

mITX-KBL-S-Q170/H110

EXTENDED TEMPERATURE SUPPORT



MINI-ITX INDUSTRIAL MOTHERBOARD WITH 7TH 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-KBL-S-Q170/H110

MINI-ITX INDUSTRIAL MOTHERBOARD WITH 7TH GEN INTEL® CORE™ / CELERON® S-SERIES PROCESSORS

mITX-KBL-S-Q170/H110 is a Mini-ITX industrial motherboard equipped with 7th 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.

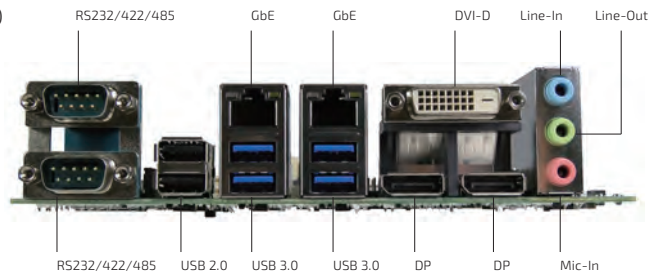
and 2x GbE LAN for display support, peripheral applications and wired networking. It has a variety of expansion slots / sockets for wireless, storage or other function expansion, including PCIe x16, mPCIe, SATA 3.0 and mSATA slots / sockets.

In addition, the mITX-KBL-S-Q170/H110 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

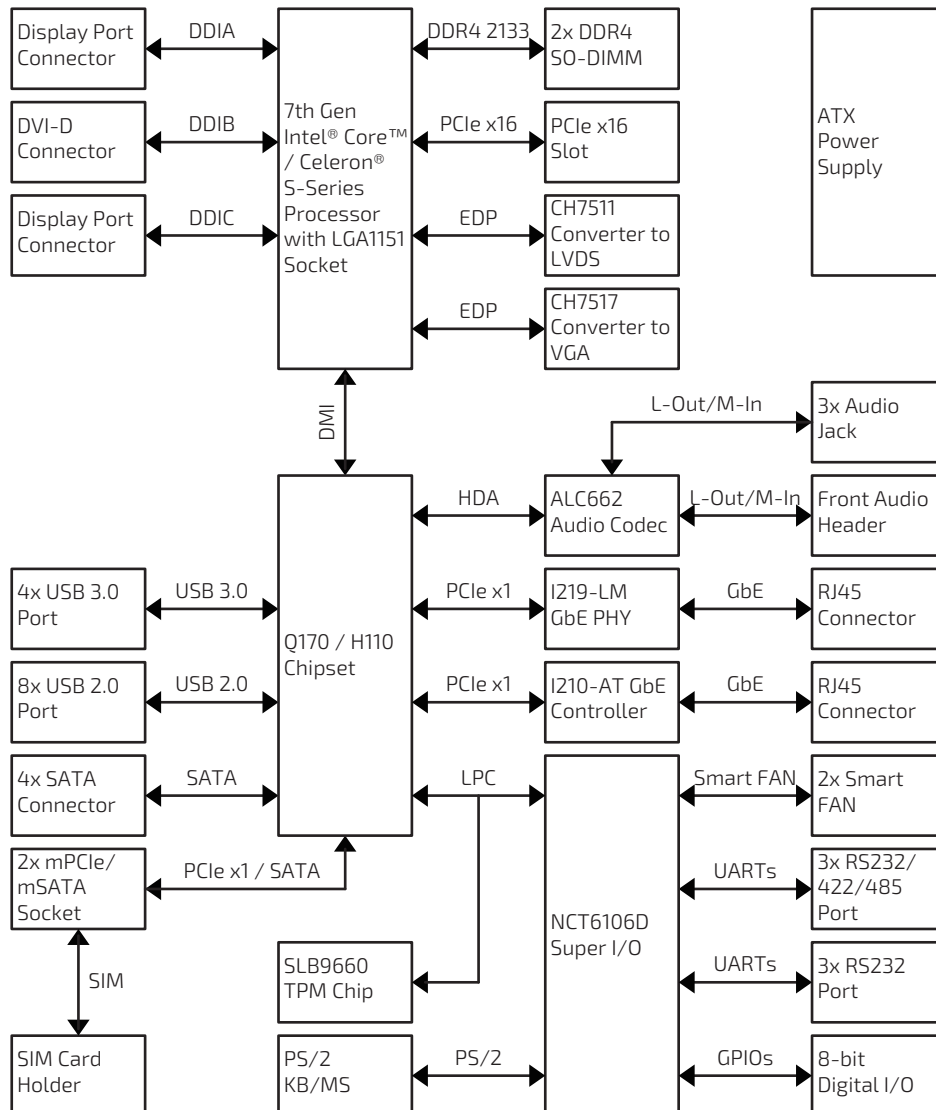
Finally, an extended temperature model is offered, allowing operation under extreme high, low or radically fluctuating temperatures, which is common in industrial environments.

