

# 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® 8<sup>th</sup> generation Core™ i3 / i5 / i7 Processors



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

#### Chipset:

Intel® H310 Express Chipset

#### Processors:

Intel® Core™ i7 / i5 / i3 – (8<sup>th</sup> 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:

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

<b>Board Size</b>	Mini-STX: 5.5" x 5.8" (140 x 148 mm)										
<b>Chipset</b>	Intel® H310 Express Chipset										
<b>Memory</b>	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										
<b>Processor</b>	Intel® Core™ i7 / i5 / i3 - (8 <sup>th</sup> generation) processor series Intel® Pentium® / Intel Celeron® processor series Socket LGA1151, max. 65W TDP (For details on supported processors please refer to OEM FTP Server)										
<b>Power Specification</b>	External DC Input 19V Onboard high-efficiency CPU Core Voltage Regulator										
<b>Power Supply Requirements</b>	For onboard components (worst case incl. processor, memory and any attached internal and external devices like M.2 devices, SATA devices, USB devices).										
	<table border="1"> <thead> <tr> <th>Source</th> <th>Voltage</th> <th>Min. PS Load</th> <th>Max.Voltage Tolerance</th> <th>Max. Mainboard Input Power</th> </tr> </thead> <tbody> <tr> <td>External connector</td> <td>19V</td> <td>0A</td> <td>+10% / -15%</td> <td>max. 5A max. 95W <sup>1)</sup></td> </tr> </tbody> </table>	Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Max. Mainboard Input Power	External connector	19V	0A	+10% / -15%	max. 5A max. 95W <sup>1)</sup>
Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Max. Mainboard Input Power							
External connector	19V	0A	+10% / -15%	max. 5A max. 95W <sup>1)</sup>							
	1) See upcoming TechNotes document for details										
<b>BIOS</b>	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 <b>No legacy OS support, no MBR installation</b> (UEFI only due to Intel restrictions)										
<b>Security Features</b>	Recovery BIOS, System and BIOS Password, Boot Sequence Control, USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk <sup>1</sup> (optional BIOS Feature), Intel integrated TPM V2.0										

<sup>1</sup> License required!

<b>Special Features</b>	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		
<b>Operating Systems</b>	<b>OS</b>	<b>"Runnable"</b>	<b>"Tested/Released by Fujitsu"</b>
	MS Windows 7	--	--
	MS Windows 10-64 RS3	X	X
	MS Windows 10-64 RS4	X	X
	MS Windows 10-64 RS5	X	
	Linux-64	X	
<b>Important Note:</b> Legacy OS / MBR installation (DOS, MS Windows 7, ...) is not supported due to Intel restrictions			
<b>Graphics</b>	Intel® HD Graphics (depends on installed processor), DX12 1 x DisplayPort V1.2 1x HDMI V1.4		
<b>Audio</b>	Realtek ALC671, stereo, High Definition Audio Codec, 2W@40hm mono speaker support		
<b>LAN</b>	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		
<b>SATA Ports</b>	1 x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI		
<b>M.2 Sockets</b>	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		
<b>Designed for 24 / 7 use</b>	Longlife components for 24 / 7 continuous operation @ 50°C Revision control & Extended Lifecycle (min. 3 years)		

<b>Features</b> <b>D3654-B</b>	Chipset	iH310	
	Board Size	Mini-STX	
	DP V1.2 / 2 <sup>nd</sup> 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	✓ / ✓ / -	
<b>Special Features</b> <b>D3654-B</b>	Silent Fan / System Guard / Silent Drives	✓ / ✓ / -	
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓	
	HDD Password / EraseDisk <sup>2</sup> / 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) <sup>3</sup>	10°C – 50°C	
<b>Internal Connectors</b> <b>D3654-B</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 <sup>4</sup>	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	- / -	
<b>External Connectors</b> <b>D3654-B</b>	DVI-I / DVI-D / DisplayPort V1.2 / HDMI V1.4 <sup>5</sup>	- / - / 1 / 1	
	Audio Mic. In / Headphone Out [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 3.1 Gen1-Type C [Front Connectors]	1 / 1	
	DC-In connector (external input) 19V @ 5A max.	1	

