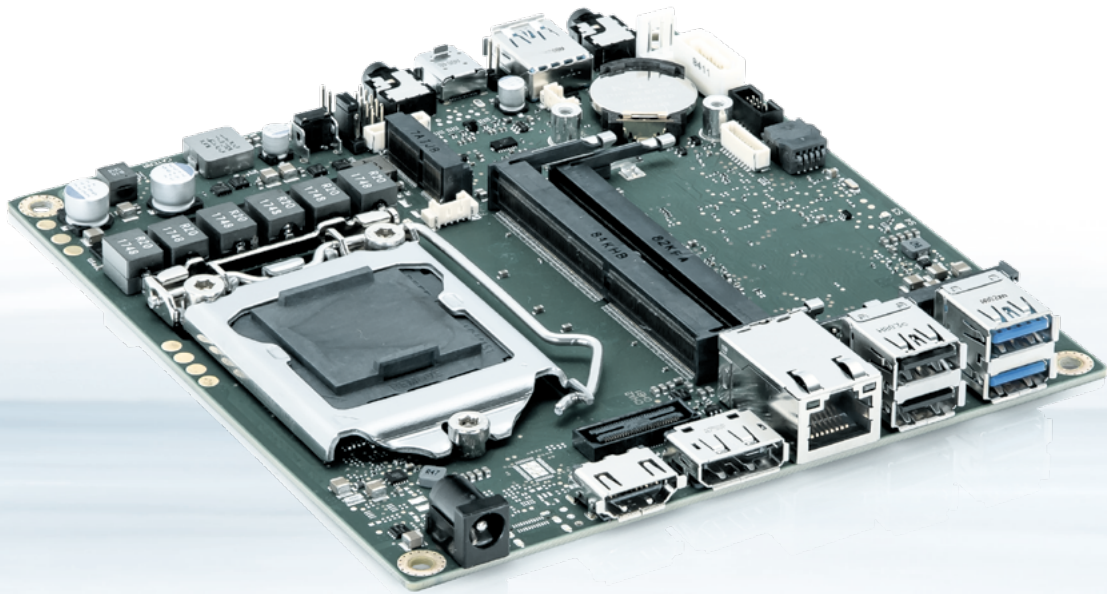


D3654-B mSTX

Extended Lifecycle Series



Intel® H310 Express Chipset and Intel® 8th/9th Gen Core™ i3/i5/i7/i9 Processors

- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ Ultra-small Platform for thin and tiny Box PC's
- ▶ HDMI V1.4 and DP V1.2
- ▶ M.2 SSD & M.2 WLAN Slots onboard
- ▶ HW Watchdog

POSSIBILITIES START HERE



D3654-B mSTX

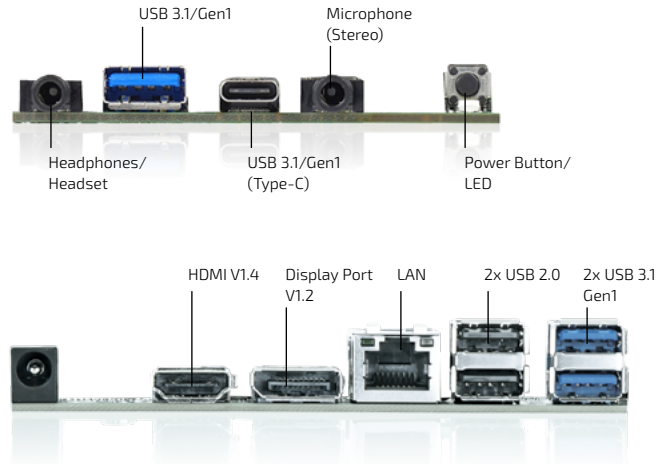
Extended Lifecycle Series

The Extended Lifecycle Motherboard D3654-B mSTX is the innovative and powerful choice for thin and tiny box PCs. It supports all Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processors and the Intel® Pentium®/Intel® Celeron® processors based on the 35 W

TDP models. With the HDMI and Display Port Video outputs the Motherboard D3654-B mSTX is prepared for all office and industrial application needs.