▶ PRODUCT HIGHLIGHTS

- ▶ 7th 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

SYSTEM	PROCESSOR CHIPSET MEMORY	7th Gen Intel® Core™ / Celeron® S-Series Processors (FCLGA1151 Socket) Intel® Q170 Intel® H110 2x DDR4 2133 / 2400 SO-DIMM up to 32 GByte (Core™ CPU) 2x DDR4 2133 SO-DIMM up to 32 GByte (Celeron® CPU)
VIDEO	GRAPHICS DISPLAY INTERFACE MULTIPLE DISPLAY	Intel® HD Graphics 630 (Core™ CPU) Intel® HD Graphics 610 (Celeron® CPU) 1x LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz) 1x VGA (by header, 1920 x 1200 @ 60 Hz) 1x DVI-D (on rear, 1920 x 1200 @ 60 Hz) 2x DP (on rear, 4096 x 2304 @ 60 Hz) Dual (model w/ H110 chipset, LVDS and VGA are alternative each other) Triple (model w/ Q170 chipset, LVDS and VGA are alternative each other)
AUDIO	AUDIO CODEC AUDIO INTERFACE	Realtek ALC662 1x Line-in (on rear) 2x Line-out (1x on rear, 1x by header) 2x Mic-in (1x on rear, 1x by header) 1x S/PDIF (by header)
NETWORK CONNECTION	ETHERNET	2x GbE LAN (RJ45 on rear, 1x Intel® I219-LM, 1x Intel® I210-AT)
PERIPHERAL CONNECTION	USB SERIAL PORT OTHER I/Os	4x USB 3.0 (Type A on rear, for H110 model) 6x USB 3.0 (4x Type A on rear, 2x by header, for Q170 model) 4x USB 2.0 (2x Type A on rear, 2x by header, for H110 model) 6x USB 2.0 (2x Type A on rear, 4x by header, for Q170 model) 3x RS232/422/485 (2x DB9 on rear, 1x by header) 3x RS232 (by header) 1x PS/2 Keyboard/Mouse (by wafer) 1x 8-bit DIO (by wafer)
STORAGE & EXPANSION		4x SATA 3.0 (RAID support for Q170 model) 2x mSATA / mPCIe (1x full size, 1x half size, for Q170 model) 2x mPCIe (1x full size, 1x half size, for H110 model) 1x PCIe x16 1x SIM Card Cage (by wafer)
POWER	CONNECTOR & INPUT VOLTAGE	2x12-pin ATX connector (DC +5 V / -5 V / +12 V / -12 V / +3.3 V / 5 VSB) 2x2-pin ATX connector (DC 12 V)
FIRMWARE	BIOS WATCHDOG H/W MONITOR REAL TIME CLOCK TPM iAMT	AMI uEFI BIOS w/ 128 Mb SPI Flash Programmable WDT to generate system reset event Input & Core Voltages, CPU & System Temperatures Chipset integrated RTC Supported for Q170 model, Optional for H110 (Infineon SLB 9665 TPM 2.0) Supported for Q170 model
SYSTEM CONTROL & MONITORING	FP HEADER	1x Header for Reset button, HDD LED & External Speaker 1x Header for Power button, Power LED & SM bus 1x Header for LAN LED 1x Header for Port-80 Display
COOLING	FAN	1x Wafer for CPU Smart Fan 1x Wafer for System Smart Fan
SOFTWARE	OS SUPPORT	Windows 10, Linux
MECHANICAL	DIMENSION (L x W)	Mini-ITX (170 mm x 170 mm / 6.70" x 6.70")
ENVIRONMENTAL	OPERATION TEMPERATURE STORAGE TEMPERATURE HUMIDITY	0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard) -20 °C ~ 70 °C / -4 °F ~ 158 °F (Extended) -20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extended) 0 % ~ 95 %
CERTIFICATION	EMC & SAFETY	CE Class A, FCC Class A

▶ ORDERING INFORMATION

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

ACCESSORIES

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 = 340 mm
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 = 250 mm
VGA CABLE*	0C5020000002870L	WL2004H-2x8P 2x8P 2.0 pitch to D-SUB 15P, L = 300 mm
3G MINI SIM CARD HOLDER KIT*	OZHK12003GSIM003	W/ SIM card holder *1, 3G SIM card cable *1
PROCESSOR SERIES COOLER*	0H05XX000001690L	LGA1156 Type, AL Heat Sink + FAN 88.0 x 88.0 x 36.7 (H) mm, 12V DC-In small 4P, Support to 85Watt, FAN Speed: 4300RPM, 34.5dBA
I/O SHIELD	0F0000000000290L	

(* = Optional)