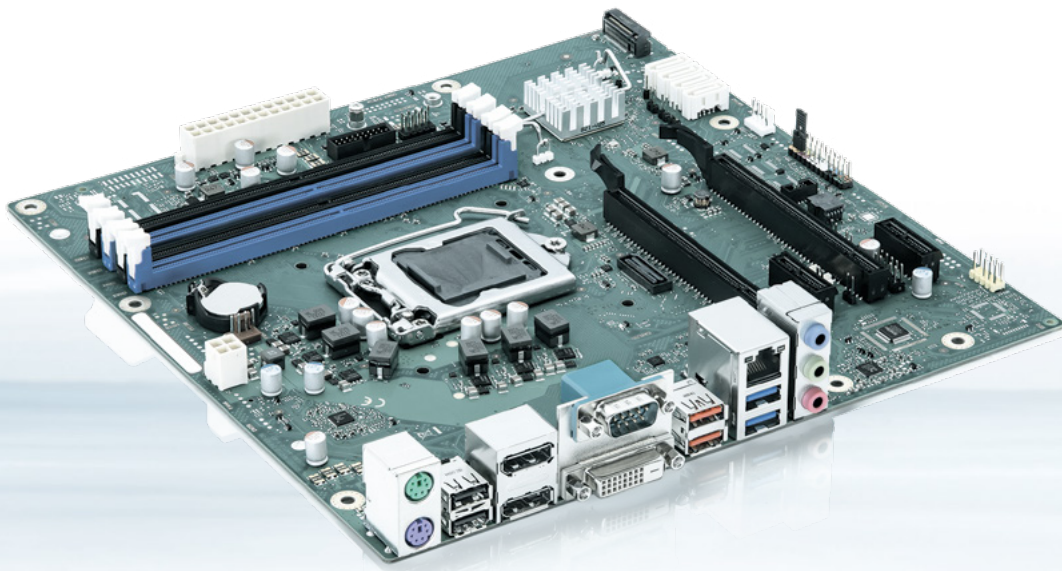


D3643-H μ ATX

Extended Lifecycle Series



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

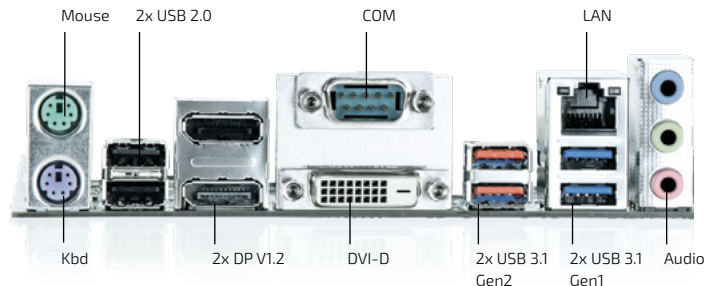
Extended Lifecycle Series

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 is

“designed by Fujitsu” and therefore 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/s
- ▶ M.2 2280/22110 (PCIe-based SSD modules)



► TECHNICAL INFORMATION

SYSTEM	PROCESSOR	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)
	CHIPSET MEMORY	Intel® B360 Express Chipset 4 DIMM Sockets DDR4-2666 (1.2 V), max. 64 GByte, Dual Channel DDR4 -2666 (CL19) / -2400 (CL17) / -2133 (CL15) SDRAM, unbuffered, non-ECC Effective memory speed depends on installed processor
VIDEO	GRAPHICS	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
AUDIO	AUDIO CODEC AUDIO INTERFACE	Realtek ALC671 5.1- channel, High Definition Audio Codec
NETWORK CONNECTION	ETHERNET	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
PERIPHERAL CONNECTION	USB SERIAL PORT	4x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2 1x RS232 (by header)
STORAGE & EXPANSION	SATA PCIe/PCI SLOTS	4x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI, 1x M.2 PCIe (2280) PCIe x16: 1x 16 lanes, Gen3/1x 4 lanes, Gen3 PCIe x1: 1x Gen3, "open"/2x 1 lane, Gen3, "closed"
POWER	CONNECTOR INPUT VOLTAGE	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)
FIRMWARE	BIOS	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 due to Intel restrictions)
	WATCHDOG REAL TIME CLOCK TPM	Recovery BIOS, System and BIOS Password, Boot Sequence Control Integrated TPM V2.0 (Intel integrated)

