

Data Sheet

FUJITSU Mainboard D3543-S Mini-ITX

Industrial Series

- preliminary -



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



Processors (SoC):

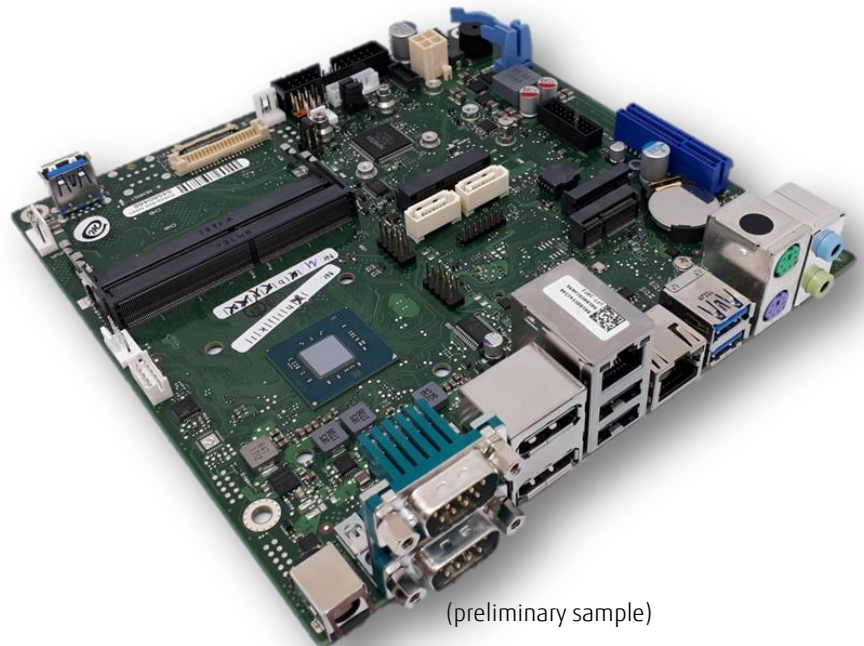
- Intel® Celeron® Processor J4005 (DC @2.7GHz) with integrated Intel® UHD Graphics 600 (12EUs @700MHz)
 - Intel® Celeron® Processor J4105 (QC @2.5GHz) with integrated Intel® UHD Graphics 600 (12EUs @750MHz)
 - Intel® Pentium® Silver Processor J5005 (QC @2.8GHz) with integrated Intel® UHD Graphics 605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

Memory:

2 x DDR4 2400 SDRAM (SO-DIMM)

Product Features:

- Intel® UHD Graphics 600/605 (within SoC)
- 2x DisplayPort V1.2
- 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 with Raid option
- Onboard support for M.2 SSD (SATA-based M.2)
- 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



(preliminary sample)



Features and benefits

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

		Processor (SoC)	Graphics	Memory	Display Options
Mainboard Versions	D3543-S1	Intel® Celeron® Processor 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
	D3543-S2	Intel® Celeron® Processor J4105 (QC @2.5GHz) max. 10W TDP	Intel® UHD Graphics 600 12EUs @750MHz (within SoC)		1 x eDP V1.4 2 lanes max. 1920 x 1200
	D3543-S3	Intel® Silver Pentium® Processor J5005 (QC @2.8GHz) max. 10W TDP	Intel® UHD Graphics 605 18EUs @800MHz (within SoC)		1 x LVDS 24Bit Dual Channel max. 1920 x 1200 max. 3 x independent display

Memory 2 x SO DIMM Socket (1.2V), max. 16GB, DDR4 - 2400 (CL17) 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

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 (SATA-based M.2, AHCI)
BIOS integrated HW Diagnostic Tool, Watchdog Support
No legacy OS support (Intel limitation)

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	cCSAus 60950-1 / FCC-B (planned)	
Operating Systems	OS	"Runnable"	"Tested/Released by Fujitsu"
	MS Windows 10-64	X	X
	Linux-64	X	tbd
	Note: Legacy OS (DOS, MS Windows 7, ...) is not supported (Intel limitation)		
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 XLC option)		
Graphics	Integrated Intel® UHD Graphics 600/605 2 x DisplayPort V1.2 / 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 one) 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	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 SATA and PCIe based M.2 modules, AHCI Boot support Note: M.2 is shared with one SATA1 port		
WLAN / Bluetooth	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		
LVDS	LVDS Controller Realtek RTD2136R (DisplayPort to LVDS converter)		
mPCIe	1 x mini PCIe socket (PCIe / USB), mechanical support for full and half size mPCIe cards Supports modules with mini PCIe x1 (Gen2) and USB 2.0 interface		

