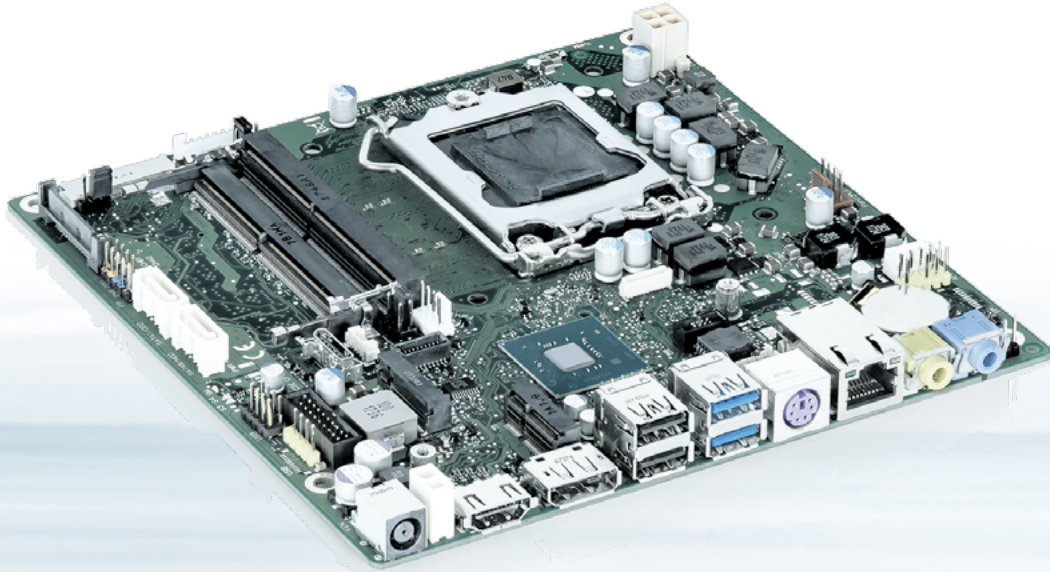


D3674-B Thin mITX

Extended Lifecycle Series



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

- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ Intel® HD Graphics (DX12, integrated in processor)
- ▶ HDMI V1.4, DP V1.2 and Dual Channel LVDS support
- ▶ 8 Bit GPIO

POSSIBILITIES START HERE



D3674-B Thin mITX Extended Lifecycle Series

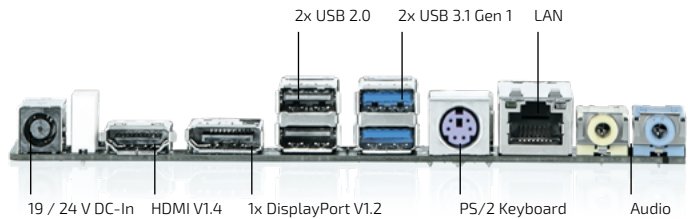
The Extended Lifecycle Motherboard D3674-B Thin mITX provides the highest performance and functionality for demanding requirements on a small and ultra thin form factor. It supports the Intel® Core™ i9/i7/i5/i3 – (8th/9th Gen) processor series as well as

the Intel® Pentium®/Intel® Celeron® processor series. Despite the limited space on this motherboard, the D3674-B is equipped with connectors for HDMI V1.4, Display Port V1.2, Dual Channel LVDS, LAN and 9x USB (2.0 and 3.1 Gen1).

▶ PRODUCT HIGHLIGHTS

- ▶ Intel® 8th/9th Gen Core™ i processor series
- ▶ DDR4 2666 SDRAM memory capacity up to 32GB
- ▶ cTDP – Easy & flexible reduction of CPU TDP
- ▶ Intel® HD Graphics (DX12, integrated in processor)
- ▶ HDMI V1.4, DP V1.2 and Dual Channel LVDS support
- ▶ 8 Bit GPIO & multichannel 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
- ▶ Dual-Range DC Power Supply 12 V/19-24 V

- ▶ HW Watchdog onboard
- ▶ Motherboard operating temperature range (chassis inside)
10 °C - 50 °C



