

mITX-KBL-S-Q170/H110

EXTENDED TEMPERATURE SUPPORT



MINI-ITX INDUSTRIAL MOTHERBOARD WITH INTEL® KABY LAKE 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, 1x 8-bit DIO
- ▶ 4x SATA, up to 2x mSATA for storage
- ▶ Up to 2x mPCIe, 1x PCIe x16 for expansion

POSSIBILITIES START HERE



mITX-KBL-S-Q170/H110

MINI-ITX INDUSTRIAL MOTHERBOARD WITH INTEL® KABY LAKE S-SERIES PROCESSORS

mITX-KBL-S-Q170/H110 is a Mini-ITX form factor industrial motherboard equipped with Intel® Kaby Lake S-Series Processors. It delivers 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 and mSATA slots / sockets.

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

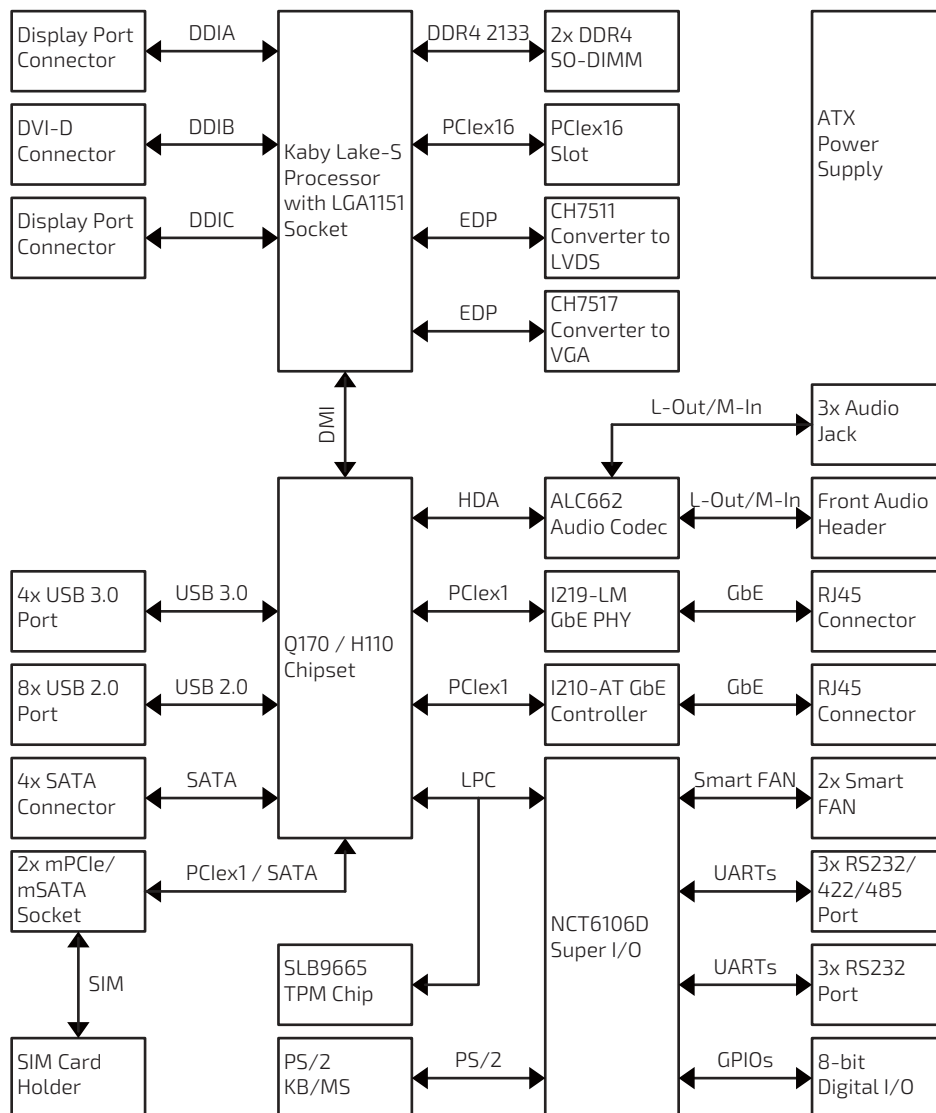
Finally, an extended temperature model is offered allowing operation under extreme high, low or radically fluctuating temperatures, which is common in industrial environments.

▶ PRODUCT HIGHLIGHTS

- ▶ Intel® Kaby Lake S-Series Processors (FCLGA1151 Socket)
- ▶ Intel® H110 / Q170 Express Chipset
- ▶ 2x DDR4 SO-DIMM
- ▶ 4x SATA, 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, 1x 8-bit DIO
- ▶ 1x PCIe x16, up to 2x mPCIe for expansion
- ▶ Extended temperature model available



▶ BLOCK DIAGRAM



► TECHNICAL INFORMATION

SYSTEM	PROCESSOR CHIPSET MEMORY	Intel® Kaby Lake S-Series Processors (FCLGA1151 Socket) Intel® H110 Intel® Q170 2x DDR4 2133 / 2400 SO-DIMM up to 32 GByte
VIDEO	GRAPHICS DISPLAY INTERFACE MULTIPLE DISPLAY	Intel® HD Graphics 630 / 610 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 (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 (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, FCC Class A

► ORDERING INFORMATION

ARTICLE	DESCRIPTION
miTX-KBL-S-H110	Intel® H110 Chipset, 4x USB 3.0, 4x USB 2.0, 2x mPCIe, without iAMT, without RAID support, Operating temperature: 0 °C ~ 60 °C
miTX-KBL-S-Q170	Intel® Q170 Chipset, 6x USB 3.0, 6x USB 2.0, 2x mPCIe / mSATA, with iAMT, with RAID support, Operating temperature: 0 °C ~ 60 °C
miTX-KBL-S-Q170-ET	Intel® Q170 Chipset, 6x USB 3.0, 6x USB 2.0, 2x mPCIe / mSATA, with iAMT, with RAID support, Operating temperature: -20 °C ~ 70 °C

ACCESSORIES

ARTICLE	PART NO.	DESCRIPTION
COM PORT CABLE*	0C502000003010L	D-SUB 9P (male) to KB915-10H 1x10P 1.25 pitch, L = 230 mm
DIO CABLE*	0C502000003830L	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*	0C502000004280L	Internal DP 2.0 20pin 2x10P to TypeA, L = 450 mm
USB 2.0 CABLE (2 PORT)*	0C504000000110L	2.54 mm 2x5P to 2x USB connectors, L = 340 mm
SATA CABLE WITH LOCK*	0C502000004240L	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*	0C502000002870L	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
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	0F000000000290L	

(* = Optional)

► GLOBAL HEADQUARTERS

KONTRON S & T AG

Lise-Meitner-Str. 3-5
 86156 Augsburg, Germany
 Tel.: + 49 821 4086 0
 Fax: + 49 821 4086 111
 info@kontron.com
 www.kontron.com