Features D3543-S	Chipset	Intel Gemini Lake SoC
	Board Size	Mini-ITX
	DP V1.2 / 2 nd DP V1.2 / LVDS / eDP V1.4 / HDMI / DVI / VGA	✓ / ✓ / ✓ / ✓ / ✓ / - / - / - / -
	Buzzer / int. Speaker Support (mono) ¹ / 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 SSD (SATA) / eSATA-Support / RAID / mSATA	✓ / ✓ / ✓ / ✓ / ✓ / -
	USB 2.0 / USB 3.1 (gen1) / FireWire™	✓ / ✓ / -
	FAN monitored & controlled PSU / CPU / AUX1 / AUX2	- / ✓ / ✓ / -
	TEMP monitored CPU / onboard sensors / external sensor	✓ / ✓ / -
Special Features D3543-S	Silent Fan / Silent Fan LT / System Guard / Silent Drives	- / ✓ / ✓ / ✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓ / ✓
	HDD Password / EraseDisk ² / TPM V1.2 / TPM V2.0	✓ / ✓ / - / - / ✓
	Logo Boot Option / Intel On Screen Branding	✓ / ✓
	High Efficiency 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	0°C – 60°C
Internal Connectors D3543-S	SO DIMM Sockets (DDR4 2400)	2
	SATA-600 / M.2 SSD ⁴ / M.2 WLAN-BT / mSATA / mPCIe	2 / 1 / 1 / - / 1
	S/PDIF (digital Audio) OUT / IN	1 / -
	Front Panel Audio (9-Pin, HD Audio)	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) ⁵	1
	Serial COM1 (RS-232 / -422 / -485; pin header 2mm pitch)	1
	Serial COM2 (RS-232; specific connector) ⁶ / Parallel Port header	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 / -
	Internal Mono Speaker header / Internal Stereo Speaker header	1 / -
	DMIC header (digital microphone)	-
	Frontpanel (Power Switch, Reset Switch, LEDs, Intel 10 pin header)	1
	Onboard SATA Drive Power Connector (5V/12V tbd)	1
	Onboard (internal) DC-In Connector 8-36V (4 pin)	1
	External Connectors D3543-S	DisplayPort V1.2 / HDMI / DVI / VGA
Audio Mic. In / Line in / Line out (or driver configuration)		- / 1 / 1
LAN (RJ-45)		2
PS/2 Keyboard / Mouse		1 / 1
USB 2.0 / USB 3.1 Gen1		2 / 2
DC-In connector (external input) 8-36V @ 5A max.		1