▶ TECHNICAL INFORMATION

SYSTEM	PROCESSOR	Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series* Intel® Pentium®/Intel Celeron® processor series Socket LGA1151, max. 65 W TDP (For details on supported processors please refer to Kontron FTP Server)
	CHIPSET MEMORY	Intel® H310 Express Chipset 2x SO DIMM Socket (1.2 V), max. 32 GByte, Dual Channel, DDR4 - 2666 (CL19)/DDR4 - 2400 (CL17) SDRAM, unbuffered, non-ECC Effective memory speed depends on installed processor
VIDEO	GRAPHICS	Intel® HD Graphics (depends on installed processor), DX12 1x DisplayPort V1.2 1x HDMI V1.4, Dual-Channel 24bit LVDS Max. 2 independent displays
AUDIO	AUDIO CODEC AUDIO INTERFACE	Realtek ALC255 5.1-channel, High Definition Audio Codec, 2W@40hm stereo speaker support Line-In / Line-Out Front panel audio (by header)
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	2x USB 2.0 + 3x USB 2.0 (by header)
	SERIAL PORT OTHER I/Os	2x USB 3.1 Gen1 + 2x USB 3.1 Gen1 (by header) 1x RS232 (by header) 1x 8-bit GPIO (by header) + PS/2 Keyboard
STORAGE & EXPANSION	SATA	1x M.2 2230-Key E (WLAN/Bluetooth) 1x M.2 2280-Key M (PCIe Storage) 2x SATA-600
POWER	INPUT VOLTAGE	External DC-in: 19-24 V Internal DC-in: 12 V/19-24 V

* Appropriate BIOS version supporting CoffeeLake-Refresh processors required

TECHNICAL INFORMATION

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 BIOS POST-/BIOS BOOT-/OS-HW Watchdog Integrated Intel Integrated TPM V2.0 (Infineon TPM module optional)
SYSTEM CONTROL & MONITORING	WATCHDOG REAL TIME CLOCK TPM	
	FP HEADER SECURITY	1x Front Panel header (Power Button, Reset Button, Power LED, HDD LED) 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, optional Infineon TPM module (TCG compliant, socket prepared)
COOLING	FAN	1x CPU-Fan (4Pin-Header, PWM) 1x System-Fan (4Pin-Header, PWM)
SOFTWARE	OS SUPPORT	MS Windows 10 Linux-64 Important Note: Legacy OS/MBR installation (DOS, MS Windows 7, ...) is not supported
MECHANICAL	DIMENSIONS (L x W)	Thin mITX: 6.7" x 6.7" (170 x 170 mm)
CERTIFICATION	EMC & SAFETY	CE Class B, FCC-B verified Safety Testreport acc. EN 62368-1
SPECIAL FEATURES	CTDP SILENT FAN SYSTEM GUARD RECOVERY BIOS DESK UPDATE MULTI BOOT HDD PASSWORD ALWAYS ON NEVER OFF CSA / UL COMPLIANCE FCC COMPLIANCE	Easy and flexible reduction of CPU TDP (BIOS Setup) down to 10W TDP Independent temperature related processor fan and system fan supervision View Silent Fan features Restores a corrupted BIOS Simple driver update with Driver & Utilities DVD Comfortable boot from any boot device Access protection for disk drives Reliable power-on whenever voltage is connected Option to prevent the system from being shut down Upon request: cTÜVus acc. IEC62368-1 FCC-B verified

POWER SUPPLY REQUIREMENTS

SOURCE	VOLTAGE	MIN. PS LOAD	MAX. VOLTAGE TOLERANCE	MOTHERBOARD CAPACITIVE LOAD	MOTHERBOARD MAX. CURRENT
External connector	19-24 V	0 A	+ 10%/- 15%	200 µF	max. 10 A max. 130 W**
Internal (2 pin) connector	19-24 V	0 A	+ 10%/- 15%	200 µF	max. 8 A max. 130 W**
Internal (4 pin) connector	+ 12 V	0 A	± 5 %	1.500 µF	max. 12 A max. 144 W

For onboard components (worst case incl. processor, memory and any attached internal and external devices like M.2 devices, SATA devices, LVDS panels, USB devices).

** LVDS backlight (19/24V) not included in 130W limit. See TechNotes document for further details.
Possible surge current (CPU Turbo mode) must be considered for system design!

