

3.5"-SBC-KBL

4K ULTRA HD SUPPORT



3.5" ECX SINGLE BOARD COMPUTER WITH INTEL® KABY LAKE U-SERIES PROCESSORS

- ▶ 1x LVDS, 1x HDMI 2.0, 1x DP for display output
- ▶ 2x GbE LAN for Ethernet
- ▶ 4x USB 3.0, 2x USB 2.0, 2x RS232/422/485, 1x 8-bit DIO for peripherals
- ▶ 2x SATA 3.0 for storage
- ▶ 1x mPCIe, 1x M.2 for expansion

POSSIBILITIES START HERE



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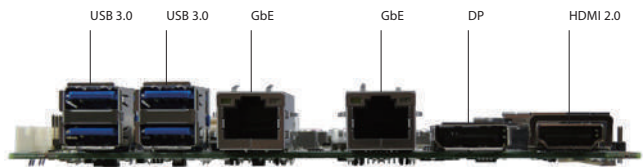
3.5"-SBC-KBL is a 3.5" ECX (Embedded Compact Extended) form factor SBC (Single Board Computer) based on Intel® Kaby Lake U-Series Processors, providing system integrators with a high performance upgrade option.

Three valuable features which distinguishes the 3.5"-SBC-KBL from its counterparts are:

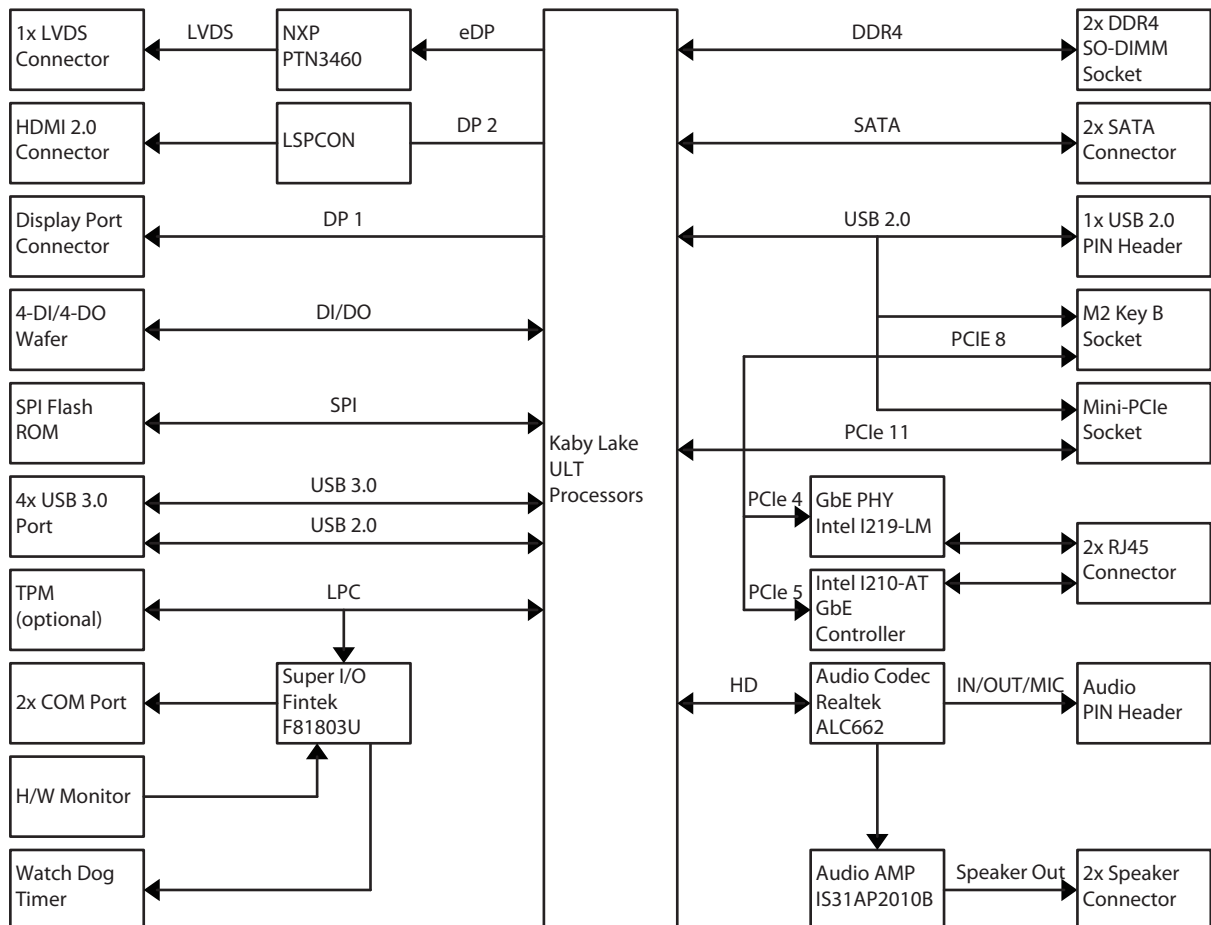
- ▶ Increased read and write speeds: 2x SATA 3.0 doubles the read and write speeds.
- ▶ Supporting 4K UHD resolutions: Intel® HD Graphics 620 integrated GPU + 1x HDMI 2.0 supporting 4K Ultra HD resolutions.
- ▶ Multi-functional integration: 1x M.2 (Key B) enabling multi-functional integration, such as USB, WWAN (3G, 4G ...), GNSS (GPS ...) and SSDs.