<sup>2</sup> Optional BIOS feature, License required

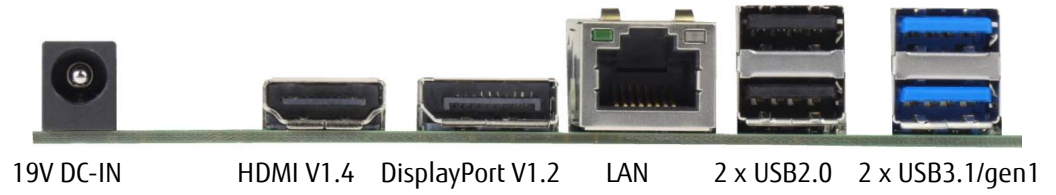
<sup>3</sup> Forced cooling required, see technical documentation for details

<sup>4</sup> PWM Fans; specific fan connector required; 5V operating voltage!

<sup>5</sup> Mainboard is prepared to support HDMI-CEC via 3rd party CEC module

### External Connectors

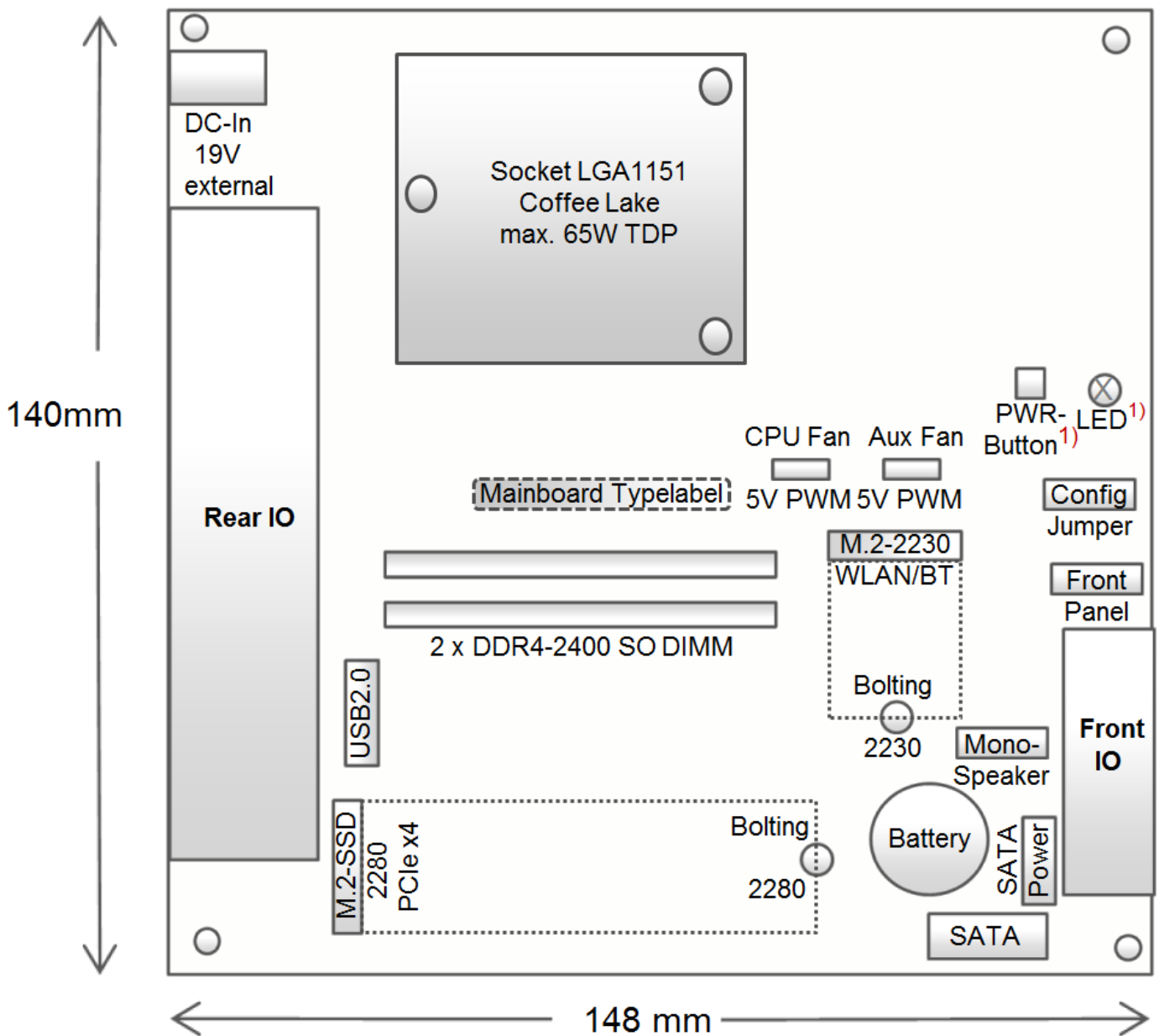
Rear I/O:



