

# mITX-SKL-S

## EXTENDED TEMPERATURE SUPPORT

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### MINI-ITX INDUSTRIAL MOTHERBOARD WITH 6TH GEN INTEL® CORE™ / CELERON® S-SERIES PROCESSORS

- ▶ 1x LVDS / 1x VGA, 2x DP, 1x DVI-D for display output
- ▶ 2x GbE LAN for Ethernet
- ▶ Up to 6x USB 3.0, up to 6x USB 2.0, 3x RS232/422/485, 3x RS232, 8-bit DIO
- ▶ 4x SATA 3.0, up to 2x mSATA for storage
- ▶ Up to 2x mPCIe, 1x PCIe x16 for expansion

# mITX-SKL-5

## MINI-ITX INDUSTRIAL MOTHERBOARD WITH 6TH GEN INTEL® CORE™ / CELERON® S-SERIES PROCESSORS

mITX-SKL-5 is a Mini-ITX industrial motherboard equipped with 6th Generation Intel® Core™ / Celeron® S-Series Processors. It delivers greatly improved graphics performance, power efficiency and wireless connectivity in comparison with the models powered by the previous generation processors.

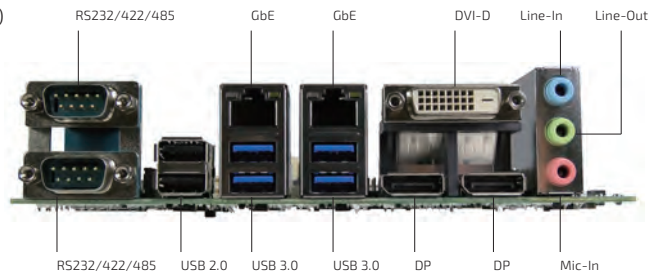
GbE LAN for display support, peripheral applications and wired networking. It has a variety of expansion slots / sockets for wireless, storage or other function expansion, including PCIe x16, mPCIe, SATA 3.0 and mSATA slots / sockets.

In addition, the mITX-SKL-5 features 1x DVI-D, 2x DP, 1x VGA / 1x LVDS, up to 6x USB 3.0, up to 6x USB 2.0, 6x COM, 8-bit DIO and 2x

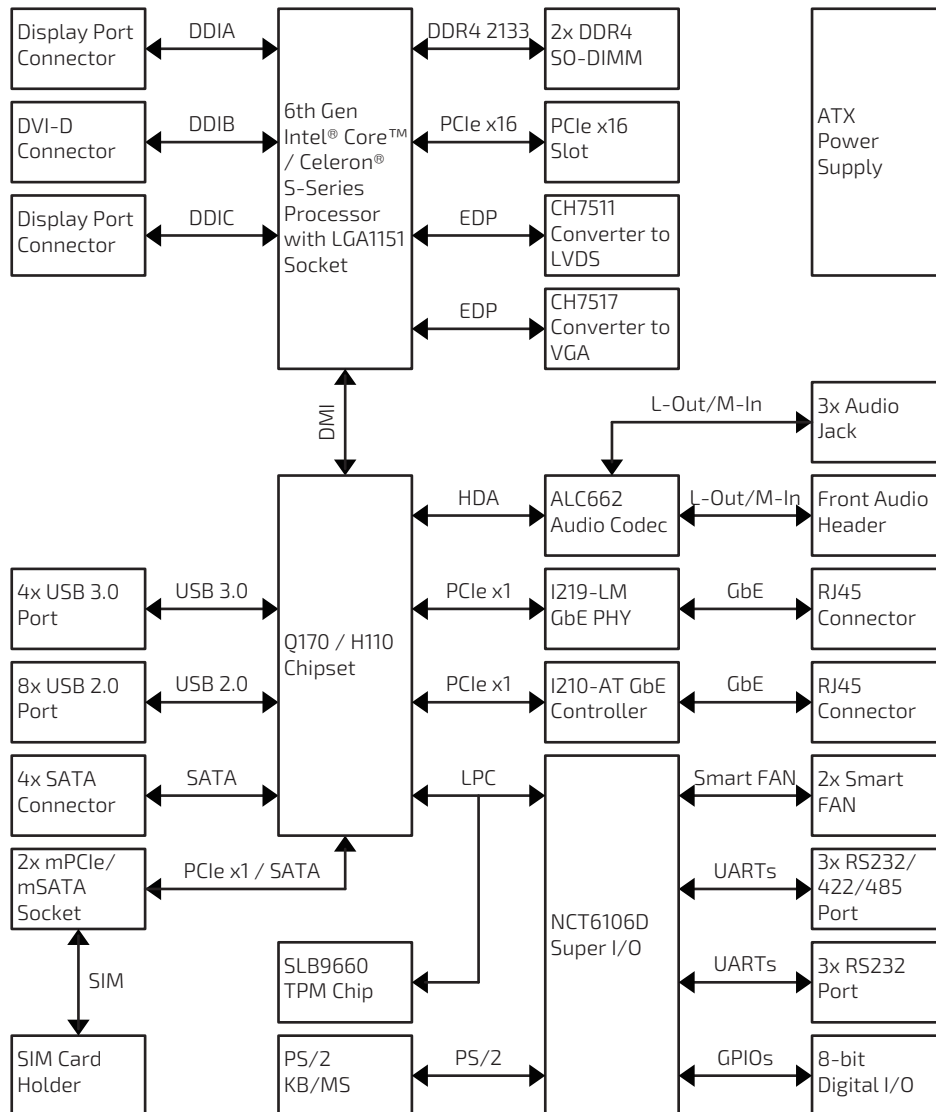
Finally, an extended temperature model is offered, allowing operation under extreme high, low or radically fluctuating temperatures, which is common in industrial environments.

