

# Data Sheet

## FUJITSU Mainboard D3543-S Mini-ITX

Industrial Series

- preliminary -



Intel® embedded Gemini Lake SoC (System on Chip, 10W TDP) for DDR4 2400 SDRAM Memory  
Enhanced operating temperature range from 0°C to 60°C

### Processors (SoC):

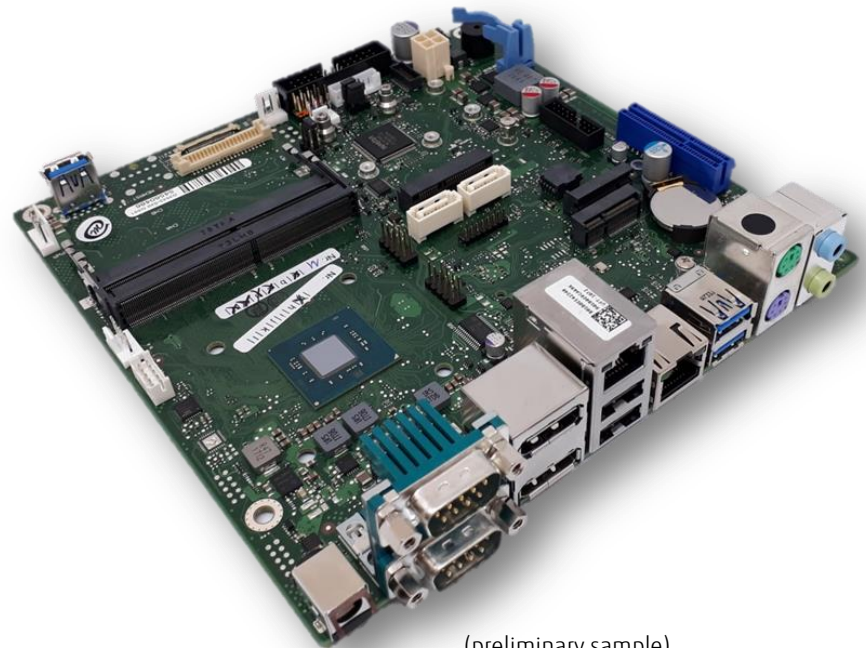
- Intel® Celeron® Processor J4005 (DC @2.7GHz), integrated Intel® UHD Graphics 600 (12EUs @700MHz)
  - Intel® Celeron® Processor J4105 (QC @2.5GHz), integrated Intel® UHD Graphics 600 (12EUs @750MHz)
  - Intel® Pentium® Silver Processor J5005 (QC @2.8GHz), integrated Intel® UHD Graphics 605 (18EUs @800MHz)
- 10W TDP

### Memory:

2 x DDR4 2400 SDRAM (SO-DIMM)

### Product Features:

- Intel® UHD Graphics 600/605 (within SoC)
- 2x DisplayPort V1.2a
- Dual Channel LVDS (24Bit) and eDP V1.4 onboard
- 8 Bit GPIO & HD Audio onboard
- USB 2.0 and USB 3.1 (gen1) onboard
- 2x SATA III
- Onboard support for M.2 SSD (SATA/PCIe)
- Onboard support for M.2 WLAN/Bluetooth module
- Dual GbE LAN onboard
- Intel® integrated TPM V2.0 onboard
- WideRange internal/external DC Input (8V - 36V)
- HW Watchdog onboard
- RS-232/485/422 support onboard (tbd)



(preliminary sample)



(planned)

(upon request)



# Features and benefits

**Board Size** Mini-ITX: 6.7" x 6.7" (170 x 170 mm)

**Mainboard Versions**

	Processor (SoC)	Graphics	Memory	Graphics
<b>D3543-S1</b>	Intel® Celeron® J4005 (DC @2.7GHz) Max. 10W TDP	Intel® UHD Graphics 600 12EUs @700MHz (within SoC)	DDR4 / 2400 two sockets max. 16GB	2 x DP V1.2 max. 4096 x 2160 @60Hz  1 x eDP V1.4 2 lanes max. 1920 x 1200
<b>D3543-S2</b>	Intel® Celeron® J4105 (QC @2.5GHz) Max. 10W TDP	Intel® UHD Graphics 600 12EUs @750MHz (within SoC)		1 x LVDS 24Bit Dual Channel max. 1920 x 1200
<b>D3543-S3</b>	Intel® Pentium® Silver J5005 (QC @2.8GHz) Max. 10W TDP	Intel® UHD Graphics 605 18EUs @800MHz (within SoC)		max. 3 x independent display