▶ PRODUCT HIGHLIGHTS

- ▶ Intel® Kaby Lake U-Series Processors
- ▶ 2x DDR4 SO-DIMM
- ▶ 1x LVDS, 1x HDMI 2.0, 1x DP for display output
- ▶ Triple display support
- ▶ 2x GbE LAN for Ethernet
- ▶ 4x USB 3.0, 2x USB 2.0, 2x RS232/422/485, 1x DIO for peripherals
- ▶ 2x SATA 3.0 for storage
- ▶ 1x mPCIe, 1x M.2 (Key B) for expansion



▶ BLOCK DIAGRAM



► TECHNICAL INFORMATION

SYSTEM	<p>PROCESSOR</p> <p>MEMORY</p>	<p>Intel® Core™ i7-7600U (Dual Core, 4M Cache, up to 3.90 GHz, FCBGA1356, 15 W TDP)</p> <p>Intel® Core™ i5-7300U (Dual Core, 3M Cache, up to 3.50 GHz, FCBGA1356, 15 W TDP)</p> <p>Intel® Core™ i3-7100U (Dual Core, 3M Cache, 2.40 GHz, FCBGA1356, 15 W TDP)</p> <p>Intel® Celeron® 3965U (Dual Core, 2M Cache, 2.20 GHz, FCBGA1356, 15 W TDP)</p> <p>2x DDR4 2133 SO-DIMM up to 32 GByte</p>
VIDEO	<p>GRAPHICS</p> <p>DISPLAY INTERFACE</p> <p>MULTIPLE DISPLAY</p>	<p>Intel® HD Graphics 620 (Core™ i processor)</p> <p>Intel® HD Graphics 610 (Celeron® processor)</p> <p>1x LVDS (24-bit, 2-ch)</p> <p>1x HDMI2.0 (on rear, 3840 x 2160 @ 60 Hz)</p> <p>1x DP (on rear, 4096 x 2304 @ 60 Hz)</p> <p>Triple Display</p>
AUDIO	AUDIO CODEC AUDIO INTERFACE	<p>Realtek ALC662</p> <p>2x Speaker-out (3 W)</p> <p>1x Line-in (by header)</p> <p>1x Line-out (by header)</p> <p>1x Mic-in (by header)</p>
NETWORK CONNECTION	ETHERNET	2x GbE LAN (RJ45 on rear, 1x Intel® I219-LM, 1x Intel® I210-AT)
PERIPHERAL CONNECTION	<p>USB</p> <p>SERIAL PORT</p> <p>OTHER I/Os</p>	<p>4x USB 3.0 (Type A on rear)</p> <p>2x USB 2.0 (by header)</p> <p>2x RS232/422/485 (by header, w/ auto flow control for RS485)</p> <p>1x 8-bit DIO (by header)</p>
STORAGE & EXPANSION		<p>2x SATA 3.0</p> <p>1x mPCIe (full size)</p> <p>1x M.2 Key B Socket (mixed w/ USB 2.0 or SATA)</p> <p>1x SIM Card Cage (by wafer, switchable for mPCIe or M.2)</p>
POWER	CONNECTOR INPUT VOLTAGE	<p>1x4-pin Wafer (Straight & Right Angle dual-footprint)</p> <p>DC 12 V</p>
FIRMWARE	<p>BIOS</p> <p>WATCHDOG</p> <p>H/W MONITOR</p> <p>REAL TIME CLOCK</p> <p>TPM</p> <p>iAMT</p>	<p>AMI uEFI BIOS w/ 128 Mb SPI Flash</p> <p>Programmable WDT to generate system reset event</p> <p>Voltages, Temperatures</p> <p>Processor integrated RTC</p> <p>Supported by default for Core™ i7 / i5 models, optional for Core™ i3 (Infineon SLB 9665 TPM 2.0)</p> <p>Supported for Core™ i7 / i5 models</p>
SYSTEM CONTROL & MONITORING	FRONT PANEL HEADER	<p>1x Header for Reset button, HDD LED & External Speaker</p> <p>1x Header for Power button, Power LED & SM bus</p> <p>1x Header for mPCIe activity LED</p> <p>1x Header for M.2 activity LED</p>
COOLING	FAN	1x header for System Fan
SOFTWARE	OS SUPPORT	Windows 10
MECHANICAL	DIMENSION (L x W)	ECX (146 mm x 105 mm / 5.75" x 4.13")
ENVIRONMENTAL	<p>OPERATION TEMPERATURE</p> <p>STORAGE TEMPERATURE</p> <p>HUMIDITY</p>	<p>0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard)</p> <p>-20 °C ~ 70 °C / -4 °F ~ 158 °F (Extended)</p> <p>-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard)</p> <p>-40 °C ~ 85 °C / -40 °F ~ 185 °F (Extended)</p> <p>0 % ~ 95 %</p>
CERTIFICATION	EMC & SAFETY	CE, FCC Class B