▶ PRODUCT HIGHLIGHTS

- ▶ Intel® 8th/9th Gen Core™ Processor Series
- ▶ DDR4-2666, SDRAM, max. 32 GByte
- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ Intel® HD Graphics (DX12, integrated in processor)
- ▶ HDMI V1.4 and DP V1.2
- ▶ Stereo Audio onboard
- ▶ USB 2.0 and USB 3.1 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 19 V
- ▶ HW Watchdog onboard



▶ TECHNICAL INFORMATION

SYSTEM	PROCESSOR	Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series Intel® Pentium®/Intel® Celeron® processor series Socket LGA1151 – up to 65 W TDP
	CHIPSET	Intel® H310 Chipset
	MEMORY	DDR4-2666, Dual Channel 2 SO-DIMM sockets, up to 32 GByte memory
VIDEO	GRAPHICS	Intel® HD Graphics (depends on installed processor), DX12
AUDIO	AUDIO CODEC	Realtek ALC671
	AUDIO INTERFACE	stereo, High Definition Audio Codec
NETWORK CONNECTION	ETHERNET	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
PERIPHERAL CONNECTION	USB	3x USB 3.1 Gen1, 1x USB 3.1 Gen1 (Type C), 2x USB 2.0, 2x USB 2.0 (by header)
STORAGE & EXPANSION	SATA	1x Serial ATA III 600 Interface (up to 6Gbit/s), NCQ, AHCI, 1x M.2 PCIe (2280, Key-M), 1x M.2 Key-E (2230)
POWER	CONNECTOR	External DC in
	INPUT VOLTAGE	19 V
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 (PCIe x4-based M.2, NVME) BIOS integrated HW Diagnostic Tool, Watchdog Support No legacy OS support, no MBR installation (UEFI only due to Intel restrictions) 3-Level Watchdog (BIOS/BIOS Post/OS HW) Integrated Intel® integrated TPM V2.0
	WATCHDOG	
	REAL TIME CLOCK	
	TPM	

▶ TECHNICAL INFORMATION

SYSTEM CONTROL	FP HEADER SECURITY	1x Header for HDD LED & External Speaker, Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, USB- Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), Intel integrated TPM V2.0
COOLING	FAN	2x PWM fan (CPU/System), 5 V fan supply, specific connector
SOFTWARE	OS SUPPORT	MS Windows 10 Linux-64
MECHANICAL	DIMENSIONS (L x W)	Mini-STX: 5.5" x 5.8" (140 x 148 mm)
CERTIFICATION	EMC & SAFETY	FCC-B verified cTUVus acc. IEC62368-1 (upon request), CE Class B

▶ POWER SUPPLY REQUIREMENTS

SOURCE*	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MAX. MOTHERBOARD INPUT POWER
External connector	19 V	0 A	+10% / -15%	max. 5 A max. 95 W*

*) See TechNotes document for details

▶ TECHNICAL INFORMATION

FEATURES	Chipset Board Size DP V1.2 / 2nd 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	iH310 Mini-STX + / - / - / + / - - / + / + + / + / + / + / + - / - / - + / - / + / - / + + / + / - - / + / + / - + / + / -
SPECIAL FEATURES	Silent Fan / System Guard / cTDP Recovery BIOS / Desk Update / Multi Boot HDD Password / EraseDisk* / TPM V2.0 Logo Boot Option 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) Motherboard operating temperature range (chassis inside)**	+ / + / + + / + / + + / + / + + + + / + / + + / - 10 °C – 50 °C
INTERNAL CONNECTORS	SO DIMM Sockets (DDR4-2666) SATA-600 / mSATA / M.2 SSD 2280 (Key-M, PCIe/NVME) M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth) Front Panel Audio (9-Pin, HD Audio) USB 2.0 channels / USB 3.1 Gen1 / USB 3.1 Gen2 / USB Stick Serial (COM1, RS232) / Parallel Port Connector LVDS / LVDS Backlight / Embedded DisplayPort FAN PSU / CPU (PWM) / AUX1 (PWM) / AUX2*** Intrusion (Case Open) / GPIO (8Bit) / SMBus (Case Temp.) Internal Mono Speaker header / DMIC header (digital microphone) Front Panel (Power, LEDs, Intel 10 pin header, 2mm pitch)**** Onboard 3-pin SATA Drive Power Connector (5 V) Onboard (internal) DC-In Connector	2 1 / - / 1 1 - 2 / - / - / - - / - - / - / - 0 / 1 / 1 / 0 - / - / - 1 / - 1 1 - / -
EXTERNAL CONNECTORS	DVI-I / DVI-D / DisplayPort V1.2 / HDMI V1.4***** Audio Stereo Mic. In / Headphones (Headset) [Front Connectors] LAN (RJ-45) PS/2 Mouse / Keyboard USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 USB 3.1 Gen1 / USB 3.1Gen1-Type C [Front Connectors] DC-In connector (external input) 19 V @ 5 A max.	- / - / 1 / 1 1 / 1 1 - / - 2 / 2 / 0 1 / 1 1

