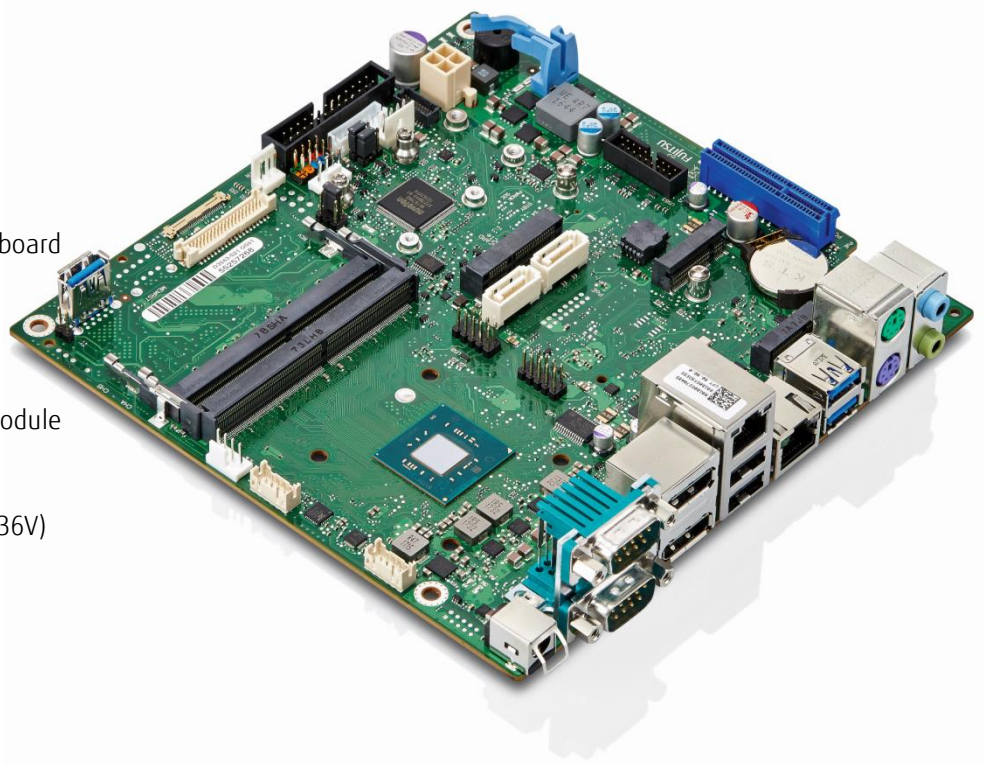
Data Sheet
FUJITSU Mainboard D3543-S Mini-ITX
Industrial Series

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 @2.0GHz / 2.7GHz), integrated Intel® UHD Graphics 600 (12EUs @700MHz)
Intel® Celeron® Processor J4105 (QC @1.5GHz / 2.5GHz), integrated Intel® UHD Graphics 600 (12EUs @750MHz)
Intel® Pentium® Silver Processor J5005 (QC @1.5GHz / 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



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

1) CPU Base Frequency / Burst Frequency 2) Graphics Base Frequency / max. Dynamic Frequency

Memory

2 x SO DIMM Socket (1.2V), max. 24GB,
DDR4 - 2400 (CL17) / 2133 (CL15) SDRAM, unbuffered, non-ECC

Power Specification

External DC Input 8V-36V (5A max. / 100W max.)
Internal DC Input 8V-36V (8A max. / 100W max.)
Onboard SoC and system voltage regulators (high efficiency)

Power Supply Requirements

Source	Voltage Range	Min. PSU Load	Max.Voltage Tolerance	typ. Mainboard Input Power [1]	max. Mainboard Input Power [2]
DC-IN (wide range)	8-36V	0A	± 5 %	5W - 15W	100W

1) Mainboard incl. Memory and M.2 SATA SSD (MS Windows 10 Idle Mode / Full Load)
2) Mainboard incl. Memory, M.2 SATA SSD, any USB Devices, any LVDS / eDP devices, any SATA devices
See TechNotes document for detailed power requirements

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	Independent temperature related processor fan and system fan supervision
	System Guard	View Silent Fan 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 Compliance	Upon request: cTÜVus acc. IEC62368-1
	FCC Compliance	FCC-B verified

Operating Systems	**OS**	**"Runnable"**	**"Tested/Released by Fujitsu"**
	MS Windows 10-64 RS1[1] / RS2[1]	X	--
	MS Windows 10-64 RS3	X	X
	MS Windows 10-64 RS4 / RS5	X	--
	Linux-64	X	basic functional test

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 e**X**tended **L**ife**C**ycle 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 Notes: M.2 (SATA mode only) is shared with SATA port 1 **Simultaneous use** of **M.2 2280** modules and **M.2 2230** (WLAN/Bluetooth) possible!
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 Note: **Simultaneous use** of **M.2 2280** modules and **M.2 2230** (WLAN/Bluetooth) possible!

