D3642-B μATX
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
- Supporting Intel® AMT 12.0/vPro
- 6x SATA/RAID
- M.2 SSD & M.2 WLAN Slots onboard
- Powerful USB 3.1 Gen2
D3642-B µATX
Extended Lifecycle Series

The Motherboard D3642-B µATX of the Extended Lifecycle Series is the optimal solution for demanding applications in semi-industrial environments. It is featured by the Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series as well as the Intel® Pentium®/Intel® Celeron® processor series. The D3642-B µATX is also equipped with extension slots for PCIe and M.2 and connectors like USB 3.1 Gen3, DVI-D and Display Port.

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### PRODUCT HIGHLIGHTS
- Intel® B8th/9th Gen Core™ Processor Series
- DDR4 2666 SDRAM, max. 64 GB\text{byte}
- cTDP – Easy & flexible reduction of CPU TDP
- Supporting Intel® AMT 12.0/vPro
- PCI Express® x16 (Gen.3)
- Intel® GbE LAN
- Intel® UHD Graphics (DX12)
- 1x DVI-D, 2x DP V1.2
- Intel® High Definition 5.1 Audio; Infineon TPM V2.0
- 1x COM port
- 4x USB 2.0, 6x USB 3.1 Gen1, 2x USB 3.1 Gen2, 1x USB 3.1 Gen2 stick socket
- 6x SATA 6G/s incl. RAID support
- M.2 2280 (PCIe-based SSD modules)
- M.2 2230 (WLAN/Bluetooth modules)
- BIOS-POST/-Boot & OS – HW Watchdog onboard

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### TECHNICAL INFORMATION

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>PROCESSOR</th>
<th>Intel® Core™ i9/i7/i5/i3 (8th/9th Gen) processor series</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHIPSET</td>
<td>Intel® Q370 Express Chipset</td>
</tr>
<tr>
<td></td>
<td>MEMORY</td>
<td>4 DIMM Sockets DDR4-2666 (1.2 V), max. 64 GB\text{byte}, Dual Channel DDR4 -2666 (CL19)/-2400 (CL17)/-2133 (CL15) SDRAM, unbuffered, non-ECC</td>
</tr>
<tr>
<td></td>
<td>VIDEO</td>
<td>Intel® UHD Graphics (depends on installed processor), DX12</td>
</tr>
<tr>
<td></td>
<td>AUDIO</td>
<td>Realtek ALC671</td>
</tr>
<tr>
<td></td>
<td>NETWORK</td>
<td>Intel® GbE LAN</td>
</tr>
<tr>
<td></td>
<td>AUDIO CODEC</td>
<td>Intel I219LM with 10/100/1000 MB\text{it/s}</td>
</tr>
<tr>
<td></td>
<td>INTERFACE</td>
<td>Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet\text{™}, PXE Support, BIOS MAC Address Display</td>
</tr>
<tr>
<td></td>
<td>STORAGE</td>
<td>6x Serial ATA II 600 Interface (up to 6G\text{Bit/s}), NCQ, AHCI, RAID 0, 1, 5, 10, 6x SATA 6G/s incl. RAID support</td>
</tr>
<tr>
<td></td>
<td>EXPANSION</td>
<td>PCIe x16: 1x Gen3 “open”/1x Gen1 “closed”</td>
</tr>
<tr>
<td></td>
<td>POWER</td>
<td>ATX-2x Pin or ATX-20 Pin + 4 Pin (12 V) Power Connector required 12 V and 3.3 V Supply Voltage on PCIe Slots</td>
</tr>
<tr>
<td></td>
<td>FIRMWARE</td>
<td>AMI Aptio 5.x (UEFI) BIOS modified and adapted by Fujitsu Technology Solutions; Recovery BIOS, SM-BIOS (DMI), BIOS and CPU Microcode Upgrade, Quick Boot, Logo Boot, Quiet Boot, Plug &amp; 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 &amp; BIOS integrated HW Diagnostic Tool. No legacy OS support, no MBR installation (UEFI only due to Intel restrictions) Recovery BIOS, System and BIOS Password, Boot Sequence Control integrated</td>
</tr>
</tbody>
</table>

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**Watchdog**
- **REAL TIME CLOCK**
- **TPM**

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## TECHNICAL INFORMATION

### SYSTEM CONTROL
- FP HEADER: 1x Header for Reset button, HDD LED & External Speaker
- SECURITY: 1x Header for Power button, Power LED