► TECHNICAL INFORMATION

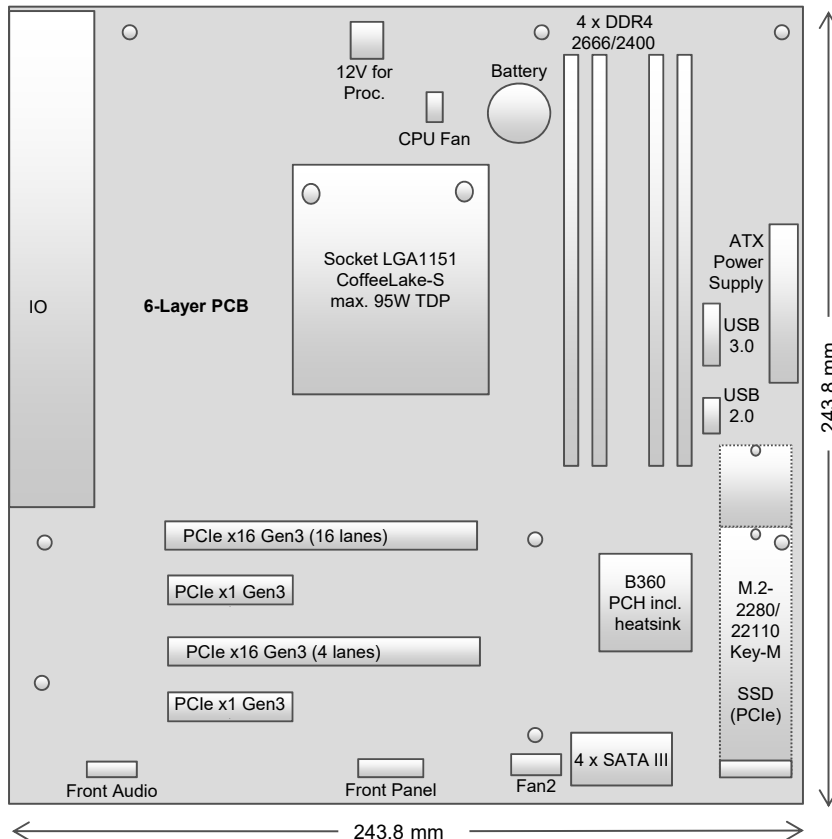
SYSTEM CONTROL	FP HEADER	1x Header for Reset button, HDD LED & External Speaker
	SECURITY	1x Header for Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (optional BIOS Feature), Trusted Platform Module (TPM) Intel® integrated
SOFTWARE	OS SUPPORT	MS Windows 10 Linux-64
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	cTÜVus acc. IEC62368-1, CE Class B, FCC-B (upon request)

► 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)

► CONNECTOR / SOCKET DIAGRAM



► TECHNICAL INFORMATION

FEATURES	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 - / - / + / + / + / - - / + / + + / + / + / + / + - / - / - + / - / + / - / + + / + / + - / + / + / - / - + / + / -
SPECIAL FEATURES	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
INTERNAL CONNECTORS	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 + / -
EXTERNAL CONNECTORS	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	F5012-V160	Intel® 8th/9th Gen Core™ Processor Series, Intel® B360 Chipset
ACCESSORIES		
VGA EXTENSION CARD	F5000-R9	D3653-A
M.2 CARRIER BOARD	F5000-M1	D3352-A1

► Global Headquarters

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