1 Mono speaker support; max. 2.2W @4Ω / 1.3W @8Ω

2 BIOS feature; License included

3 Forced cooling required for high operating temperature range. See upcoming TechNotes document for details

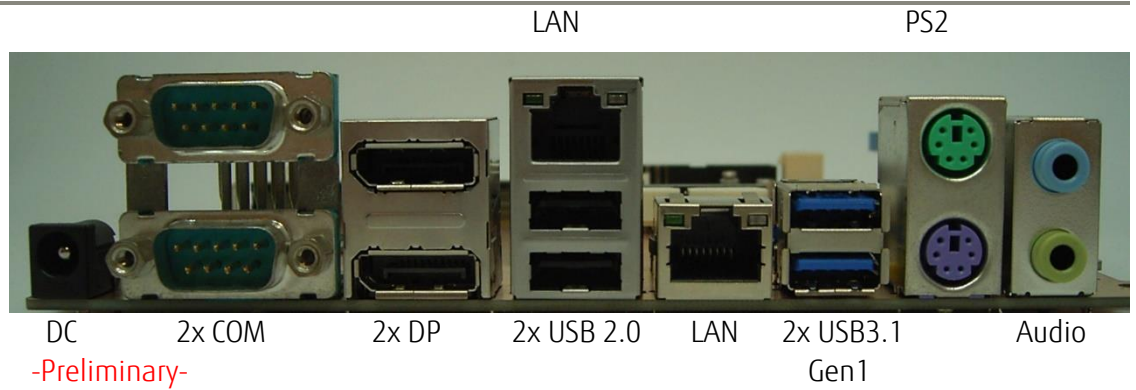
4 M.2 SSD shared with one SATA port

5 USB3 connector includes separate USB2.0 signal pins (2 channels)

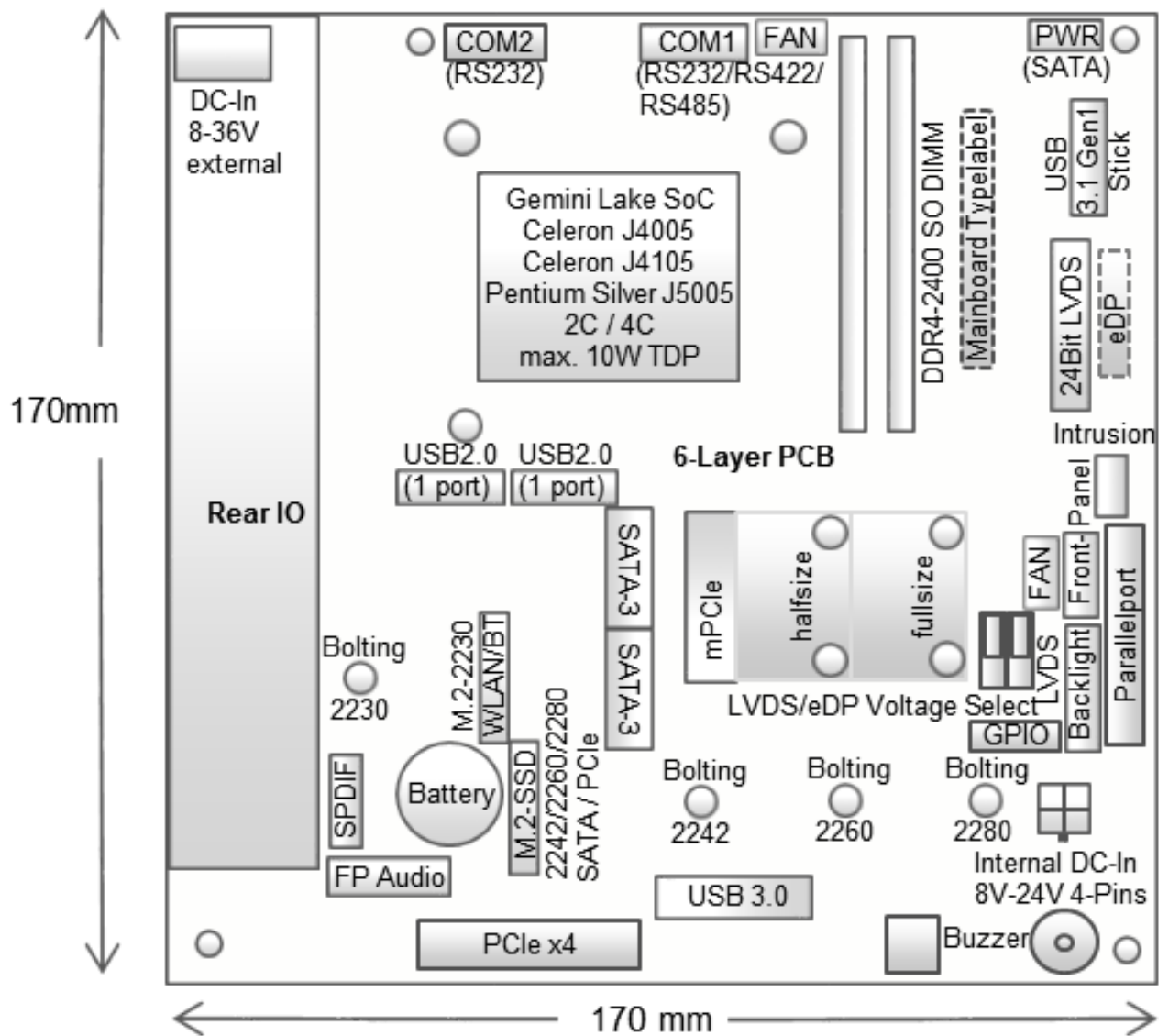
6 Reduced functionality + specific connector cable (incl. RS-232 line driver) required. See upcoming TechNotes document for details

External Connectors

Rear I/O:



Connector / Socket Diagram



-Preliminary-

Accessories

(Ordercode)

AC Adapter 19V / 40W

(S26113-E622) tbd



AC Adapter 19V / 65W

S26361-F5000-P003



USB Typ-C Cable (USB 3.1/gen1)

tbd

Serial Port cable (COM1)

tbd

Serial Port cable
(incl. line driver, COM2 only)

tbd

Passive Heatsink

S26361-F5000-C009

Active Cooler

S26361-F5000-C010

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