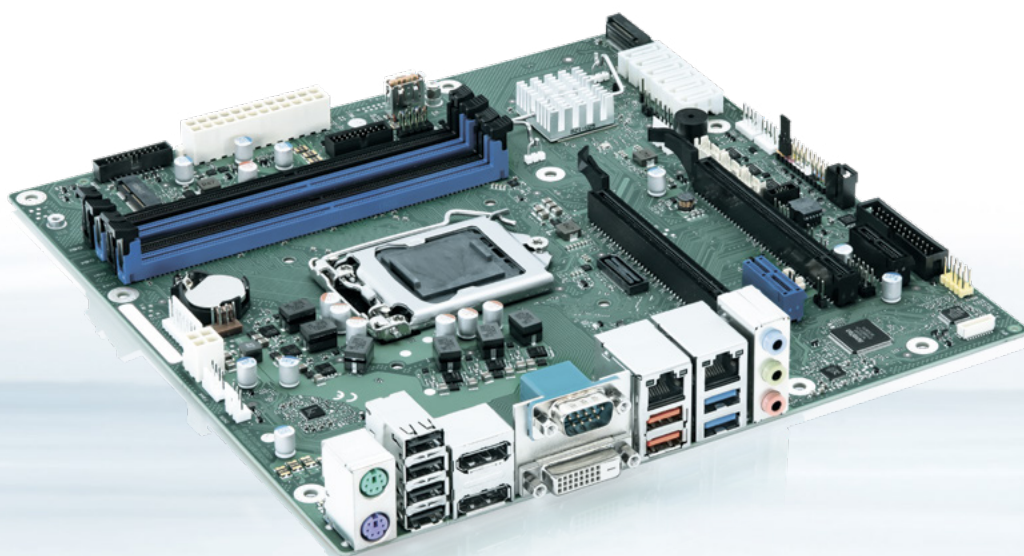


D3641-S µATX

Industrial 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
- ▶ Dual LAN, 4x COM, GPIO
- ▶ M.2 SSD & M.2 WLAN slots onboard
- ▶ Powerful USB 3.1 Gen2

POSSIBILITIES START HERE



D3641-S µATX

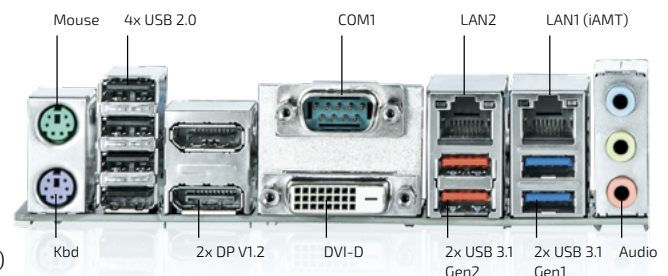
Industrial Series

The Industrial Motherboard D3641-S µATX is equipped with the highly performant Intel® C246 Express Chipset. It also offers a multitude of supporting processors such as the Intel® Xeon® E-21xx/E-22xx processor series, as well as Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) and the Intel® Pentium®/Intel® Celeron® processor

series. Designed and approved for 24/7 continuous operation and an enhanced temperature range up to 60 °C the D3641-S µATX provides high functionality and fits perfect with special requirements of certain markets. It offers extended manageability with the latest Intel® AMT 12.0 and vPro.

PRODUCT HIGHLIGHTS

- ▶ Intel® 8th/9th Gen Core™ & Intel® Xeon® 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)
- ▶ 2x Intel® GbE LAN (incl. Teaming)
- ▶ Intel® UHD Graphics (DX12); 1x DVI-D, 2x DP V1.2
- ▶ Intel® High Definition 5.1 Audio; Infineon TPM V2.0
- ▶ 8 Bit GPIO; 4 x COM ports
- ▶ 6x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1x USB 3.1 Gen2 stick socket
- ▶ 6x SATA 6G/s incl. RAID support, parallel port (internal pin header)
- ▶ M.2 2280 (PCIe-based SSD modules)
- ▶ M.2 2230 (WLAN/Bluetooth modules)
- ▶ BIOS-POST/-Boot & OS – HW Watchdog onboard



