D3543-S mITX
Industrial Series

▼

Designed by Fujitsu
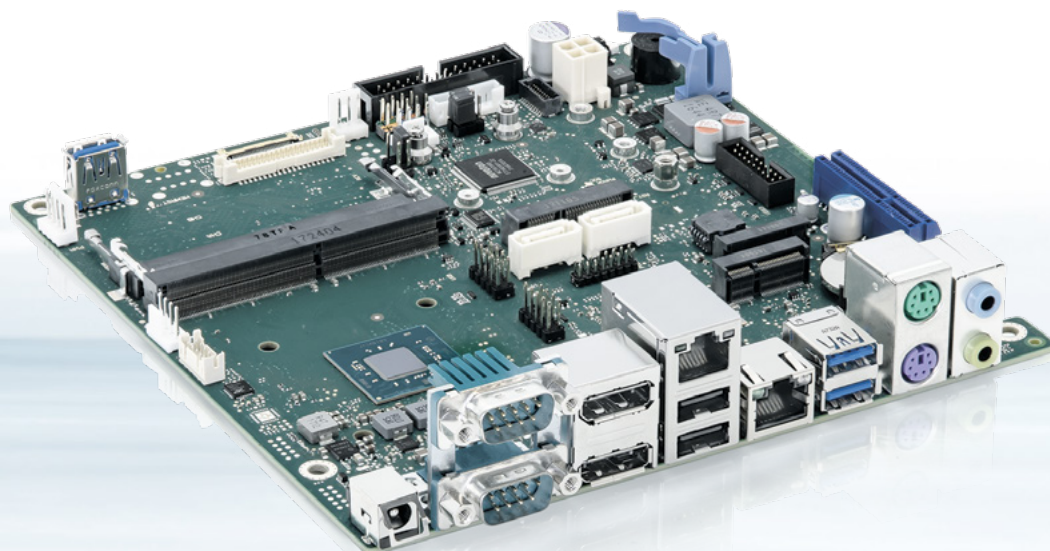
Intel® Celeron® Processor J4005/J4105 & Intel® Pentium® Silver Processor J5005

▶ Dual DP V1.2, LVDS & eDP V1.4
▶ M.2 SSD & M.2 WLAN Slots onboard
▶ HW Watchdog, GPIO & PCIe Slots
▶ Wide Range & DC Power Supply (8 V-36 V)
▶ Designed for Fanless Operation

POSSIBILITIES START HERE

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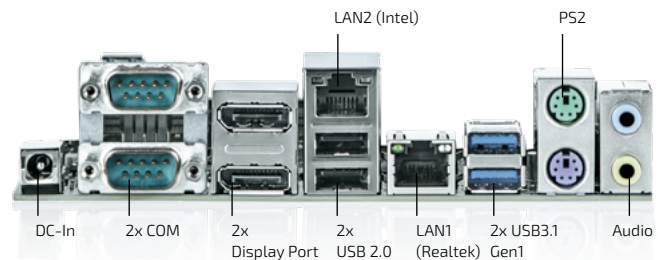S&T Group

D3543-S mITX
Industrial Series

The Industrial Motherboard D3543-S mITX supports the Intel® Celeron® Processors J4005, J4105 as well as the Intel® Pentium® Processor J5005. It is also equipped with extension slots for PCIe and M.2 and connectors like USB 3.1 Gen1, 2x DP V1.2 and 4x COM.

The D3543-S mITX offers highest functionality supporting 24/7 operation mode and an enhanced operating temperature range from 0 °C to 60 °C.

▶ PRODUCT HIGHLIGHTS

- Intel® Celeron® Processor J4005/J4105 & Intel® Pentium® Silver Processor J5005
- DDR4 2400 SDRAM, max. 24 GByte
- 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
- Onboard support for Mini-PCIe
- Dual GbE LAN onboard

- Intel® integrated TPM V2.0 onboard
- WideRange internal/external DC Input (8 V - 36 V)
- HW Watchdog onboard
- RS-232/485/422 support onboard

LAN2 (Intel) PS2

DC-In | 2x COM | 2x Display Port | 2x USB 2.0 | LAN1 (Realtek) | 2x USB3.1 Gen1 | Audio

