

Data Sheet **-preliminary -** FUJITSU Mainboard D3633-S Mini-ITX Industrial Series



Powered by the Intel® Q370 Express Chipset supporting DDR4 2666 SDRAM Memory and Intel® 8th generation Core™ i7 / i5 / i3 Processors.
Designed & approved for enhanced operating temperature range from 0°C to 60°C
Designed & approved for 24/7 continuous operation



Chipset:

Intel® Q370 Express Chipset

Processors:

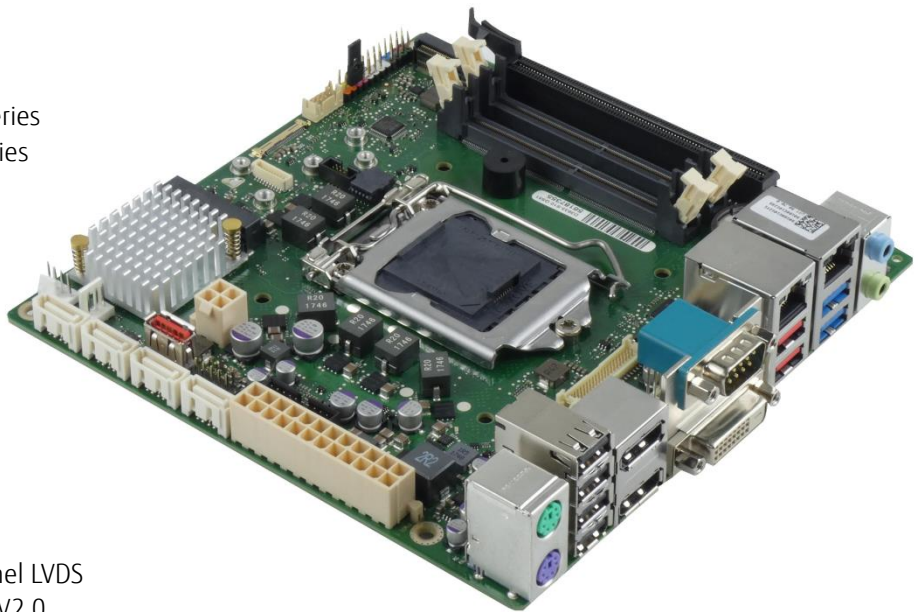
Intel® Core™ i7 / i5 / i3 – (8th gen.) processor series
Intel® Pentium® / Intel® Celeron® processor series
Socket LGA1151 – up to 95W TDP

Memory:

DDR4-2666, Dual Channel
2 SO DIMM sockets, up to 32GB memory

Product Features:

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, eDP V1.4 and Dual Channel LVDS
Intel® High Definition 5.1 Audio; Infineon TPM V2.0
8 Bit GPIO; 2 x COM port (incl. RS-422/RS-485 support)
6x USB 2.0, 4x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1 x USB 3.1 Gen2 stick socket
4x SATA 6G/s incl. RAID support & M.2 (PCIe-based SSD modules 2242, 2260, or 2280)
Mini-PCIe socket (halfsize/fullsize support)
Dual Power Supply (ATX compliant or single 12V DC)
BIOS-POST/-Boot & OS – HW Watchdog onboard



Features and benefits

Board Size	Mini-ITX: 6.7" x 6.7" (170 x 170 mm)
Chipset	Intel® Q370 Express Chipset
Memory	2 x SO-DIMM Socket (1.2V), max. 32GB, 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 – (8 th generation) processor series 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 / ATX- 20 Pin or single 12V DC Power Supply required; Support for Soft-Off Power Supplies; 3.3V Auxiliary Supply Voltage on PCIe Slot (Wake-Up Function)
Power Supply Requirements	for onboard components: worst case incl. processor & memory; w/o USB devices; w/o PCIe cards, w/o M.2, w/o SATA drives, w/o M.2 devices, w/o eDP or LVDS