**Memory** 2 x SO DIMM Socket (1.2V), max. 16GB, DDR4 - 2400 (CL17) / 2133 (CL15) SDRAM, unbuffered, non-ECC

**Power Specification** External DC Input 8V-36V (5A max. / 50W max.) tbd  
Internal DC Input 8V-36V (50W max.) tbd  
Onboard SoC and system voltage regulators (high efficiency)

**Power Supply Requirements** for onboard components (worst case incl. memory module; w/o USB devices; w/o M.2 device, w/o SATA devices; w/o eDP or LVDS display)

Source	Voltage	Min. PS Load	Max.Voltage Tolerance	Mainboard Capacitive Load	Max. Mainboard Current
DC-IN (wide range)	8-36V	0A	± 5 % (tbd)	tbd	tbd

Typical mainboard current: 1A

**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 (AHCI / 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, Serial- / USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), Intel integrated TPM V2.0

**Special Features**

Silent Fan LT	Independent temperature related processor fan and system fan supervision
System Guard	View Silent Fan LT features
Silent Drives	Noise reduction for optical and hard disk drives
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 / FCC	FCC-B (planned); cTÜVus acc. IEC62368-1 (upon request)

<b>Operating Systems</b>	<b>OS</b>	<b>"Runnable"</b>	<b>"Tested/Released by Fujitsu"</b>
	MS Windows 10-64 RS1	--	--
	MS Windows 10-64 RS2 <sup>1</sup>	X	--
	MS Windows 10-64 RS3	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 24 / 7 use** Longlife components for 24 / 7 use (0°C – 60°C) in industrial applications  
 Revision control & Extended Lifecycle (min. 5 years + 1 year eXtended LifeCycle option)

**Graphics** Integrated **Intel® UHD Graphics 600/605**  
 2 x DisplayPort V1.2a / 1 x embedded DisplayPort (eDP) 1.4 / 1 x Dual-Channel 24bit LVDS  
 Supports up to 3 x independent display  
 Following max. display combinations are supported:  
 1 x DisplayPort (external) + 1 x LVDS (internal) + 1 x embedded DisplayPort (internal)  
 2 x DisplayPort (DP, external) + 1 x embedded DisplayPort (eDP, internal)  
 Note: Simultaneous use of LVDS and DP2 (upper port) is not possible

**Audio** **Realtek ALC671** 5.1-channel, High Definition Audio Codec

**LAN** 1 x **Intel i210** with 10/100/1000MBit/s, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE and iSCSI supported, BIOS MAC Address Display  
 1 x **Realtek RTL8111G** 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

**Drives / Modules** 2 x Serial ATA (SATA) III 600 Interface (up to 6GBit/s), NCQ, AHCI;  
 1 x M.2 Key B socket (2242 / 2260 / 2280) for following applications:

- SATA based M.2 SSD modules
- PCIe based M.2 SSD modules (one PCI lane)
- Specific M.2 PCIe-based extension modules like LAN, SATA, COM, etc.

Boot support: AHCI / NVME  
 Note: M.2 (SATA) is shared with SATA port 1

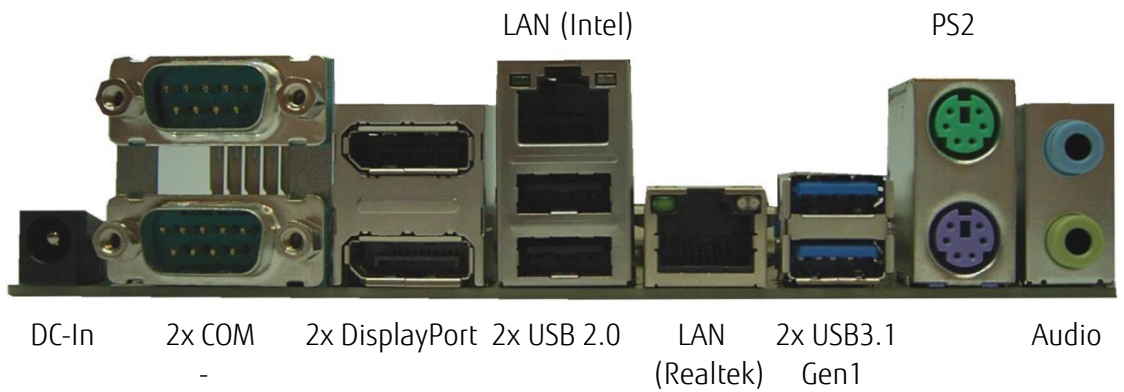
<sup>1</sup> Longterm driver support for RS2 is not guaranteed

