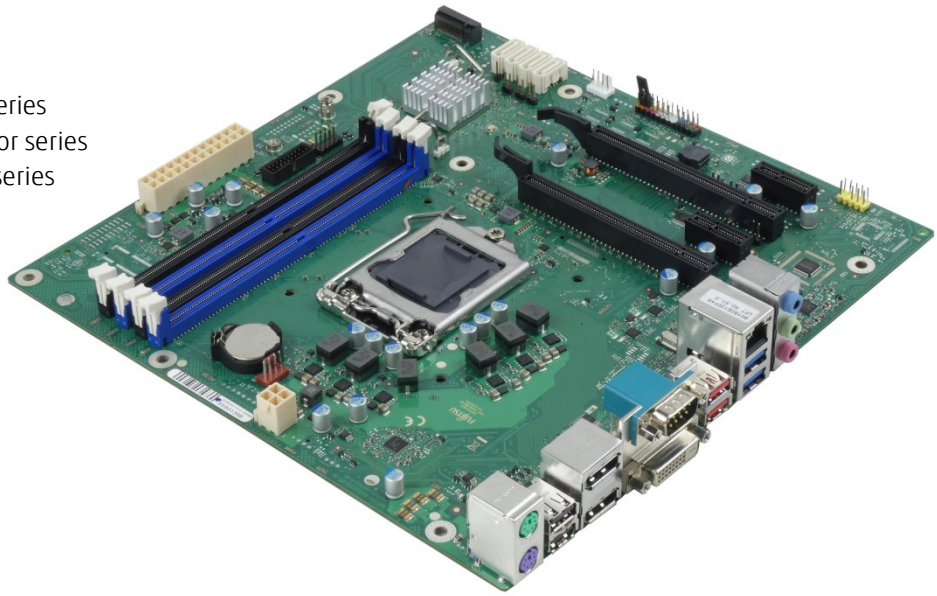
Data Sheet
FUJITSU Mainboard D3643-H µATX
Extended Lifecycle Series

Powered by the Intel® B360 Express Chipset supporting DDR4-2666 SDRAM Memory and 8th & 9th generation Core™ i3 / i5 / i7 / i9 Processors.

Designed and approved for 24/7 continuous operation @ 50°C

Chipset:
Intel® B360 Express Chipset

Processors:
Intel® Core™ i7 / i5 / i3 (8th gen.) processor series
Intel® Core™ i9 / i7 / i5 / i3 (9th gen.) processor series
Intel® Pentium® / Intel® Celeron® processor series
Socket LGA1151 – up to 95W TDP



Memory:
DDR4-2666, Dual Channel
4 DIMM sockets, up to 64GB memory

Product Features:
cTPD – 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
1 x 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)

Features and benefits

Board Size	µATX: 9.6" x 9.6" (243.8 x 243.8 mm)
Chipset	Intel® B360 Express Chipset
Memory	4 DIMM Sockets DDR4-2666 (1.2V), max. 64GB, Dual Channel DDR4 -2666 (CL19) / -2400 (CL17) / -2133 (CL15) SDRAM, unbuffered, non-ECC Effective memory speed depends on installed processor
Processor	Intel® Core™ i7 / i5 / i3 (8th generation) processor series Intel® Core™ i9 / i7 / i5 / i3 (9th generation) processor series[1] Intel® Pentium® / Intel® Celeron® processor series Socket LGA1151, max. 95W TDP (For details on supported processors please refer to OEM FTP Server)
Power Specification	ATX- 24 Pin or ATX- 20 Pin + 4 Pin (12V) Power Connector required Support for Soft-Off Power Supplies 12V and 3.3V Supply Voltage on PCIe Slots 3.3V Auxiliary Supply Voltage on PCIe Slots (Wake-Up Function) On board high-efficiency CPU Voltage Regulator, 5V / 2.5A Auxiliary Power required for USB Wake-Up from Save-to-RAM, Save-to-Disk
Power Supply Requirements	for mainboard only - worst case incl. processor & memory; w/o USB devices; w/o PCIe cards; w/o SATA drives; w/o M.2 devices

Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Mainboard Capacitive Load	Max. Mainboard Current
Main Power Supply	+ 12V	0.05A	± 5 %	5.000µF	10A/18A [1)]
	- 12V	0A	± 10 %	470µF	0.3A
	+ 5V	0.2A	± 5 %	3.000µF	6.0A
	+ 3.3V	0A	± 5 %	3.000µF	0.5A
Aux. Power	+ 5Vaux	0A	+5 % / -3%	3.000µF	2.5A

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

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)
Security Features	Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial-/ USB- Port Access, Boot Sector Virus Warning, Write Protection for Flash BIOS, Erase Disk (BIOS Feature); TPM V2.0 (Intel integrated).