Source ¹⁾	Voltage	Min. PS Load	Max. Voltage Tolerance	Mainboard Capacitive Load	Max. Mainboard Current
ATX Power Supply (Multi Rail)	+ 12V	0.05A	± 5 %	1.300µF	10A/18A ²⁾
	- 12V	0A		--	Not used
	+ 5V	0.2A	± 5 %	900µF	6.0A
	+ 3.3V	0A	± 5 %	350µF	0.5A
	+ 5Vaux	0A	+5 % / -3%	330µF	2.5A
Single 12V DC	+12V	0A	± 5 %	1.300µF	11A/19A ³⁾

1) ATX PSU (multi rail) or single 12V DC Supply

2) 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)

3) Max. load for single 12V DC supply: approx. +1A compared to multi rail supply

BIOS	<p>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)</p>
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Security Features	<p>Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial- / USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), TPM V2.0 (Infineon; TCG compliant)</p>
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Special Features	Silent Fan	Independent temperature related processor fan and system fan supervision and control	
	System Guard	View and adjust 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	
	Always On	Reliable power-on whenever voltage is connected	
	Never Off	Option to prevent the system from being shut down	
	CSA / UL compliance	cTÜVus acc. IEC62368-1 (planned)	
FCC compliance	FCC-B verified (planned)		
Operating Systems	OS	"Runnable"	"Tested/Released by Fujitsu"
	MS Windows 10 RS3	X	X
	MS Windows 10 RS4	X	X
	Linux-64	X	tbd
Important Note: Legacy OS / MBR installation (DOS, MS Windows 7, ...) is not supported due to Intel restrictions			
Designed for Industrial Applications	Longlife components	Designed for 24/7 use in industrial applications	
	Revision control	Strict control and pre-announcement	
	Extended lifecycle up to 6 years	Mainboard available for more than five years	
	Industrial grade EMI immunity		
	Enhanced operating temperature range (0°C-60°C) ¹		
Graphics	Intel® UHD Graphics, DX12		
	2 x DisplayPort V1.2 & 1 x DVI-D		
	Embedded Display Port V1.4 (2 lanes supported)		
	Dual-Channel 24bit LVDS		
Audio	Realtek ALC671, 5.1-channel, High Definition Audio Codec		
TPM	TPM V2.0 (Infineon SLB9670SPI; TCG compliant)		
LAN	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		
SATA Ports	4 x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI, RAID 0/1/5/10		
M.2 Socket	1 x M.2 Key-M for PCIe-based SSD NVME modules (SATA support tbd); 4 x PCIe Gen3 lanes Mechanical support for 2280, 2260 or 2242 modules ²		
Mini-PCIe Socket	1 x Mini-PCIe supporting PCIe Gen3 & USB2.0 Mechanical support for halfsize or fullsize modules ²		
GPIO Port	8 Bit GPIO (Input/Output); WLAN LED support, WLAN enable/disable support 3.3V / 5V / 12V supply voltage output SMBus controller PCA9554A		
Legacy Ports	1 x external COM port (RS-232)		
	1 x internal COM port (RS-232/RS-422/RS-485, pin header, 2mm pitch)		
	1 x PS/2 (mouse), 1 x PS/2 (keyboard)		

¹ Forced cooling required, see technical documentation for detailed requirements

² M.2 / Mini-PCIe stuffing options: M.2-2280 only or M.2-2260/2242 + halfsize Mini-PCIe or M.2-2242 + fullsize Mini-PCIe