<b>WLAN / Bluetooth</b>	1 x M.2 Key E socket (WLAN / Bluetooth), mechanical support for 2230 Supports M.2 modules with PCIe x1 (Gen2) and / or USB 2.0 interface	
<b>LVDS</b>	LVDS Controller <b>Realtek RTD2136R</b> (DisplayPort to LVDS converter)	
<b>Mini-PCIe</b>	1 x mini PCIe socket (PCIe / USB), mechanical support for full and half size mini PCIe cards Supports modules with mini PCIe x1 (Gen2) and USB 2.0 interface	
<b>Features D3543-S (Mini-ITX)</b>	Chipset	Intel Gemini Lake SoC
	DP V1.2a / 2 <sup>nd</sup> DP V1.2a / LVDS / eDP V1.4 / HDMI / DVI / VGA	✓ / ✓ / ✓ / ✓ / ✓ / - / - / - / -
	Buzzer / int. Speaker Support (mono) <sup>2</sup> / 5.1 Multichannel Audio	✓ / ✓ / ✓ / ✓
	LAN Gbit / 100 Mbit / 10 Mbit / WoL / PXE / M.2 2230 WLAN-BT	✓ / ✓ / ✓ / ✓ / ✓ / ✓ / ✓ / ✓
	iAMT-vPro / Intel Standard Manageability / DASH V1.1	- / - / -
	SATA / M.2 (SATA) / M.2 PCIe (1 lane) / eSATA-Support / RAID / mSATA	✓ / ✓ / ✓ / ✓ / ✓ / - / - / -
	Mini-PCIe / USB 2.0 / USB 3.1 (gen1) / FireWire™	✓ / ✓ / ✓ / ✓ / -
	FAN monitored & controlled PSU / CPU / AUX1 / AUX2	- / ✓ / ✓ / ✓ / -
	TEMP monitored CPU / onboard sensors / external sensor	✓ / ✓ / ✓ / -
<b>Special Features D3543-S</b>	Silent Fan / Silent Fan LT / System Guard / Silent Drives	- / ✓ / ✓ / ✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓ / ✓
	HDD Password / EraseDisk <sup>3</sup> / TPM V1.2 / TPM V2.0	✓ / ✓ / ✓ / - / ✓ / ✓
	Logo Boot Option / Intel On Screen Branding	✓ / ✓
	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>4</sup>	0°C – 60°C
<b>Internal Connectors D3543-S</b>	SO DIMM Sockets (DDR4 2400)	2
	SATA-600 / M.2 SSD <sup>5</sup> / M.2 WLAN-BT / mSATA / Mini-PCIe	2 / 1 / 1 / - / 1
	Front Panel Audio (9-Pin, HD Audio) / SP-DIF Out (Digital Audio)	1 / 1
	USB 2.0 pin header (provides 2 USB channel) / USB Stick socket	2 / 1
	USB 3.1 Gen1 pin header (provides 2 USB channels) <sup>6</sup>	1
	Serial COM3 <sup>7</sup> / Serial COM4 <sup>8</sup> / Parallel Port header	tbd / tbd / 1
	LVDS / LVDS Backlight / Embedded DisplayPort	1 / 1 / 1
	FAN PSU / CPU (PWM) / AUX1 (PWM)	- / 1 / 1
	Intrusion (Case Open) / GPIOⓂ(8Bit) / SMBus (Case Temp.)	1 / 1 / -
	Mono Speaker header / Internal Stereo Speaker header / DMIC header	1 / - / -
	Frontpanel (Power Switch, Reset Switch, LEDs, Intel 10 pin header)	1
	Onboard SATA Drive Power Connector (5V/12V)	1
	Onboard (internal) DC-In Connector 8-36V (4 pin)	1
<b>External Connectors D3543-S</b>	DisplayPort V1.2a / HDMI / DVI / VGA	2 / - / - / -
	Audio Mic. In / Line in / Line out (or driver configuration)	- / 1 / 1
	LAN (RJ-45) / PS/2 Keyboard / Mouse	2 / 2
	USB 2.0 / USB 3.1 Gen1	2 / 2
	DC-In connector (external input) 8-36V @ 5A max.	1

