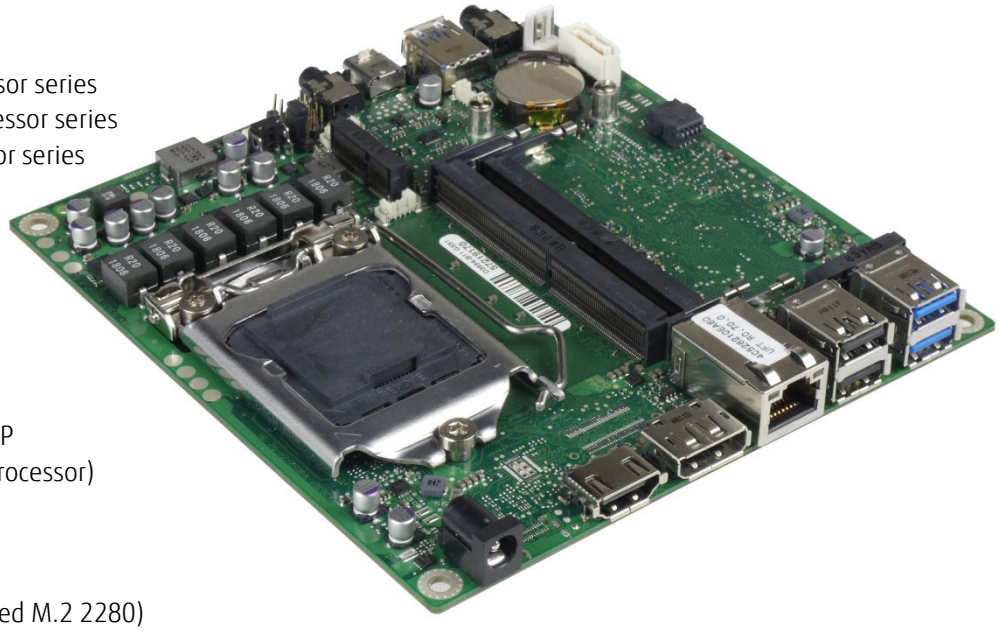
Data Sheet
FUJITSU Mainboard D3654-B Mini-STX
Extended Lifecycle Series

Powered by the Intel® H310 Express Chipset supporting DDR4-2666 SDRAM Memory and Intel® 8th & 9th generation Core™ i3 / i5 / i7 / i9 Processors

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

Chipset:
Intel® H310 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 65W TDP



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

Product Features:
cTPD – Easy & flexible reduction of CPU TDP
Intel® HD Graphics (DX12, integrated in processor)
HDMI V1.4 and DP V1.2
Stereo Audio onboard
USB 2.0 and USB3.1 Gen1 onboard
Onboard support for M.2 SSD (PCIe x4 based M.2 2280)
Onboard support for M.2 WLAN/Bluetooth (M.2 2230)
Realtek GbE LAN onboard
Intel integrated TPM V2.0 onboard
DC Power Supply 19V
HW Watchdog onboard

(upon request)

Features and benefits

Board Size	Mini-STX: 5.5" x 5.8" (140 x 148 mm)
Chipset	Intel® H310 Express Chipset
Memory	2 x SO DIMM Socket (1.2V), max. 32GB, Dual Channel, DDR4 - 2666 (CL19) / DDR4 – 2400 (CL17) 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. 65W TDP (For details on supported processors please refer to OEM FTP Server)
Power Specification	External DC Input 19V Onboard high-efficiency CPU Core Voltage Regulator
Power Supply Requirements	For onboard components (worst case incl. processor, memory and any attached internal and external devices like M.2 devices, SATA devices, USB devices.

Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Max. Mainboard Input Power
External connector	19V	0A	+10% / -15%	max. 5A max. 95W 1)

1) See TechNotes document for details

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 Configuration, BIOS Support for S.M.A.R.T., Advanced Power Management, ACPI S3/S4, Wake on time from S5. Boot support for M.2 SSD (PCIe x4-based M.2, NVME) BIOS integrated HW Diagnostic Tool, Watchdog Support **No legacy OS support, no MBR installation** (UEFI only due to Intel restrictions)
Security Features	Recovery BIOS, System and BIOS Password, Boot Sequence Control, USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), Intel integrated TPM V2.0

1 Appropriate BIOS version supporting CoffeeLake-Refresh processors required

Special Features	cTPD	Easy & flexible reduction of CPU TDP (BIOS Setup) down to 10W TDP
	Silent Fan	Independent temperature related processor fan and system fan supervision
	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
	Always On	Reliable power-on whenever voltage is connected
	Never Off	Option to prevent the system from being shut down
	CSA / UL Compliance	Upon request: cTÜVus acc. IEC62368-1
	FCC Compliance	FCC-B verified