1 Appropriate BIOS version supporting CoffeeLake-Refresh processors required

Special Features	cTDP	Easy & flexible reduction of CPU TDP (BIOS Setup) down to 10W TDP	
	Silent Fan	Independent temperature related processor fan and system fan supervision and control	
	System Guard	View Silent Fan features	
	Recovery BIOS	Restores a corrupted BIOS	
	Desk Update	Simple driver update with Driver & Utilities DVD	
	Multi Boot	Comfortable boot from any boot device	
	HDD Password	Access protection for disk drives / M.2 SSD modules	
	CSA / UL compliance	cTÜVus acc. IEC62368-1	
	FCC compliance	FCC-B verified (upon request)	
Operating Systems	**OS**	**"Runnable"**	**"Tested/Released by Fujitsu"**
	MS Windows 10 RS3	X	X
	MS Windows 10 RS4	X	X
	MS Windows 10 RS5	X	X
	Linux-64	X	
	Important Note: **Legacy OS / MBR installation (DOS, MS Windows 7, ...) is not supported due to Intel restrictions**		
Graphics	Intel® UHD Graphics (depends on installed processor), DX12 2 x DisplayPort V1.2 1 x DVI-D VGA output possible via optional VGA extension module D3653		
Audio	Realtek ALC671, 5.1- channel, High Definition Audio Codec		
TPM	TPM V2.0 (Intel integrated)		
LAN	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		
SATA Ports	4 x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI		
M.2 Sockets	M.2 2280/22110 Key-M for PCIe-based SSD NVME modules; 4 x PCIe Gen3 lanes		
Legacy Ports	1 x external RS-232 port 1 x PS/2 (mouse) 1 x PS/2 (keyboard)		
Designed for 24/7 use	Longlife components for 24 / 7 continuous operation @ 50°C Revision control & Extended Lifecycle (up to 3 years)		

Features D3643-H	Chipset / Board Size	iB360 / µATX
	VGA[2] / DVI-I / DVI-D / DP V1.2 / 2nd DP V1.2 / LVDS	- / - / ✓ / ✓ / ✓ / -
	Stereo Audio / 5.1 Multichannel Audio/ Front Panel Audio	- / ✓ / ✓
	Buzzer / internal 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 monitored & controlled PSU[3] / CPU / AUX1 / AUX2 / Aux3	- / ✓ / ✓ / - / -
	TEMP monitored CPU / onboard sensors / external sensor	✓ / ✓ / -
Special Features D3643-H	Silent Fan / System Guard / cTDP	✓ / ✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓
	HDD Password / EraseDisk[4] / TPM V2.0	✓ / ✓ / ✓
	BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog	- / - / -
	Logo Boot Option / Intel On Screen Branding	✓ / ✓
	High Efficiency Core Voltage Regulator Design	✓
	Operating Mode 24-7 / 8-5 (hrs per day - days per week)	✓ / -
	Mainboard operating temperature range (chassis inside)[5]	10°C – 50°C
Internal Connectors D3643-H	DIMM Sockets (DDR4-2666)	4
	PCI Express x16 (16 Lanes, Gen3) / PCI Express x16 (4 Lanes, Gen3)	1 / 1
	PCI Express x1 (Gen3, "open slot") / PCI Express x1 (Gen3, "closed slot")	- / 2
	PCI Slots (32Bit, 33 MHz, Rev. 2.3) / Mini-PCIe	- / -
	SATA-600 / mSATA / M.2 SSD 2280/22110 (Key-M, PCIe/NVME)	4 / - / 1
	M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth)	-
	S/PDIF (digital Audio) OUT / IN	- / -
	Front Panel Audio (9-Pin, HD Audio)	1
	USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2) / USB 3.1 (Gen2) Stick [6]	1 / 1 / - / -
	FAN PSU / CPU / AUX1 / AUX2 / Aux3	- / 1 / 1 / - / -
	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)	1
	ATX Power Supply (24 pin + 4 pin) / 12V-only Power Supply	✓ / -
External Connectors D3643-H	VGA Sub D[2] / DVI-I / DVI-D / DisplayPort V1.2	- / - / 1 / 2
	Audio Mic. In / Line in / Line out (or driver configuration)	1 / 1 / 1
	LAN (RJ-45)	1
	PS/2 Mouse / Keyboard	1 / 1
	USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2)	2 / 2 / 2
	Serial (COM1, RS-232)	1
	Parallel (EPP/ECP)	-