*) For factory shipments from 05/2019

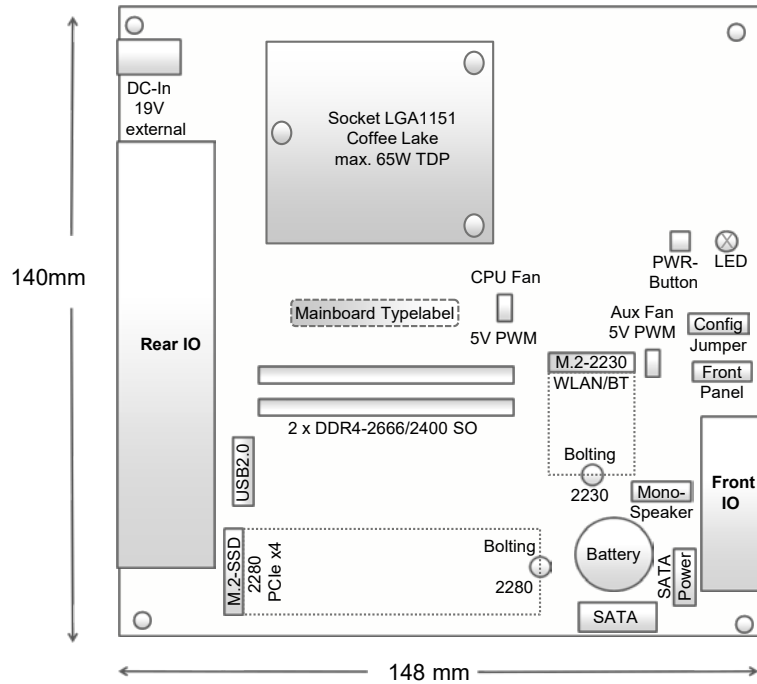
***) Forced cooling required, see technical documentation for details

****) PWM Fans; specific fan connector required; 5V operating voltage!

*****) RESET feature not supported!

*****) Mainboard is prepared to support HDMI-CEC via 3rd party CEC module (appropriate cabling required)

CONNECTOR / SOCKET DIAGRAM



ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3654-B mSTX	F5120-V172	Intel® 8th/9th Gen Core™ Processor Series, Intel® H310 Chipset
ACCESSORIES		
CHASSIS KIT INCL. COOLING SOLUTION	F5000-J010	SMARTCASE™ S520
HEATSINK	F5000-C012	Specific heatpipe-cooler with fan for SMARTCASE™ S520
AC ADAPTER 19 V	F5000-P006	19 V/3.4 A, 65 W
VESA MOUNT KIT	F5000-X002	Suitable for SMARTCASE™ S500, S520
INTERNAL SPEAKER KIT	F5000-K009	Mono Speaker + Mounting Rubber
WALL MOUNT BRACKETS	F5000-X001	Suitable for SMARTCASE™ S500, S520, 2x Brackets per chassis incl. screws
DC-IN CONNECTOR LOCK	F5000-X003	Suitable for SMARTCASE™ S500, S520
DUAL WLAN ANTENNA KIT	F5000-W002	M.2 2230 WLAN module Intel® 9260 NON VPRO, left (grey)/right (black) Antenna (incl. cable)
SATA DATA/POWER CABLE	F5000-K012	For optional 2.5" drive

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