

CEX – D3674-B Thin mITX

Intel® H310 Express Chipset supporting

8th/9th Gen Core™ i3/i5/i7/i9 Processors



• Features

- 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

Specifications

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
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	Realtek ALC255
Audio Interface	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) 2x USB 3.1 Gen1 + 2x USB 3.1 Gen1 (by header)
Serial Port	1x RS232 (by header)
Other I/Os	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
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 and PCIe Configuration, BIOS Support for S.M.A.R.T., Advanced Power Management, ACPI S3/S4, Wake on time from S5. HW Watchdog support & BIOS integrated HW Diagnostic Tool. No legacy OS support, no MBR installation (UEFI only due to Intel restrictions)
Watchdog	BIOS POST-/BIOS BOOT-/OS-HW Watchdog
Real Time Clock	Integrated
TPM	Intel Integrated TPM V2.0 (Infineon TPM module optional)
System Control	
FP HEADER	1x Header for Reset button, HDD LED, Power button, Power LED
Security	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)	Mini-ITX: 6.7" x 6.7" (170 x 170 mm)
Certifications	
EMC & Safety	CE Class B, FCC-B verified Safety Testreport acc. EN 62368-1
Special Features	
CTDP SILENT FAN	Easy and flexible reduction of CPU TDP (BIOS Setup) down to 10W TDP Independent temperature related processor fan and system fan supervision

SYSTEM GUARD RECOVERY BIOS DESK UPDATE MULTI BOOT HDD PASSWORD ALWAYS ON NEVER OFF CSA / UL COMPLIANCE FCC COMPLIANCE	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
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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

** LVDS backlight (19/24V) not included in 130W limit

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 BIOS POST- / BIOS Boot- / OS HW Watchdog 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) 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
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		