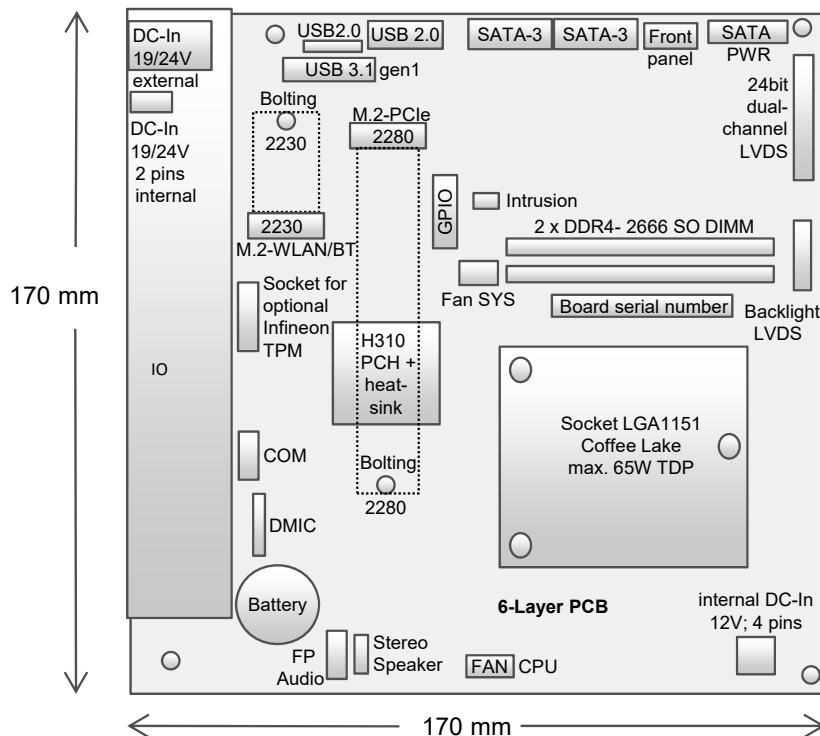
TECHNICAL INFORMATION

FEATURES	Chipset Board Size DP V1.2 / 2nd DP V1.2 / LVDS / HDMI 1.4 / eDP Buzzer / int. Speaker Support (stereo) / 5.1 Multichannel 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 Thin Mini-ITX + / - / + / + / - - / + / + + / + / + / + / + - / - / - + / - / + / - / + + / + / - - / + / + / - + / + / -
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) Mainboard 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) Frontpanel Audio (9-Pin, HD Audio) USB 2.0 channels / USB 3.1 Gen1 channels / 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 Stereo Speakers header / DMIC header (digital microphone) Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin header) Onboard SATA Drive Power Connector Onboard (internal) DC-In Connector 12 V (4 pin) / 19-24 V (2 pin)	2 2 / - / 1 1 1 3 / 2 / - / - 1 / - 1 / 1 / - 0 / 1 / 1 / 0 1 / 1 / - 1 / 1 1 1 1 1 / 1
EXTERNAL CONNECTORS	DVI-I / DVI-D / DisplayPort V1.2 / HDMI V1.4 Audio Mic. In / Line in / Line out (or driver configuration) LAN (RJ-45) PS/2 Mouse / Keyboard USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2 DC-In connector (external input) 19-24V @ 10A max.	- / - / 1 / 1 - / 1 / 1 1 - / + 2 / 2 / 0 1

*) Planned for factory shipments from 06/2019

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

CONNECTOR / SOCKET DIAGRAM



▶ ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
D3674-B Thin mITX	F5120-V168	Intel® 8th/9th Gen Core™ i3/i5/i7/i9 Processors, Intel® H310 Chipset, 24/7 continuous operation @ 50 °C
ACCESSORIES		
ACTIVE HEATSINK + BACKPLATE	F5000-C11	35 W TDP
COM1 EXTENSION CABLE	F5000-K7	120 mm, w/o slot bracket
COM1 EXTENSION CABLE	F5000-K10	400 mm, fullsize slot bracket

▶ GLOBAL HEADQUARTERS

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