▶ TECHNICAL INFORMATION

SYSTEM	PROCESSOR	Intel® Celeron® Processor J4005 (DC @2.0 GHz/2.7 GHz) Intel® Celeron® Processor J4105 (QC @1.5 GHz/2.5 GHz) Intel® Pentium® Silver Processor J5005 (QC @1.5 GHz/2.8 GHz)
	CHIPSET	SoC (System on Chip)
	MEMORY	2x SO DIMM Socket (1.2 V), max. 24 GByte, 2x DDR4 2400 SDRAM (SO-DIMM)
VIDEO	GRAPHICS	Integrated Intel® UHD Graphics 600/605
AUDIO	AUDIO CODEC AUDIO INTERFACE	Realtek ALC671 5.1-channel, High Definition Audio Codec
NETWORK CONNECTION	ETHERNET	1x Intel® i210 with 10/100/1000MBit/s, 1x Realtek RTL8111G with 10/100/1000 MBit/s
PERIPHERAL CONNECTION	USB	2x USB 2.0, 4x USB 2.0 (by header) 2x USB 3.1 Gen1 + 2x USB 3.1 Gen1 (by header) 1x USB 3.1 Gen1 stick socket
	SERIAL PORT	2x RS232, 1x RS232 (limited feature set, by header), 1x RS232/RS422/RS485 (limited feature set, by header)
	OTHER I/Os	GPIO (by header)
STORAGE & EXPANSION	SATA	2x Serial ATA (SATA) III 600 Interface (up to 6GBit/s), NCQ, AHCI; 1x M.2 Key-E (2230), 1x Mini-PCIe (halfsize/fullsize), 1x M.2 Key B socket (2242/2260/2280)
	PCI/PCIe SLOTS	1x PCIe x4
POWER	CONNECTOR INPUT VOLTAGE	External DC Input 8 V–36 V (5 A max. / 100 W max.) Internal DC Input 8 V–36 V (8 A max. / 100 W max.) Onboard SoC and system voltage regulators (high efficiency)
FIRMWARE	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)
	WATCHDOG	2-Level WD (BIOS Boot WD / OS WD)
	REAL TIME CLOCK	Integrated
	TPM	Intel® integrated TPM V2.0

▶ TECHNICAL INFORMATION

SYSTEM CONTROL	FP HEADER SECURITY	1x Header for Reset button, HDD LED, Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control for each drive, Serial Port Access Protection, TPM 1.2 (Infineon, optional), Boot Sector Virus Warning, Write Protection for Flash BIOS, Harddisk Password incl. "Silent Password" option (no keyboard entry required), Erase Disk (BIOS Feature)
COOLING	FAN	2x PWM-Fan (CPU/System)
SOFTWARE	OS SUPPORT	MS Windows 10 Linux-64
MECHANICAL	DIMENSIONS (L x W)	Mini-ITX: 6.7" x 6.7" (170 x 170 mm)
CERTIFICATION	EMC & SAFETY	FCC-B verified cTÜVus acc. IEC62368-1 (upon request), CE Class B

*) Long-term driver update support for RS1 (LTSB) and RS2 is not guaranteed by Intel®

▶ MOTHERBOARD VERSIONS

	PROCESSOR (SoC)	GRAPHICS	MEMORY	GRAPHICS
D3543-S1	Intel® Celeron® J4005 (Dual Core) 2.0 GHz / 2.7 GHz*	Intel® UHD 600 12EUs; max. 8 GByte 250 MHz / 700 MHz**		2x DP V1.2 max. 4096 x 2160 @60 Hz 1x eDP V1.4 2 lanes max. 1920 x 1200
D3543-S2	Intel® Celeron® J4105 (Quad Core) 1.5 GHz / 2.5 GHz*	Intel® UHD 600 12EUs; max. 8 GByte 250 MHz / 750 MHz**	DDR4 / 2400 two sockets max. 24 GByte	1x LVDS 24Bit Dual Channel max. 1920 x 1200
D3543-S3	Intel® Pentium® Silver J5005 (Quad Core) 1.5 GHz / 2.8 GHz*	Intel® UHD 605 18EUs; max. 8 GByte 250 MHz / 800 MHz**		max. 3x independent display

*) CPU Base Frequency / Burst Frequency
**) Graphics Base Frequency / max. Dynamic Frequency

▶ POWER SUPPLY REQUIREMENTS

SOURCE	VOLTAGE RANGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	TYP. MOTHERBOARD INPUT POWER*	MAX. MOTHERBOARD INPUT POWER**
DC-IN (wide range)	8-36 V	0 A	± 5 %	5 W - 15 W	100 W

*) Motherboard incl. Memory and M.2 SATA SSD (MS Windows 10 Idle Mode / Full Load)
**) Motherboard incl. Memory, M.2 SATA SSD, any USB Devices, any LVDS / eDP devices, any SATA devices