### ▶ PRODUCT HIGHLIGHTS

- ▶ 6th Gen Intel® Core™ / Celeron® S-Series CPU (FCLGA1151 Socket)
- ▶ Intel® Q170 / H110 Express Chipset
- ▶ 2x DDR4 SO-DIMM memory socket
- ▶ 4x SATA 3.0, up to 2x mSATA for storage
- ▶ RAID support for Q170 models
- ▶ 1x LVDS / 1x VGA, 2x DP, 1x DVI-D for display output
- ▶ 2x GbE LAN for Ethernet
- ▶ Up to 6x USB 3.0, up to 6x USB 2.0, 6x COM, 8-bit DIO
- ▶ 1x PCIe x16, up to 2x mPCIe for expansion
- ▶ Extended temperature model available



### ▶ BLOCK DIAGRAM



## ► TECHNICAL INFORMATION

|  |   |  |
|--|---|--|
| <b>SYSTEM</b>                              | <b>PROCESSOR<br/>CHIPSET</b><br><br><b>MEMORY</b>                                     | 6th Gen Intel® Core™ / Celeron® S-Series Processors (FCLGA1151 Socket)<br>Intel® Q170<br>Intel® H110<br>2x DDR4 2133 SO-DIMM up to 32 GByte (Core™ CPU)<br>2x DDR4 1866 / 2133 SO-DIMM up to 32 GByte (Celeron® CPU)   |
| <b>VIDEO</b>                               | <b>GRAPHICS</b><br><br><b>DISPLAY INTERFACE</b><br><br><br><b>MULTIPLE DISPLAY</b>    | Intel® HD Graphics 530 (Core™ CPU)<br>Intel® HD Graphics 510 (Celeron® CPU)<br>1x LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz)<br>1x VGA (by header, 1920 x 1200 @ 60 Hz)<br>1x DVI-D (on rear, 1920 x 1200 @ 60 Hz)<br>2x DP (on rear, 4096 x 2304 @ 60 Hz)<br>Dual (model w/ H110 chipset, LVDS and VGA are alternative each other)<br>Triple (model w/ Q170 chipset, LVDS and VGA are alternative each other) |
| <b>AUDIO</b>                               | <b>AUDIO CODEC<br/>AUDIO INTERFACE</b>  | Realtek ALC662<br>1x Line-in (on rear)<br>2x Line-out (1x on rear, 1x by header)<br>2x Mic-in (1x on rear, 1x by header)<br>1x S/PDIF (by header)  |
| <b>NETWORK CONNECTION</b>                  | <b>ETHERNET</b>   | 2x GbE LAN (RJ45 on rear, 1x Intel® I219-LM, 1x Intel® I210-AT)  |
| <b>PERIPHERAL CONNECTION</b>               | <b>USB</b><br><br><br><b>SERIAL PORT</b><br><br><b>OTHER I/Os</b>                     | 4x USB 3.0 (Type A on rear, for H110 model)<br>6x USB 3.0 (4x Type A on rear, 2x by header, for Q170 model)<br>4x USB 2.0 (2x Type A on rear, 2x by header, for H110 model)<br>6x USB 2.0 (2x Type A on rear, 4x by header, for Q170 model)<br>3x RS232/422/485 (2x DB9 on rear, 1x by header)<br>3x RS232 (by header)<br>1x PS/2 Keyboard/Mouse (by wafer)<br>1x 8-bit DIO (by wafer)                       |
| <b>STORAGE &amp; EXPANSION</b>             |   | 4x SATA 3.0 (RAID support for Q170 model)<br>2x mSATA / mPCIe (1x full size, 1x half size, for Q170 model)<br>2x mPCIe (1x full size, 1x half size, for H110 model)<br>1x PCIe x16<br>1x SIM Card Cage (by wafer)  |
| <b>POWER</b>                               | <b>CONNECTOR &amp; INPUT<br/>VOLTAGE</b>  | 2x12-pin ATX connector (DC +5 V / -5 V / +12 V / -12 V / +3.3 V / 5 VSB)<br>2x4-pin ATX connector (DC 12 V)  |
| <b>FIRMWARE</b>                            | <b>BIOS<br/>WATCHDOG<br/>H/W MONITOR<br/>REAL TIME CLOCK<br/>TPM<br/>iAMT</b>         | AMI uEFI BIOS w/ 128 Mb SPI Flash<br>Programmable WDT to generate system reset event<br>Input & Core Voltages, CPU & System Temperatures<br>Chipset integrated RTC<br>Supported for Q170 model (Infineon SLB 9660 TPM 1.2)<br>Supported for Q170 model   |
| <b>SYSTEM CONTROL &amp;<br/>MONITORING</b> | <b>FRONT PANEL HEADER</b>   | 1x Header for Reset button, HDD LED & External Speaker<br>1x Header for Power button, Power LED & SM bus<br>1x Header for LAN LED<br>1x Header for Port-80 Display   |
| <b>COOLING</b>                             | <b>FAN</b>  | 1x Wafer for CPU Smart Fan<br>1x Wafer for System Smart Fan  |
| <b>SOFTWARE</b>                            | <b>OS SUPPORT</b>   | Windows 7, Windows 8, Windows 10, Linux  |
| <b>MECHANICAL</b>                          | <b>DIMENSIONS (L x W)</b>   | Mini-ITX (170 mm x 170 mm / 6.70" x 6.70")   |
| <b>ENVIRONMENTAL</b>                       | <b>OPERATION TEMPERATURE</b><br><br><b>STORAGE TEMPERATURE</b><br><br><b>HUMIDITY</b> | 0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard)<br>-20 °C ~ 70 °C / -4 °F ~ 158 °F (Extended)<br>-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard)<br>-40 °C ~ 85 °C / -40 °F ~ 185 °F (Extended)<br>0 % ~ 95 %  |
| <b>CERTIFICATION</b>                       | <b>EMC &amp; SAFETY</b>   | CE Class A, FCC Class A  |

