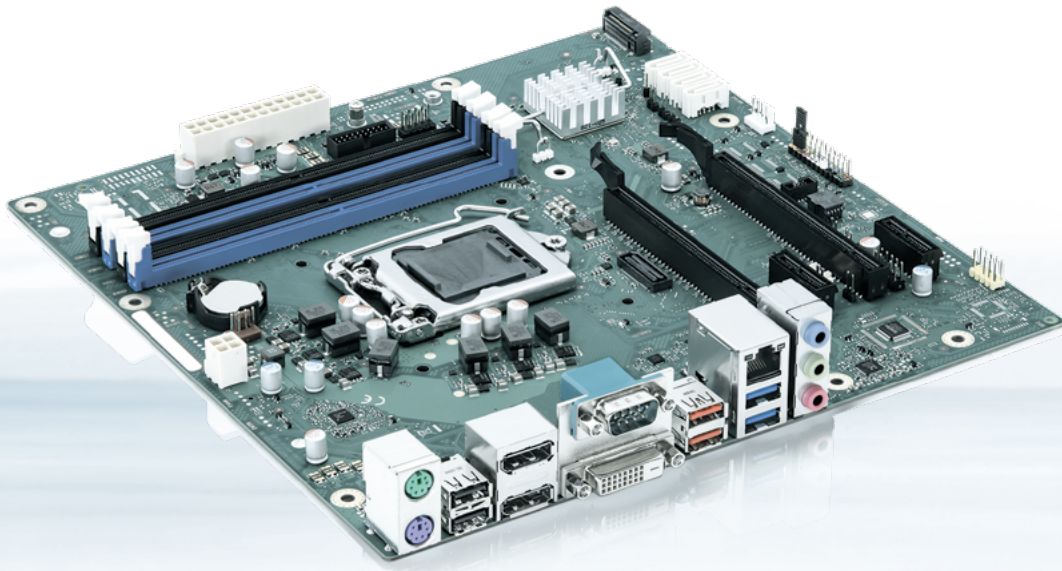


# D3643-H $\mu$ ATX

## Extended Lifecycle Series

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### Intel® B360 Express Chipset and Intel® 8th/9th Gen Core™ i3/i5/i7/i9 Processors

- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ Cost-effective iB360 platform
- ▶ 4x SATA
- ▶ M.2 SSD slot onboard
- ▶ Intel® LAN

POSSIBILITIES START HERE

# D3643-H µATX

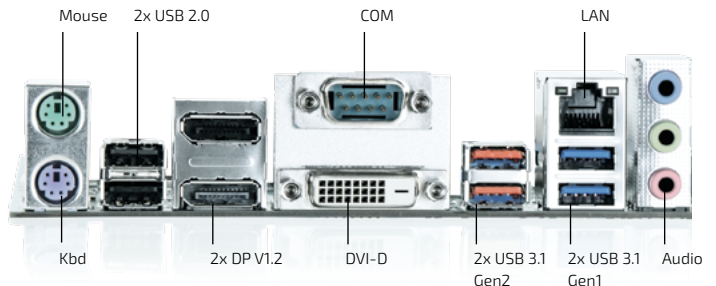
## Extended Lifecycle Series

The Extended Lifecycle Motherboard D3643-H µATX is the most suitable solution for semi-industrial needs, featured by the Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series and the

Intel® Pentium®/Intel® Celeron® processor series. The D3643-H µATX made in Germany. It is the best solution for special requirements and provides an excellent performance.

### ▶ PRODUCT HIGHLIGHTS

- ▶ Intel® 8th/9th Gen Core™ Processor Series
- ▶ DDR4-2666 SDRAM, max. 64 GByte
- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ 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; Intel® integrated TPM V2.0
- ▶ 1x COM port
- ▶ 4x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2
- ▶ 4x SATA 6G
- ▶ M.2 2280/22110 (PCIe-based SSD modules)