### SOFTWARE
- OS SUPPORT: MS Windows 10

### MECHANICAL
- DIMENSIONS (L x W): µATX: 9.6” x 9.6” (243.8 x 243.8 mm)

### ENVIRONMENTAL
- OPERATION TEMPERATURE: 10 °C - 50 °C

### CERTIFICATION
- EMC & SAFETY: cTUVus acc. IEC62368-1, CE Class B Industrial Immunity, FCC-B verified

### POWER SUPPLY REQUIREMENTS

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>VOLTAGE</th>
<th>MIN. PS LOAD</th>
<th>MAX. VOLTAGE TOLERANCE</th>
<th>MOTHERBOARD CAPACITIVE LOAD</th>
<th>MOTHERBOARD MAX. CURRENT (continous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Power Supply</td>
<td>+ 12 V</td>
<td>0.05 A</td>
<td>± 5 %</td>
<td>5.000 µF</td>
<td>10 A / 18 A*</td>
</tr>
<tr>
<td></td>
<td>- 12 V</td>
<td>0 A</td>
<td>± 10 %</td>
<td>470 µF</td>
<td>0.3 A</td>
</tr>
<tr>
<td></td>
<td>+ 5 V</td>
<td>0.2 A</td>
<td>± 5 %</td>
<td>3.000 µF</td>
<td>6.0 A</td>
</tr>
<tr>
<td></td>
<td>+ 3.3 V</td>
<td>0 A</td>
<td>± 5 %</td>
<td>3.000 µF</td>
<td>0.5 A</td>
</tr>
<tr>
<td>Aux</td>
<td>+ 5 Vaux</td>
<td>0 A</td>
<td>± 5 % / – 3 %</td>
<td>3.000 µF</td>
<td>2.5 A</td>
</tr>
</tbody>
</table>

*) Processor 95W TDP: Max. Cont. Current = 10 A; max. Surge Current = 16 A (< 100ms) / 18 A (< 10ms)
Processor 65W TDP: Max. Cont. Current = 7 A; max. Surge Current = 14 A (< 100ms) / 18 A (< 10ms)
Processor 35W TDP: Max. Cont. Current = 4 A; max. Surge Current = 10 A (< 100ms) / 14 A (< 10ms)

### CONNECTOR / SOCKET DIAGRAM

[Diagram showing the connector and socket details]
TECHNICAL INFORMATION

FEATURES

- Board Size / Chipset: μATX / Q370
- VGA*: DVI-I / DVI-D / DP/V1.2 / 2nd DP/V1.2 / LVDS
- Stereo Audio / 3.1 Multichannel Audio / Front Panel Audio
- Buzzer / Int. Speaker Support (mono)
- LAN Gbit / 100 Mbit / 10 Mbit / WoL / LAN Boot
- AMT 12.0 vPro / Intel Standard Manageability / DASH V1.1
- SATA / SATA RAID / eSATA Support / mSATA / M.2 SSD (PCIe)
- USB 2.0 / USB 3.1 Gen1 / USB 3.1 Gen2
- FAN controlled & monitored PSU**, CPU / AUX1 / AUX2 / AUX3
- TEMP monitored CPU / Onboard Sensors / External Sensor

SPECIAL FEATURES

- Silent Fan / System Guard / CDP
- Recovery BIOS / Desk Update / Multi Boot
- HDD Password / EraseDisk*** / TPM V2.0
- BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog
- Logo Boot Option
- High Efficiency Core Voltage Regulator Design
- Operating Mode 24-7 / 8-5 (hrs per day - days per week)
- Motherboard operating temperature range (chassis inside)****

INTERNAL CONNECTORS

- D1MM Sockets (DDR4 2666MHz)
- PCI Express® x1:16lanes-gen3 / PCI Express® x1:4lanes-gen3
- PCI Express® x1: gen3-“open” / PCI Express® x1: gen3-1lane-“closed”
- PCI Slots (32 Bit, 33 MHz, Rev. 2.3) / Mini-PCIe
- SATA-600 / mSATA / M.2 SSD 2280 (Key-M, PCIe/NVME)
- M.2 2230 (Key-E, PCIe & USB2.0 for WLAN/Bluetooth)
- S/PDIF (digital Audio) OUT / IN
- Front Panel Audio (9-Pin, HD Audio)
- USB 2.0 / USB 3.1 (Gen1) / USB 3.1 (Gen2) / USB 3.1 (Gen2) Stick*****
- FAN PSU / CPU / AUX1 / AUX2 / AUX3
- Intrusion (Case Open) / GPIO (8Bit) / SM-Bus (Case Temp.)
- Serial (COM1, RS-232) / Parallel Port Pin Header
- Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin compatible)
- ATX Power Supply (24 pin + 4 pin) / 12 V-only Power Supply

EXTERNAL CONNECTORS

- VGA Sub D2 / DVI-I / DVI-D / DisplayPort V1.2
- 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)
- Serial (COM1, RS-232) / Parallel (EPP/ECP)

SPECIAL FEATURES

- Silent Fan / System Guard / CDP
- Recovery BIOS / Desk Update / Multi Boot
- HDD Password / EraseDisk*** / TPM V2.0
- BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog
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- High Efficiency Core Voltage Regulator Design
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* VGA output possible via optional VGA extension card D3653-A
** Not supported by standard Power Supplies
*** Planned for factory shipments from 05/2019
**** Forced cooling required, see technical documentation for details
***** Each internal USB connector (pin header) provides two USB ports (except for USB stick socket)

ORDERING INFORMATION

ARTICLE PART NO. DESCRIPTION

D3642-B μATX F5110-V161 Intel® 8th/9th Gen Core™ Processor Series, Intel® Q370 Chipset

ACCESSORIES

VGA EXTENSION CARD F5000-R9 D3653-A
M.2 CARRIER BOARD F5000-M1 D3532-A1

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