## ▶ ORDERING INFORMATION

| ARTICLE            | DESCRIPTION   |
|--------------------|---|
| miTX-SKL-S-Q170    | Intel® Q170 Chipset, 6x USB 3.0, 6x USB 2.0, 2x mSATA / mPCIe, w/ TPM 1.2, w/ RAID, Operating temperature: 0 °C ~ 60 °C   |
| miTX-SKL-S-H110    | Intel® H110 Chipset, 4x USB 3.0, 4x USB 2.0, 2x mPCIe, w/o TPM, w/o RAID, Operating temperature: 0 °C ~ 60 °C             |
| miTX-SKL-S-Q170-ET | Intel® Q170 Chipset, 6x USB 3.0, 6x USB 2.0, 2x mSATA / mPCIe, w/ TPM 1.2, w/ RAID, Operating temperature: -20 °C ~ 70 °C |
| miTX-SKL-S-H110-ET | Intel® H110 Chipset, 4x USB 3.0, 4x USB 2.0, 2x mPCIe, w/o TPM, w/o RAID, Operating temperature: -20 °C ~ 70 °C           |

### OPTIONAL ACCESSORIES - CABLING

| ARTICLE                     | PART NO.         | DESCRIPTION  |
|-----------------------------|------------------|--|
| COM PORT CABLE              | 0C5020000003010L | D-SUB 9P (male) to KB915-10H 1x10P 1.25 pitch, L = 230 mm  |
| DIO CABLE                   | 0C5020000003830L | WL1025H-10P(51021) 1x10P 1.25 pitch to F83N-3.81-10P 1x10P(female) + F736-3.81-10P 1x10P(male), L = 100 mm |
| USB 3.0 CABLE               | 0C5020000004280L | Internal DP 2.0 20pin 2x10P to TypeA, L = 450 mm   |
| USB 2.0 CABLE (2 PORT)      | 0C5040000000110L | 2.54 mm 2x5P to 2x USB connectors, L = 34 cm   |
| SATA CABLE WITH LOCK        | 0C5020000004240L | SATA 1x7P Pitch: 1.27 mm, L = 460 mm   |
| PS/2 CABLE                  | 0C5020002500010L | Y-cable, 6-pin pitch 2.0 mm wafer connector to KB & MS connector, L = 25 cm                                |
| VGA CABLE                   | 0C5020000002870L | WL2004H-2x8P 2x8P 2.0 pitch to D-SUB 15P, L = 300 mm   |
| 3G MINI SIM CARD HOLDER KIT | 0ZHK12003GSIM003 | W/ SIM card holder *1, 3G SIM card cable *1  |

## ▶ GLOBAL HEADQUARTERS

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