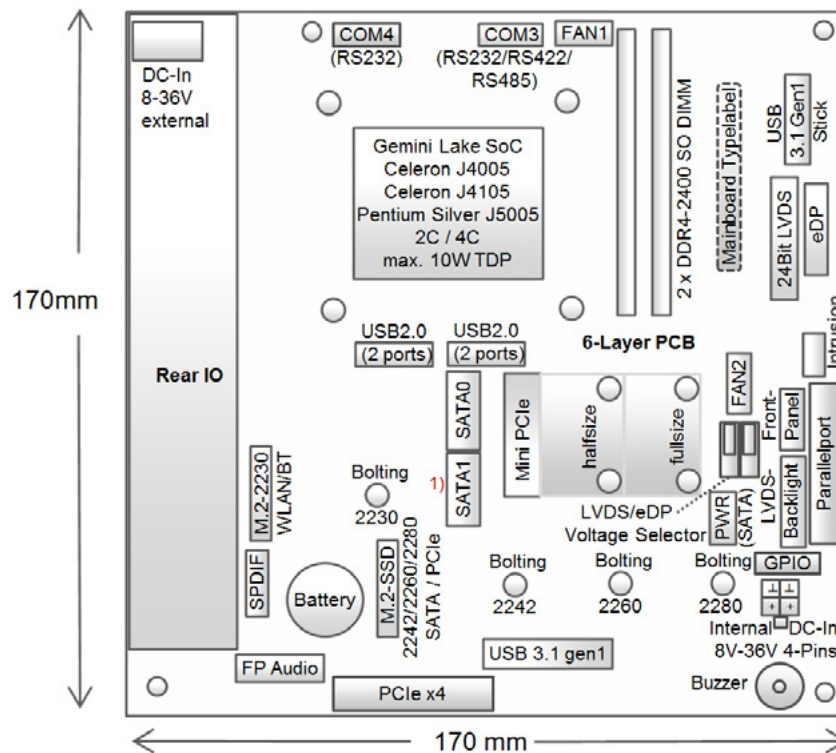| FEATURES		Intel Gemini Lake SoC
	Chipset	
	DP V1.2a / 2nd DP V1.2a / LVDS / eDP V1.4 / HDMI / DVI / VGA	+ / + / + / + / + / – / – / –
	Buzzer / int. Speaker Support / 5.1 Multichannel Audio	+ / – / +
	LAN Gbit / 100 Mbit / 10 Mbit / WoL / PXE / M.2 2230 WLAN-BT	+ / + / + / + / + / +
	iAMT-vPro / Intel 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	+ / + / –
SPECIAL FEATURES		
	COM interface support for RS-232 / RS-485 / RS-422	+
	Silent Fan / System Guard	+ / +
	Recovery BIOS / Desk Update / Multi Boot	+ / + / +
	HDD Password / EraseDisk / TPM V1.2 / TPM V2.0	+ / + / – / +
	Logo Boot Option	+
	BIOS POST- / BIOS Boot- / OS- HW Watchdog	+ / + / +
	Operating Mode 24-7 / 8-5 (hrs per day - days per week)	+ / –
	Motherboard operating temperature range (chassis inside)*	0 °C – 60 °C
INTERNAL CONNECTORS		
	SO DIMM Sockets (DDR4 2400)	2
	SATA-600 / M.2 SSD** / 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 channels) / USB 2.0 stick socket	2 / 1
	USB 3.1 Gen1 pin header (provides 2 USB channels)***	1
	Serial COM3 header**** / Serial COM4 header**** / Parallel Port header	1 / 1 / 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	– / – / –
	Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin header)	1
	SATA Drive Power Connector (5 V/12 V) / DC-In Connector 8-36 V (4 pin)	1 / 1
EXTERNAL CONNECTORS		
	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) 8-36 V @ 5 A max.	1
	Serial COM interface	2

*) Forced cooling required for high operating temperature range. See TechNotes document for details
**) SATA-based M.2 SSD is shared with SATA port 1; simultaneous use of M.2 2280 module and M.2 2230 module (WLAN/Bluetooth) possible
***) USB3 connector includes separate USB2.0 signal pins (2 channels)
****) COM3 / COM4: RS-232 @ reduced feature set; pin header 2mm pitch; COM3 provides additional support for RS-422 / RS-485; specific device driver for both COM3 / COM4 supported from BIOS R1.6.0

▶ CONNECTOR / SOCKET DIAGRAM

▶ ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3543-S1 mITX	F5120-V151	Intel® Celeron® J4005 Processor (DC/10 W TDP/2.7 GHz)
D3543-S2 mITX	F5120-V152	Intel® Celeron® J4105 Processor (QC/10 W TDP/2.5 GHz)
D3543-S3 mITX	F5120-V153	Intel® Pentium® Silver J5005 Processor (QC/10 W TDP/2.8 GHz)
ACCESSORIES		
CHASSIS KIT	F5000-J5	for Mini-ITX
INTERNAL AC ADAPTER	F5000-P4	12 V/65 W for chassis kit
AC ADAPTER	F5000-P5	19 V/40 W (E622)
AC ADAPTER	F5000-P3	19 V/65 W (E623)
HEATSINK + BACKPLATE	F5000-C9	Active
HEATSINK + BACKPLATE	F5000-C10	Fanless
USB-C REAR EXTENSION CABLE	F5000-K8	USB 3.1/gen1
RISERCARD 1X PCIE X4	F5000-R6	D3318
SERIAL PORT CABLE	F5000-K10	400 mm, fullsize slot bracket