▶ ORDERING INFORMATION

ARTICLE	DESCRIPTION
3.5-SBC-KBL 7600U	Intel® Core™ i7-7600U, w/ TPM, w/ iAMT
3.5-SBC-KBL 7300U	Intel® Core™ i5-7300U, w/ TPM, w/ iAMT
3.5-SBC-KBL 7100U	Intel® Core™ i3-7100U, w/ TPM (optional), w/o iAMT
3.5-SBC-KBL 3965U	Intel® Celeron® 3965U, w/o TPM, w/o iAMT
3.5-SBC-KBL 7600U ET	Intel® Core™ i7-7600U, w/ TPM, w/ iAMT, Operation Temperature: -20°C ~ 70°C
3.5-SBC-KBL 7300U ET	Intel® Core™ i5-7300U, w/ TPM, w/ iAMT, Operation Temperature: -20°C ~ 70°C
3.5-SBC-KBL 7100U ET	Intel® Core™ i3-7100U, w/ TPM (optional), w/o iAMT, Operation Temperature: -20°C ~ 70°C
3.5-SBC-KBL 3965U ET	Intel® Celeron® 3965U, w/o TPM, w/o iAMT, Operation Temperature: -20°C ~ 70°C

ACCESSORIES

ARTICLE	PART NO.	DESCRIPTION
COM PORT CABLE*	0C502000005130L	10-pin pitch = 1.25 mm to DB-9 connector, L = 35 cm
DIO CABLE*	0C502000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 pitch, L = 20 cm
USB CABLE (2 PORT)*	0C504000000110L	2.54 mm 2x5P to 2x USB connectors, L = 34 cm
SATA POWER CABLE*	0C502000005260L	PH 2.54 HSG 1x4P to SATA 1x15P Pitch: 1.27 mm, L = 46 cm
SATA CABLE*	0C502000004240L	7-pin connector with lock, L = 46 cm
AUDIO CABLE*	0C502000002050L	WL6008H 2x6P 2.54 pitch to EAR phone jack x3 pitch: 3.5 mm, L = 35 cm
DC IN CABLE	0C502000004220L	2.5 DC Jack w/ 2 mm nut, 0.5 mm washer to H-300F-XX 1x4P 3.0 pitch, L = 30 cm
3G MINI SIM CARD HOLDER KIT*	0ZHK12003GSIM003	W/ SIM card holder x1, 3G SIM card cable x1

(* = Optional)

▶ GLOBAL HEADQUARTERS

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