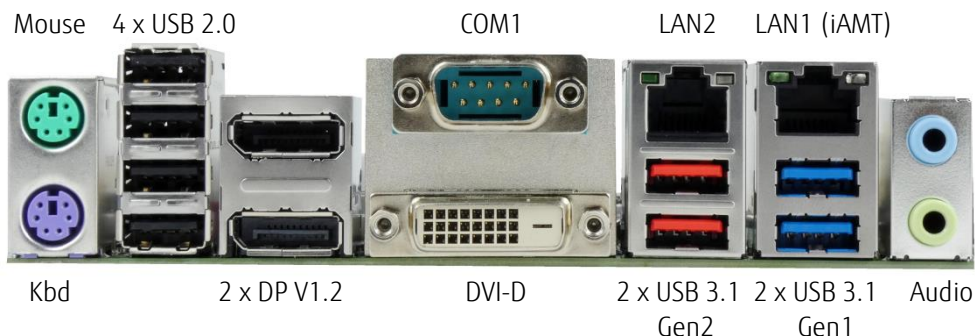
Features D3633-S	Chipset	iQ370
	Board Size	Mini-ITX
	VGA / DVI-I / DVI-D / DP V1.2 / 2 nd DP V1.2 / LVDS / eDP	- / - / ✓ / ✓ / ✓ / ✓ / ✓ / ✓ / ✓
	Buzzer / int. Speaker Support / 5.1 Multichannel Audio	✓ / ✓ / ✓
	Dual LAN Gbit / 100 Mbit / 10 Mbit / WoL / LAN Boot / Teaming	✓ / ✓ / ✓ / ✓ / ✓ / ✓ / ✓ / ✓
	iAMT 12.0 vPro / Intel Standard Manageability / DASH V1.1	✓ / ✓ / ✓ / -
	SATA / SATA-RAID / eSATA-Support / mSATA / M.2 SSD (PCIe; SATA tbd)	✓ / ✓ / ✓ / ✓ / - / ✓
	USB 2.0 / USB 3.1 (gen1) / USB 3.1 (gen2)	✓ / ✓ / ✓ / ✓
	FAN monitored & controlled PSU / CPU / AUX1 / AUX2	- / ✓ / ✓ / ✓ / -
	TEMP monitored CPU / onboard sensors / external sensor	✓ / ✓ / ✓ / -
Special Features D3633-S	Silent Fan / System Guard	✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓ / ✓
	HDD Password / EraseDisk / TPM V2.0	✓ / ✓ / ✓ / ✓
	BIOS POST- / BIOS Boot- / 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) ³	0°C – 60°C
Internal Connectors D3633-S	SO DIMM Sockets (DDR4 2666)	2
	PCI Express x16 (Gen3) / Support for lane split (8+8 or 8+4+4)	1 / ✓
	mSATA / Mini PCI Express Slot (halfsize / fullsize, incl.USB 2.0)	- / 1
	SATA-600 / M.2 SSD 2280 (supports 2280/2260/2242, Key-M, PCIe/NVME)	4 / 1
	S/PDIF (digital Audio) OUT / IN	1 / 0
	Front Panel Audio (9-Pin, HD Audio)	1
	USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2) / USB 3.1 (Gen2) Stick ⁴	1 / 1 / - / 1
	Serial (COM2, RS-232 / RS-422 / RS-485) / Parallel Port Connector	1 / -
	LVDS / LVDS Backlight / Embedded DisplayPort	1 / 1 / 1
	FAN PSU / CPU / AUX1 / AUX2	0 / 1 / 1 / 0
	Intrusion (Case Open) / GPIO [Ⓜ] (8Bit) / SMBus (Case Temp.)	1 / 1 / -
	Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin compatible)	1
	ATX Power Supply (24 pin + 4 pin) / single 12V PSU ⁵	1 / 1
	External Connectors D3633-S	VGA Sub D / DVI-I / DVI-D / DisplayPort V1.2
Audio Mic. In / Line in / Line out (or driver configuration)		- / 1 / 1
LAN (RJ-45)		2
PS/2 Mouse / Keyboard		1 / 1
USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2		4 / 2 / 2
Serial (COM1, RS232)		1