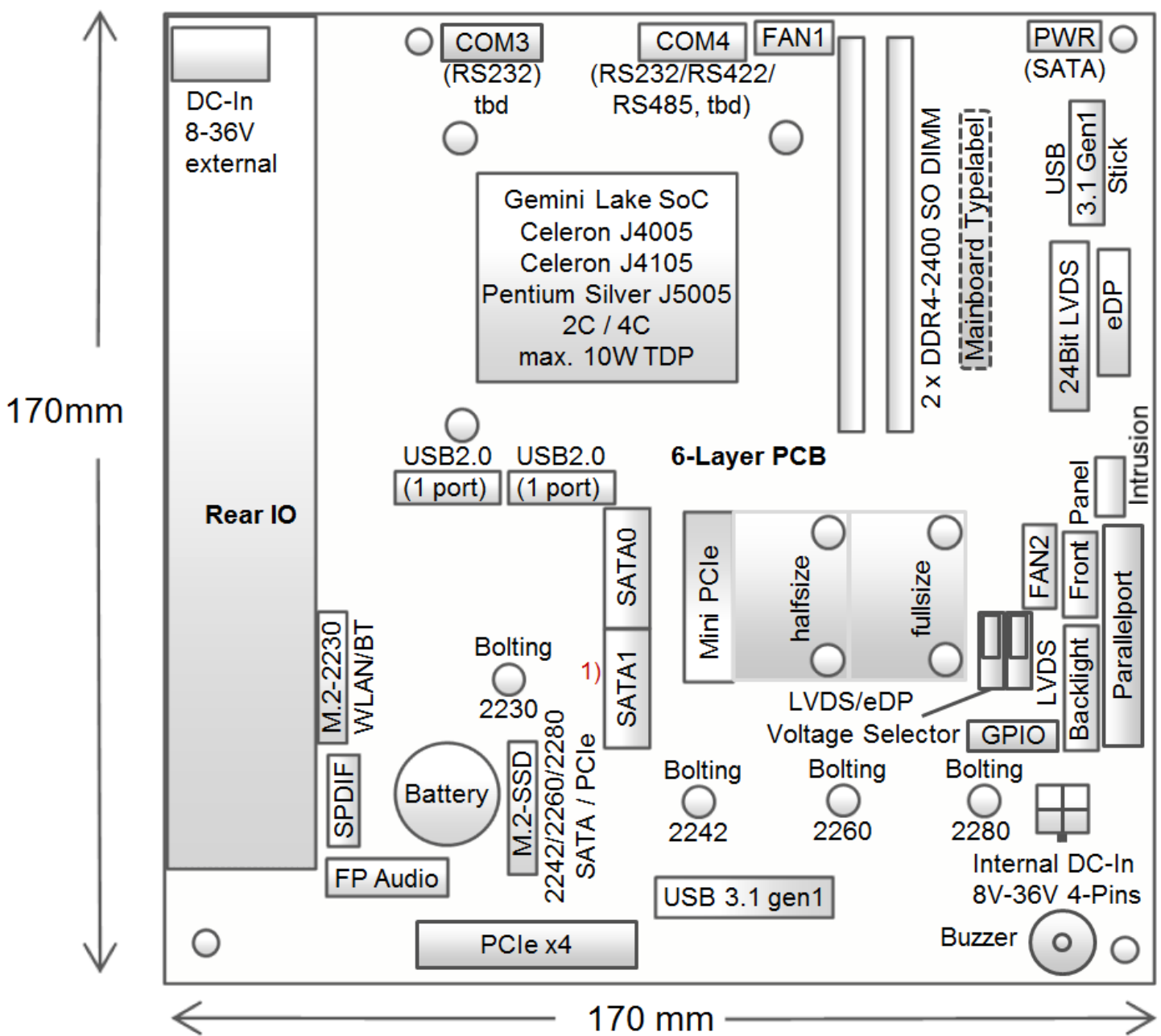
<sup>2</sup> Mono speaker support; max. 2.2W @4Ω / 1.3W @8Ω<sup>3</sup> BIOS feature; License included<sup>4</sup> Forced cooling required for high operating temperature range. See upcoming TechNotes document for details<sup>5</sup> M.2 SSD shared with one SATA port<sup>6</sup> USB3 connector includes separate USB2.0 signal pins (2 channels)<sup>7</sup> RS232; reduced feature set; **feasibility / driver support tbd**; pin header 2mm pitch. See TechNotes document for details<sup>8</sup> RS-232 / RS-422 / RS-485; reduced feature set; **feasibility / driver support tbd**; pin header 2mm pitch. See TechNotes document for details

External Connectors

Rear I/O:



Connector / Socket Diagram



1) SATA Port1 shared with M.2 SATA-SSD

Accessories

(Ordercode)

Mini-ITX Chassis Kit for D3543-S

F5000-J005



Internal AC Adapter 12V/65W for chassis kit

F5000-P004



AC Adapter 19V / 40W

F5000-P005  
(E622)



AC Adapter 19V / 65W

F5000-P003  
(E623)

USB Typ-C Cable (USB 3.1/gen1)

tbd

Risercard 1x PCIe X4

F5000-R006  
(D3318)



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