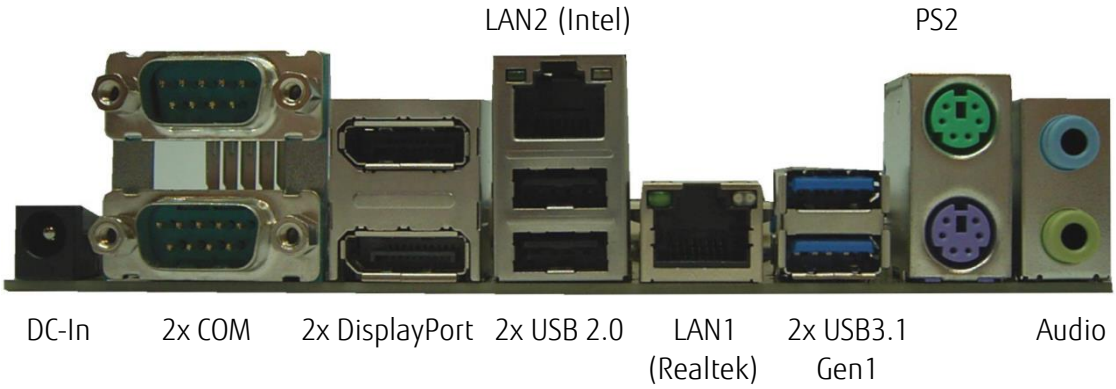
[1] Long-term driver update support for RS1 (LTSB) and RS2 is not guaranteed by Intel

LVDS	LVDS Controller **Realtek RTD2136R** (DisplayPort to LVDS converter)	
Mini-PCIe	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	
Features D3543-S (Mini-ITX)	Chipset	Intel Gemini Lake SoC
	DP V1.2a / 2nd DP V1.2a / LVDS / eDP V1.4 / HDMI / DVI / VGA	✓ / ✓ / ✓ / ✓ / - / - / -
	Buzzer / int. Speaker Support (mono)[2] / 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 D3543-S	COM interface support for RS-232 / RS-485 / RS-422	✓
	Silent Fan / System Guard / Silent Drives	✓ / ✓ / ✓
	Recovery BIOS / Desk Update / Multi Boot	✓ / ✓ / ✓
	HDD Password / EraseDisk[3] / 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)[4]	0°C – 60°C
Internal Connectors D3543-S	SO DIMM Sockets (DDR4 2400)	2
	SATA-600 / M.2 SSD[5] / 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)[6]	1
	Serial COM3 header[7] / Serial COM4 header[7] / 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	1 / - / -
	Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin header)	1
	SATA Drive Power Connector (5V/12V) / DC-In Connector 8-36V (4 pin)	1 / 1
External Connectors D3543-S	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
	Serial COM interface	2