Operating Systems	**OS**	**"Runnable"**	**"Tested/Released by Fujitsu"**
	MS Windows 7	--	--
	MS Windows 10-64 RS3	X	X
	MS Windows 10-64 RS4	X	X
	MS Windows 10-64 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® HD Graphics (depends on installed processor), DX12 1 x DisplayPort V1.2 1x HDMI V1.4
Audio	Realtek ALC671, stereo, High Definition Audio Codec, 2W@4Ohm mono speaker support, Front Audio: Headphones/Microphone acc. CTIA-Standard + Stereo Microphone Input
LAN	Realtek RTL8111E 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	1 x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI
M.2 Sockets	M.2 2280 Key-M for PCIe-based SSD NVME modules; 4 x PCIe Gen2 lanes M.2 2230 Key-E for PCIe/USB-based WLAN/Bluetooth modules; 1 x PCIe Gen2, 1 x USB2.0
Designed for 24 / 7 use	Longlife components for 24 / 7 continuous operation @ 50°C Revision control & Extended Lifecycle (min. 3 years)

Features D3654-B	Chipset	iH310
	Board Size	Mini-STX
	DP V1.2 / 2nd DP V1.2 / LVDS / HDMI 1.4 / eDP	✓ / - / - / ✓ / -
	Buzzer / int. Speaker Support (mono) / Stereo Audio	- / ✓ / ✓
	LAN Gbit / 100 Mbit / 10 Mbit / WoL / LAN Boot	✓ / ✓ / ✓ / ✓ / ✓
	iAMT 12.0 vPro / Intel Standard Manageability / DASH V1.1	- / - / -
	SATA / RAID / eSATA-Support / mSATA / M.2 SSD (PCIe)	✓ / - / ✓ / - / ✓
	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 D3654-B	Silent Fan / System Guard / cTDP	✓ / ✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓
	HDD Password / EraseDisk[2] / TPM V2.0	✓ / ✓ / ✓
	Logo Boot Option / Intel On Screen Branding	✓ / ✓
	High Efficiency Core Voltage Regulator Design	✓
	BIOS POST- / BIOS Boot- / OS- HW Watchdog	✓ / ✓ / ✓
	Operating Mode 24-7 / 8-5 (hrs per day - days per week)	✓ / -
	Mainboard operating temperature range (chassis inside)[3]	10°C – 50°C
Internal Connectors D3654-B	SO DIMM Sockets (DDR4-2666)	2
	SATA-600 / mSATA / M.2 SSD 2280 (Key-M, PCIe/NVME)	1 / - / 1
	M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth)	1
	Front Panel Audio (9-Pin, HD Audio)	-
	USB 2.0 channels / USB 3.1 Gen1 / USB 3.1 Gen2 / USB Stick	2 / - / - / -
	Serial (COM1, RS232)/ Parallel Port Connector	- / -
	LVDS / LVDS Backlight / Embedded DisplayPort	- / - / -
	FAN PSU / CPU (PWM) / AUX1 (PWM) / AUX2 [4]	0 / 1 / 1 / 0
	Intrusion (Case Open) / GPIO (8Bit) / SMBus (Case Temp.)	- / - / -
	Internal Mono Speaker header / DMIC header (digital microphone)	1 / -
	Front Panel (Power, Reset, LEDs, Intel 10 pin header, 2mm pitch)	1
	Onboard 3-pin SATA Drive Power Connector (5V)	1
	Onboard (internal) DC-In Connector	- / -
External Connectors D3654-B	DVI-I / DVI-D / DisplayPort V1.2 / HDMI V1.4 [5]	- / - / 1 / 1
	Audio Stereo Mic. In / Headphones (Headset) [Front Connectors]	1 / 1
	LAN (RJ-45)	1
	PS/2 Mouse / Keyboard	- / -
	USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2	2 / 2 / 0
	USB 3.1 Gen1 / USB 3.1Gen1-Type C [Front Connectors]	1 / 1
	DC-In connector (external input) 19V @ 5A max.	1

2 Planned for factory shipments from 05/2019

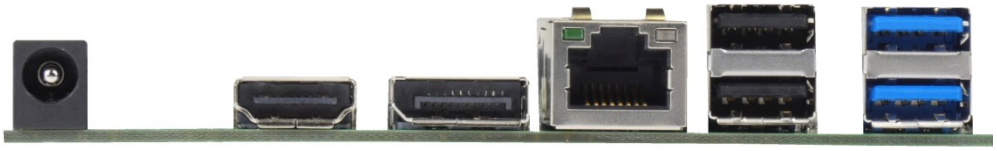
3 Forced cooling required, see technical documentation for details

4 PWM Fans; specific fan connector required; 5V operating voltage!

5 Mainboard is prepared to support HDMI-CEC via 3rd party CEC module (appropriate cabling required)

External Connectors

Rear I/O:

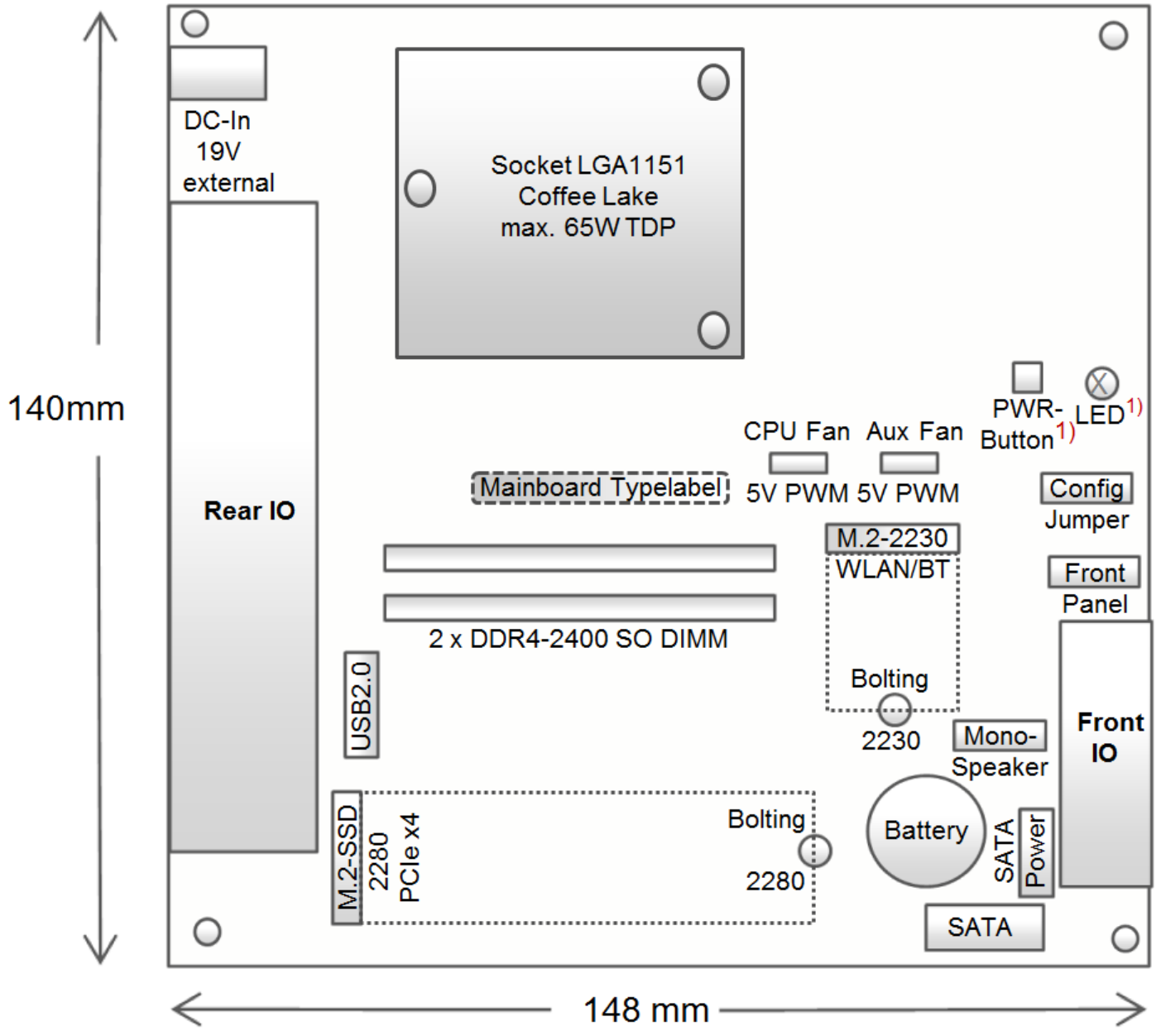


19V DC-IN | HDMI V1.4 | DisplayPort V1.2 | LAN | 2 x USB2.0 | 2 x USB3.1/gen1

Front I/O:

Headphones/ Headset | USB3.1/gen1 | USB3.1/gen1 (Type-C) | Microphone (Stereo) | Power Button/LED

Connector / Socket Diagram



1) Onboard power button (push button) and power LED are designed for usage in Fujitsu SMARTCASE S520 chassis kit

Accessories

	OEM Order Code	
SMARTCASE S520 Chassis Kit incl. Cooling Solution	S26361-F5000-B2	
AC Adapter 19V / 65W (E623)	S26361-F5000-P3	
VESA Mount Kit	S26361-F5000-X2	
Mono Speaker Kit (for chassis kit)	S26361-F5000-K9	
Wall Mount Brackets	S26361-F5000-X1	
DC-In Connector Lock	S26361-F5000-X3	
Dual WLAN Antenna Kit (incl. M.2 WLAN Module)	S26361-F5000-W2	
SATA data/power cable for optional 2.5" drive F5000-K12 (Y4033-H103)	S26361-F5000-K12	

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Multi-Input Touch Panels

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