TECHNICAL INFORMATION

SYSTEM	PROCESSOR	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 Kontron FTP Server)
	CHIPSET	Intel® C246 Express Chipset
	MEMORY	4 DIMM Sockets DDR4-2666 (1.2 V), max. 64 GByte, Dual Channel DDR4 -2666 (CL19)/-2400 (CL17)/-2133 (CL15) SDRAM, unbuffered, ECC1/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	Realtek ALC671
	AUDIO INTERFACE	5.1- channel, High Definition Audio Codec
NETWORK CONNECTION	ETHERNET	Intel i219LM & i210AT with 10/100/1000 MBit/s, AMT 12.0/vPro Support, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display, Teaming Support
PERIPHERAL CONNECTION	USB	6x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1x USB 3.1 Gen2 stick socket
	SERIAL PORT	1x RS232 (by header)
	OTHER I/Os	1x 8-Bit GPIO
STORAGE & EXPANSION	SATA	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/PCI SLOTS	PCIe x16: 1x 16 lanes, Gen3/1x 4 lanes, Gen3 PCIe x1: 1x Gen3, "open"/1x 1 lane, Gen3, "closed"
POWER	CONNECTOR	8 Bit GPIO (Input/Output); WLAN LED support; WLAN enable/disable support
	INPUT VOLTAGE	3.3 V/5 V/12 V supply voltage output; SMBus controller PCA9554A
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. HW Watchdog support & BIOS integrated HW Diagnostic Tool. No legacy OS support, no MBR installation (UEFI only due to Intel restrictions)
	WATCHDOG	Recovery BIOS, System and BIOS Password, Boot Sequence Control
	REAL TIME CLOCK	Integrated
	TPM	TPM V2.0 (Infineon SLB9670; TCG compliant)

► TECHNICAL INFORMATION

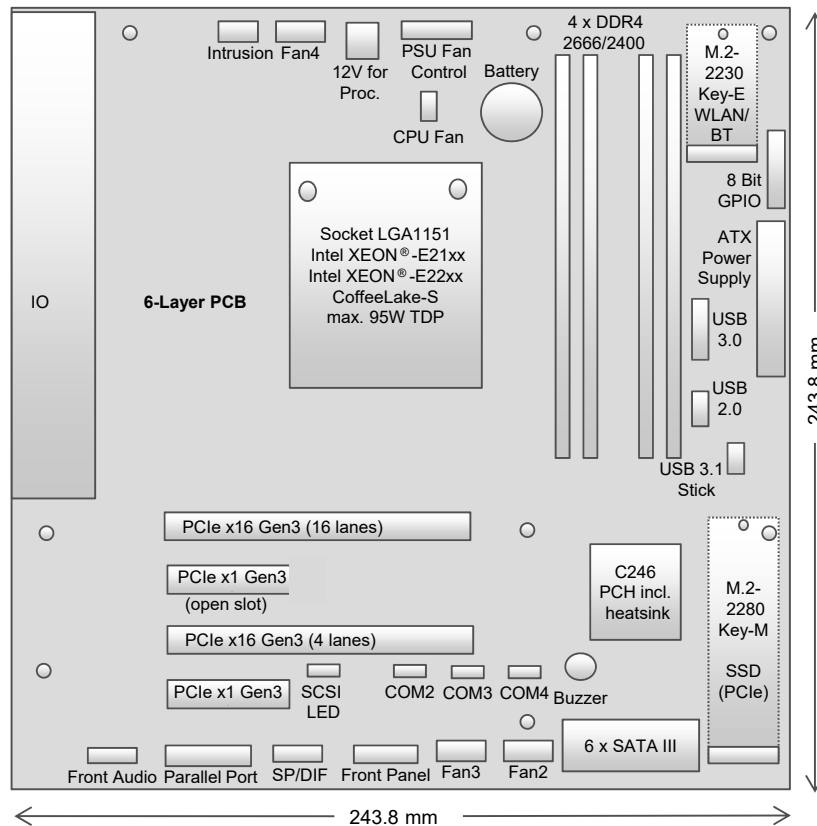
SYSTEM CONTROL	FP HEADER	1x Header for Reset button, HDD LED & External Speaker 1x Header for Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial/USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (optional BIOS Feature), Infineon Trusted Platform Module (TPM), Infineon SLB9670
	SECURITY	
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	0 °C - 60 °C
CERTIFICATION	EMC & SAFETY	cTÜVus acc. IEC62368-1, CE Class B, FCC-B verified

► 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) Dual 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 - / - / + / + / + / - - / + / + + / + + / + / + / + / + / + + / + / + + / + / - / + + / + / + + / + / + / + / + + / + / -
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)***	+ / + / + + / + / + + / + / + + / + / + + + + / - 0 °C – 60 °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 (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 1 / 1 / - / 1 1 / 1 / 1 / 1 / 1 1 / 1 / - 3 / 1 1 + / -
EXTERNAL CONNECTORS	VGA Sub D* / DVI-I / DVI-D / DisplayPort 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 2 1 / 1 4 / 2 / 2 1 -

*) VGA possible via optional Extension Card D3653-A or DP-VGA-converter (dongle)

**) Not supported by standard Power Supplies

*** Forced cooling required, see technical documentation for details

**** Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)

***** External parallel port possible via optional connector cable

► ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3641-S µATX	F5110-V163	Intel® 8th/9th Gen Core™ & Intel® Xeon® Processor Series, Intel® C246 Chipset
ACCESSORIES		
VGA EXTENSION CARD	F5000-R9	D3653-A
SERIAL PORT CABLE	F5000-K10	400 mm, fullsize slot bracket
M.2 CARRIER BOARD	F5000-M1	D3352-A1

► Global Headquarters

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