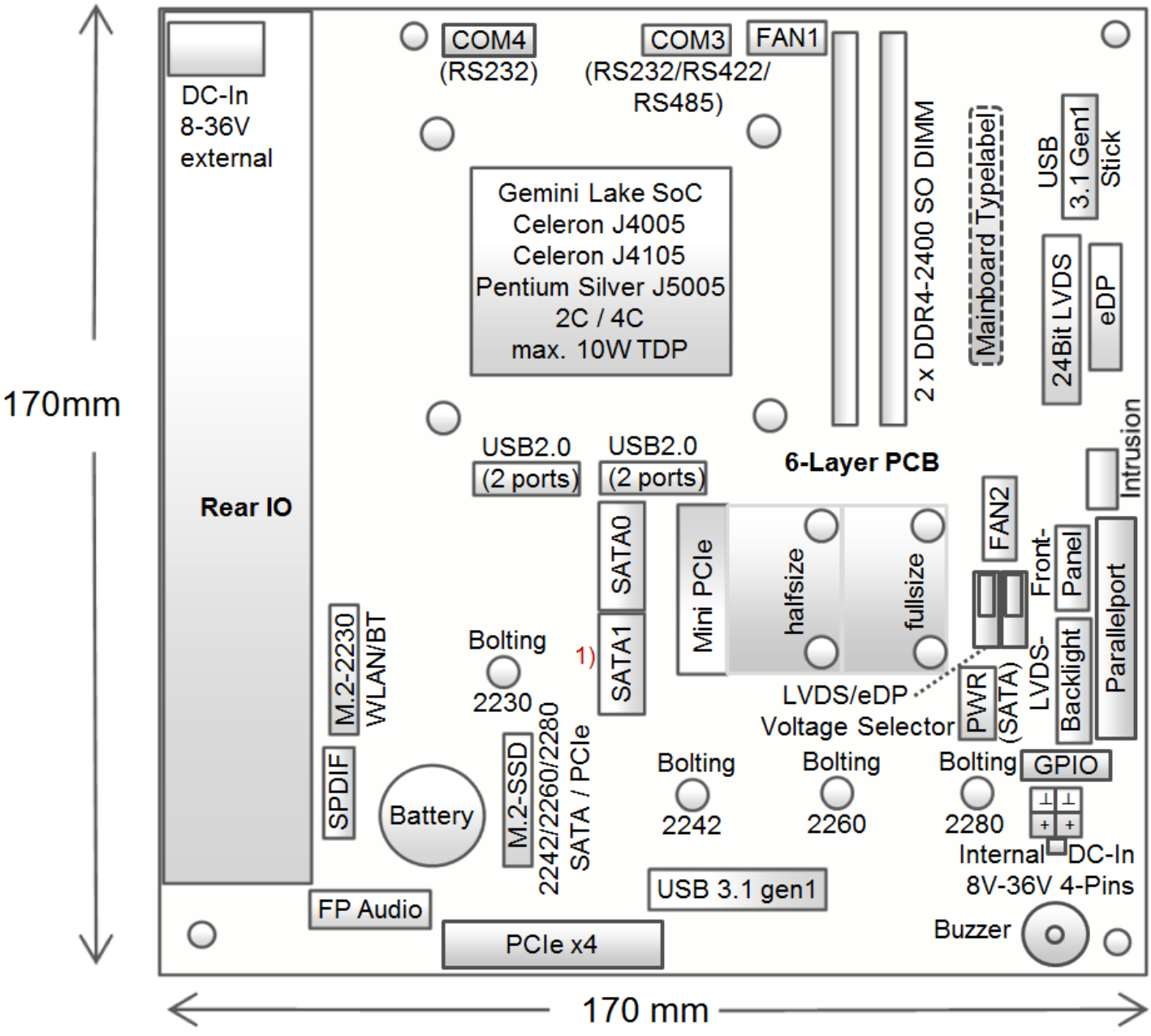
[2] Mono speaker support; max. 2.2W @4Ω / 1.3W @8Ω
[3] BIOS feature; License included
[4] Forced cooling required for high operating temperature range. See upcoming TechNotes document for details
[5] SATA-based M.2 SSD is shared with SATA port 1; simultaneous use of M.2 2280 module and M.2 2230 module (WLAN/Bluetooth) possible
[6] USB3 connector includes separate USB2.0 signal pins (2 channels)
[7] 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
See TechNotes document for details

External Connectors

Rear I/O:

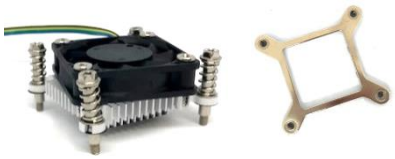
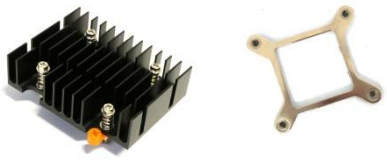


Connector / Socket Diagram



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

Accessories

	(Ordercode)	
Mini-ITX Chassis Kit for D3543-S	F5000-J5	
Internal AC Adapter 12V/65W for chassis kit	F5000-P4	
AC Adapter 19V/40W	F5000-P5 (E622)	
AC Adapter 19V/65W	F5000-P3 (E623)	
Active Heatsink + Backplate	F5000-C9	
Fanless Heatsink + Backplate	F5000-C10	
USB-C Rear Extension Cable (USB 3.1/gen1)	F5000-K8	
Risercard 1x PCIe X4	F5000-R6 (D3318)	
Serial Port Cable (400mm, fullsize slot bracket)	F5000-K10	

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
Address: Diamantlaan 25
2132 WV Hoofddorp
Netherlands

More information

Fujitsu products, solutions & services

Products
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/
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/
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:

Green Policy Innovation

More information

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

Website: http://ts.fujitsu.com
2018-10-17

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