³ Forced cooling required, see technical documentation for detailed requirements

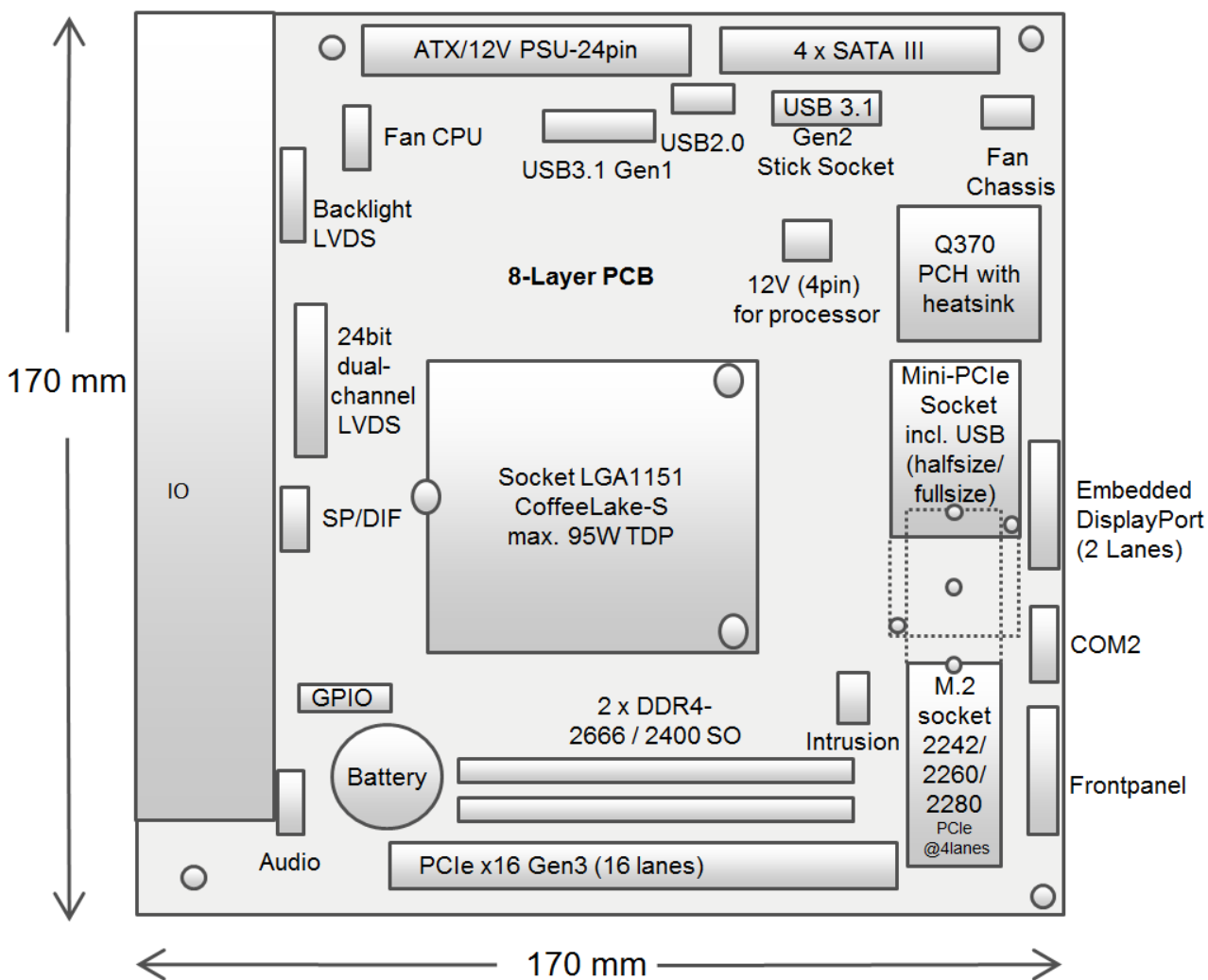
⁴ Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)

⁵ Alternatives: Powered by ATX (multi rail) PSU or single 12V DC. See TechNotes document for further details

External Connectors



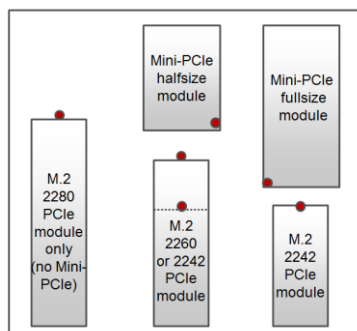
Connector / Socket Diagram



M.2 / Mini-PCIe stuffing options:

- M.2-2280 only or
- M.2-2260/2242 + halfsize Mini-PCIe or
- M.2-2242 + fullsize Mini-PCIe

Note: SATA support for M.2 tbd



Accessories

	OEM Order Code	
Mini PCIe to M.2 Adapter (D3436-S)	S26361-F5000-M3	
Serial Port Cable (fullsize slot bracket)	S26361-F5000-K10	
Risercard 1x PCIe x4 (D3318-A)	S26361-F5000-R6	
SMARTCASE S720 Chassis Kit	S26361-F5000-J3	
DisplayPort to DVI Converter Cable (400mm)	S26361-F5000-A3	

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