### ▶ TECHNICAL INFORMATION

<b>SYSTEM</b>	<b>PROCESSOR</b>	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 Kontron FTP Server)
	<b>CHIPSET</b>	Intel® B360 Express Chipset
	<b>MEMORY</b>	4 DIMM Sockets DDR4-2666 (1.2 V), max. 64 GByte, Dual Channel DDR4 -2666 (CL19) / -2400 (CL17) / -2133 (CL15) SDRAM, unbuffered, 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</b>	Realtek ALC671
	<b>AUDIO INTERFACE</b>	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</b>	4x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2
	<b>SERIAL PORT</b>	1x RS232 (by header)
<b>STORAGE &amp; EXPANSION</b>	<b>SATA</b>	4x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI, 1x M.2 PCIe (2280)
	<b>PCIe/PCI SLOTS</b>	PCIe x16: 1x 16 lanes, Gen3/1x 4 lanes, Gen3 PCIe x1: 2x Gen3, "closed"
<b>POWER</b>	<b>CONNECTOR</b>	ATX- 24 Pin or ATX- 20 Pin + 4 Pin (12 V) Power Connector required
	<b>INPUT VOLTAGE</b>	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>	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. 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 (Intel integrated)
	<b>WATCHDOG</b>	
	<b>REAL TIME CLOCK</b>	
	<b>TPM</b>	

## TECHNICAL INFORMATION

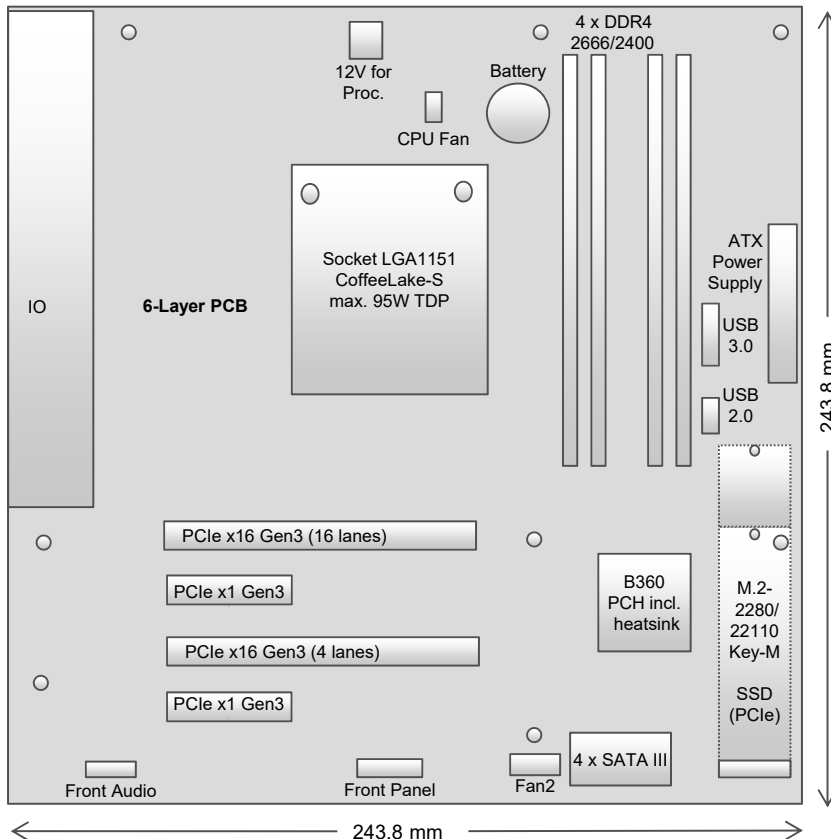
<b>SYSTEM CONTROL</b>	<b>FP HEADER</b>	1x Header for Reset button, HDD LED & External Speaker, Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (optional BIOS Feature), Trusted Platform Module (TPM) Intel® integrated
	<b>SECURITY</b>	
<b>SOFTWARE</b>	<b>OS SUPPORT</b>	MS Windows 10 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

## POWER SUPPLY REQUIREMENTS

SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT (continuous)
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)

## CONNECTOR / SOCKET DIAGRAM



## ▶ TECHNICAL INFORMATION

<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 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 / iB360 - / - / + / + / + / - - / + / + - / + + / + / + / + / + - / - / - + / - / + / - / + + / + / + - / + / + / - / - + / + / -
<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 (8 Bit) / 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 / 2 - / - 4 / - / 1 - - / - 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)

## ▶ ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3643-H µATX	F5010-V160	Intel® 8th/9th Gen Core™ Processor Series, Intel® B360 Chipset
<b>ACCESSORIES</b>		
VGA EXTENSION CARD	F5000-R009	D3653-A
M.2 CARRIER BOARD	F5000-M001	D3352-A1

## ▶ GLOBAL HEADQUARTERS

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