2 VGA possible via optional converter board D3653 or DP-VGA-converter (dongle)

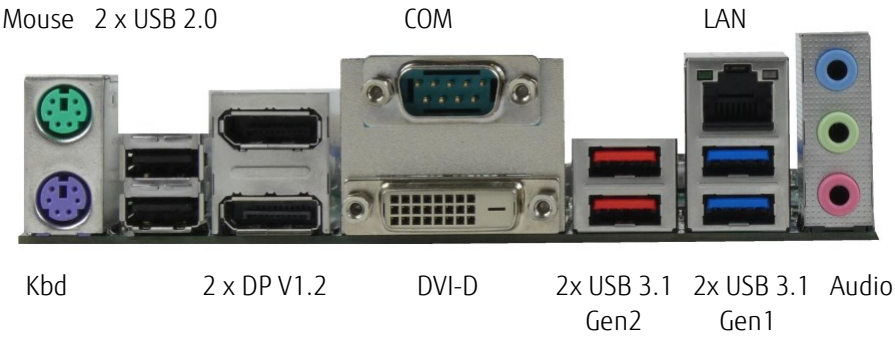
3 Not supported by standard Power Supplies

4 Planned for factory shipments from 05/2019

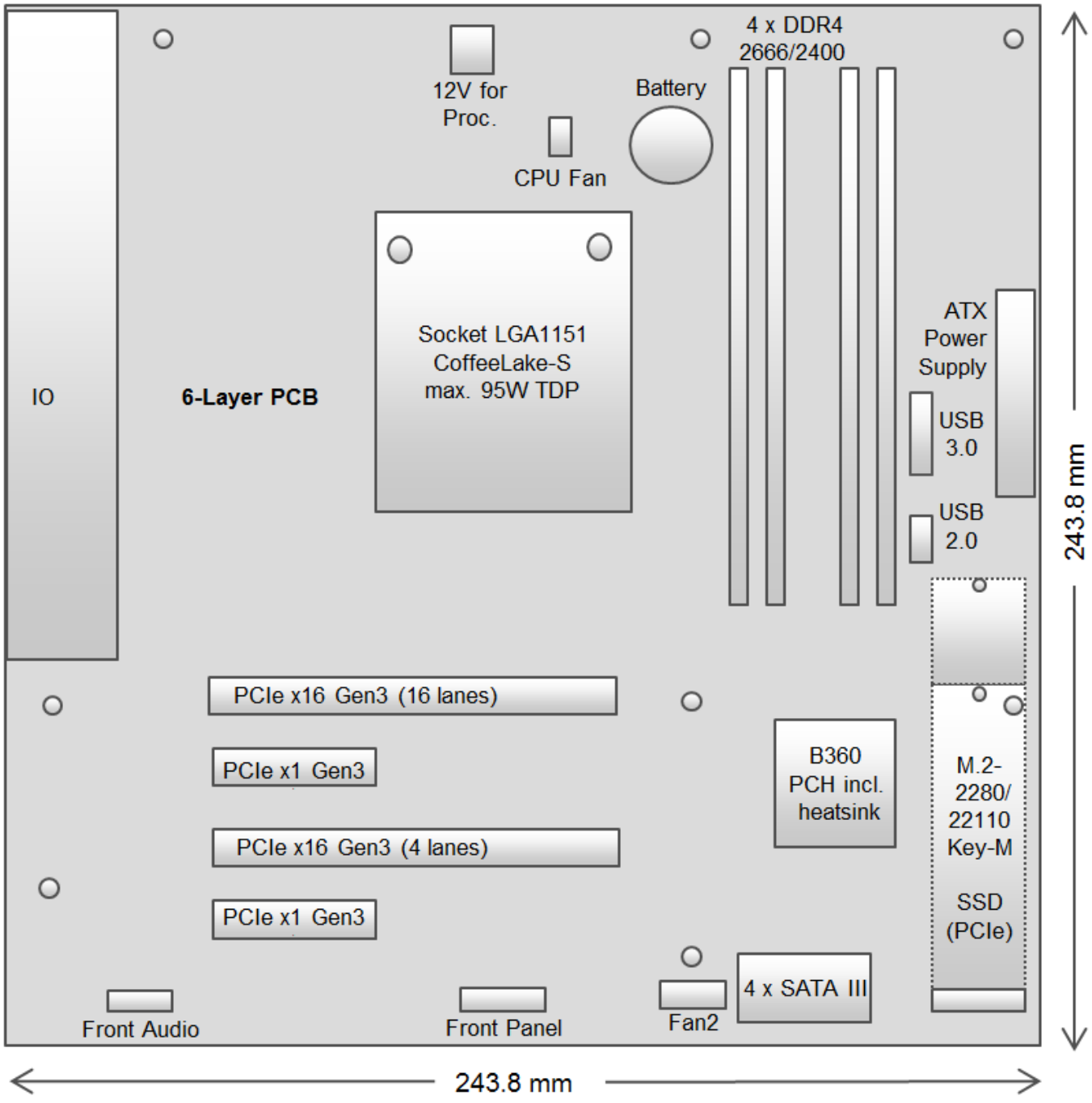
5 Forced cooling required, see technical documentation for details

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

External Connectors



Connector / Socket Diagramm



Accessories

	OEM Order Code	
Fujitsu VGA Converter Board D3653	S26361-F5000-Rx	
M.2 Carrier Board D3352-A1	S26361-F5000-M1	

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Multi-Input Touch Panels

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