D3664-B mSTX
Extended Lifecycle Series

Intel® Q370 Express Chipset and Intel® 8th/9th Gen Core™ i3/i5/i7/i9 Processors

- cTDP – Easy & flexible reduction of CPU TDP
- Ultra-small Platform supporting Intel® AMT 12.0
- HDMI V1.4 and DP V1.2
- M.2 SSD & M.2 WLAN Slots onboard
- Powerful USB 3.1 Gen2
D3664-B mSTX
Extended Lifecycle Series

The Motherboard D3664-B comes in Mini-STX format and features the powerful Intel® Q370 express chipset as well as DDR4-2666 SDRAM Memory and Intel® 8th/9th Gen Core™ i9/i7/i5/i3 processor series. The motherboard has been designed for 24/7 operation at temperatures of up to 50 °C and is ideal for complex applications with semi-industrial needs and compact applications like POS.

Besides a variety of connectivity options and interfaces like USB 3.1 Gen2, SATA III for SSDs and HDDs as well as HDMI and DisplayPort 1.2 the motherboard offers a wide range of special features like highly efficient power supply and three-stage hardware watchdog.

PRODUCT HIGHLIGHTS

- Intel® 8th/9th Gen Core™ Processor Series
- DDR4-2666 SDRAM, max. 32 GByte
- cTDP – Easy & Flexible reduction of CPU TDP
- Supporting Intel® AMT 12.0
- Intel® HD Graphics (DX12, integrated in processor)
- HDMI V1.4 and DP V1.2
- Stereo Audio onboard
- USB 2.0, USB3.1 Gen1/Gen2 onboard & USB Type-C (DP Alt Mode)
- Onboard support for M.2 SSD (PCIe x4 based M.2 2280)
- Onboard support for M.2 WLAN/Bluetooth (M.2 2230)
- Intel® 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  
|               | CHIPSET   | Socket LGA1151 – up to 65 W TDP  
|               | MEMORY    | Intel® Q370 Chipset  
|               | VIDEO     | DDR4-2666, Dual Channel 2 x DIMM sockets, up to 32 GByte memory  
| AUDIO         | GRAPHICS  | Intel® HD Graphics (depends on installed processor), DX12  
|               | AUDIO CODEC | Realtek ALC671  
| NETWORK CONN   | AUDIO INTERFACE | stereo, High Definition Audio Codec  
| PERIPHERAL     | ETHERNET  | Intel® i219LM with 10/100/1000 MBit/s, iAMT12  
| CONNECTION     |           | Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE support, BIOS MAC Address Display  
| STORAGE & EXP  | USB       | 3x USB 3.1 Gen1, 2x USB 3.1 Gen1 Type C, 2x USB 3.1 Gen2, 2x USB 2.0 (by header)  
| EXPANSION      | SATA      | 1x Serial ATA III 600 Interface (up to 6GBit/s), NCQ, AHCI  
|               | POWER     | 1x M.2 PCIe (2280, Key-M), 1x M.2 Key-e (2230)  
| FIRMWARE       | CONNECTOR | External DC-in  
|               | INPUT VOLTAGE | 19 V  
|               | 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  
|               | WATCHDOG  | No legacy OS support, no MBR installation  
|               | REAL TIME CLOCK | 3 level Watchdog (BIOS/BIOS Post/OS HW) integrated  
|               | TPM       | Intel® Integrated TPM V2.0  

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**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

### MECHANICAL
**DIMENSIONS (L x W)**
Mini-STX: 5.5” x 5.8” (140 x 148 mm)

### CERTIFICATION
**EMC & SAFETY**
FCC-B verified
c TÜVus acc. IEC62368-1 (upon request); CE Class B

### POWER SUPPLY REQUIREMENTS

<table>
<thead>
<tr>
<th>SOURCE*</th>
<th>VOLTAGE</th>
<th>MIN. PS LOAD</th>
<th>MAX. VOLTAGE TOLERANCE</th>
<th>MAX. MOTHERBOARD INPUT POWER</th>
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</thead>
<tbody>
<tr>
<td>External DC-In connector</td>
<td>19 V</td>
<td>0 A</td>
<td>+10% / ~15%</td>
<td>max. 5 A max. 95 W*</td>
</tr>
</tbody>
</table>

* See TechNotes document for details

### TECHNICAL INFORMATION

#### FEATURES
- Chipset: iQ370
- Board Size: Mini-STX
- DP V1.2 / 2nd DP V1.2 / LVDS / HDMI 1.4 / eDP / USB-C (DP V1.2)
- 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
- TEMP monitored CPU / onboard sensors / external sensor
- **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- / DS- 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 (BBi) / 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

#### 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 Gen-Type C (DP)******
- USB 3.1 Gen1 / USB 3.1 Gen-Type C [Front Connectors]
- DC-In connector (external input) 19 V @ 5 A max.

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* TXT (Trusted Execution Technology) not supported!
** 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)
******* Supports DisplayPort - Alternate Mode
## CONNECTOR / SOCKET DIAGRAM

![Diagram showing internal components and connectivity of the system](image)

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>ARTICLE</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>D3654-B mSTX</td>
<td>F5120-V175</td>
<td>Intel® 8th/9th Gen Core™ Processor Series, Intel® Q370 Chipset</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

- **CHASSIS KIT INCL. COOLING SOLUTION**
  - F5000-J010 SMARTCASE™ SS20

- **HEATSINK**
  - F5000-C012 Specific heatpipe-cooler with fan for SMARTCASE™ SS20

- **AC ADAPTER 19 V**
  - F5000-P006 19 V/3.4 A, 65 W

- **VESPA MOUNT KIT**
  - F5000-X002 Suitable for SMARTCASE™ SS500, SS20

- **INTERNAL SPEAKER KIT**
  - F5000-K009 Mono Speaker + Mounting Rubber

- **WALL MOUNT BRACKETS**
  - F5000-X001 Suitable for SMARTCASE™ SS500, SS20, 2x Brackets per chassis incl. screws

- **DC-IN CONNECTOR LOCK**
  - F5000-X003 Suitable for SMARTCASE™ SS500, SS20

- **DUAL WLAN ANTENNA KIT**
  - F5000-W002 M.2 2230 WLAN module Intel® 9260 NDN VPRO, left (grey)/right (black) Antenna (incl. cable)

- **SATA DATA/POWER CABLE**
  - F5000-K012 For optional 2.5" drive

## GLOBAL HEADQUARTERS

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