Front I/O:



### 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-J6	
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	

## Further industrial products offered by Fujitsu

- Connectors
- KVM Switches
- Relays
- Touch Panels
- Thermal Printers
- Wireless Modules



24 Volt Kiosk Printers



Multi-Input Touch Panels

## Contact:

Fujitsu Components Europe, B.V.  
Tel.: +31 (0)23 556 0910  
Fax: +31 (0)23 556 0950  
Website: [emea.fujitsu.com/components](http://emea.fujitsu.com/components)  
Address: Diamantlaan 25  
2132 WV Hoofddorp  
Netherlands

# More information

## Fujitsu products, solutions & services

### Products

[www.fujitsu.com/global/products/](http://www.fujitsu.com/global/products/)

In addition to the Fujitsu mainboards, Fujitsu offers a full portfolio of other computing products.

### Computing products

- Storage systems: ETERNUS
- Server: PRIMERGY, PRIMEQUEST, Fujitsu SPARC M10, BS2000/OSD Mainframe
- Client Computing Devices: LIFEBOOK, STYLISTIC, ESPRIMO, FUTRO, CELSIUS
- Peripherals: Fujitsu Displays, Accessories
- Software
- Network

Product Support Services with different service levels agreements are recommended to safeguard each product and ensure smooth IT operation.

### Solutions

<http://www.fujitsu.com/global/solutions>

The Fujitsu solutions combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships. Fujitsu's Solutions include parts of one or more activity groups (e.g., planning, implementation, support, management, and training services) and are designed to solve a specific business need.

**Infrastructure Solutions** are customer offerings created by bringing Fujitsu's best products, services and technologies together with those from partners to deliver benefit to our customers' businesses.

**Industry Solutions** are tailored to meet the needs of specific verticals.

**Business and Technology Solutions** provide a variety of technologies developed to tackle specific business issues such as security and sustainability, across many verticals.

### Services

[www.fujitsu.com/global/services/](http://www.fujitsu.com/global/services/)

Several customizable Fujitsu Service offerings ensure that IT makes a real difference and delivers true business value. We do this by leveraging our extensive experience in managing large, complex, transformational IT programs to help clients in planning, delivering and operating IT services in a challenging and changing business environment.

**Application Services** support the development, integration, testing, deployment and on-going management of both custom developed and packaged applications. The services focus on delivering business and productivity improvements for organizations.

**Business Services** respond to the challenge of planning, delivering and operating IT in a complex and changing IT environment.

**Managed Infrastructure Services** enable customers to deliver the optimal IT environment to meet their needs – achieving high levels of IT service quality and performance for data center and end user environments.

## Fujitsu green policy innovation

[www.fujitsu.com/global/about/environment/](http://www.fujitsu.com/global/about/environment/)

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at:



## More information

Learn more about Fujitsu, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.

[www.fujitsu.com/fts/mainboards/](http://www.fujitsu.com/fts/mainboards/)

## Copyright

© 2015 Fujitsu Technology Solutions GmbH. Fujitsu and the Fujitsu logo are trademarks or registered trademarks of Fujitsu Limited in Japan and other countries.

Intel Chipset C236, Xeon C3 and Intel Core i7 / i5 / i3 are trademarks or registered trademarks of Intel Corporation in America and other countries. Other company, product and service names may be trademarks or registered trademarks of their respective owners. All rights reserved, including intellectual property rights. Changes to technical data reserved. Delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded.

## Disclaimer

Technical data subject to modification and delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.

## Contact

Fujitsu Technology Solutions GmbH  
OEM Mainboard Sales

Email: [oem-sales@ts.fujitsu.com](mailto:oem-sales@ts.fujitsu.com)

Website: <http://ts.fujitsu.com>  
2018-10-24

Copyright © Fujitsu Technology Solutions

All rights reserved, including intellectual property rights. Changes to technical data reserved. Delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.

For further information see [http://ts.fujitsu.com/terms\\_of\\_use.html](http://ts.fujitsu.com/terms_of_use.html)