

# 3.5"-SBC-KBL

## 4K ULTRA HD SUPPORT

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### 3.5" SINGLE BOARD COMPUTER WITH 7TH GEN INTEL® CORE™ / CELERON® 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

## 3.5"-SBC-KBL

### 3.5" SINGLE BOARD COMPUTER WITH 7TH GEN INTEL® CORE™ / CELERON® U-SERIES PROCESSORS

3.5"-SBC-KBL is a 3.5" single board computer based on 7th Generation Intel® Core™ / Celeron® 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:

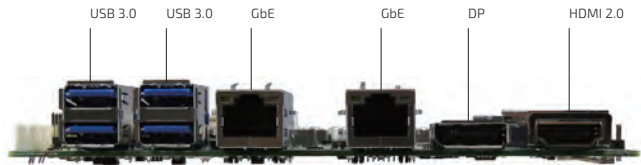
- ▶ **Faster read and write speeds:**  
2x SATA 3.0 doubles the read and write speeds.

- ▶ **Supporting 4K UHD resolutions:**  
Intel® HD Graphics 620 / 610 integrated GPU + 1x DP + 1x HDMI 2.0 supporting 4K Ultra HD resolutions.

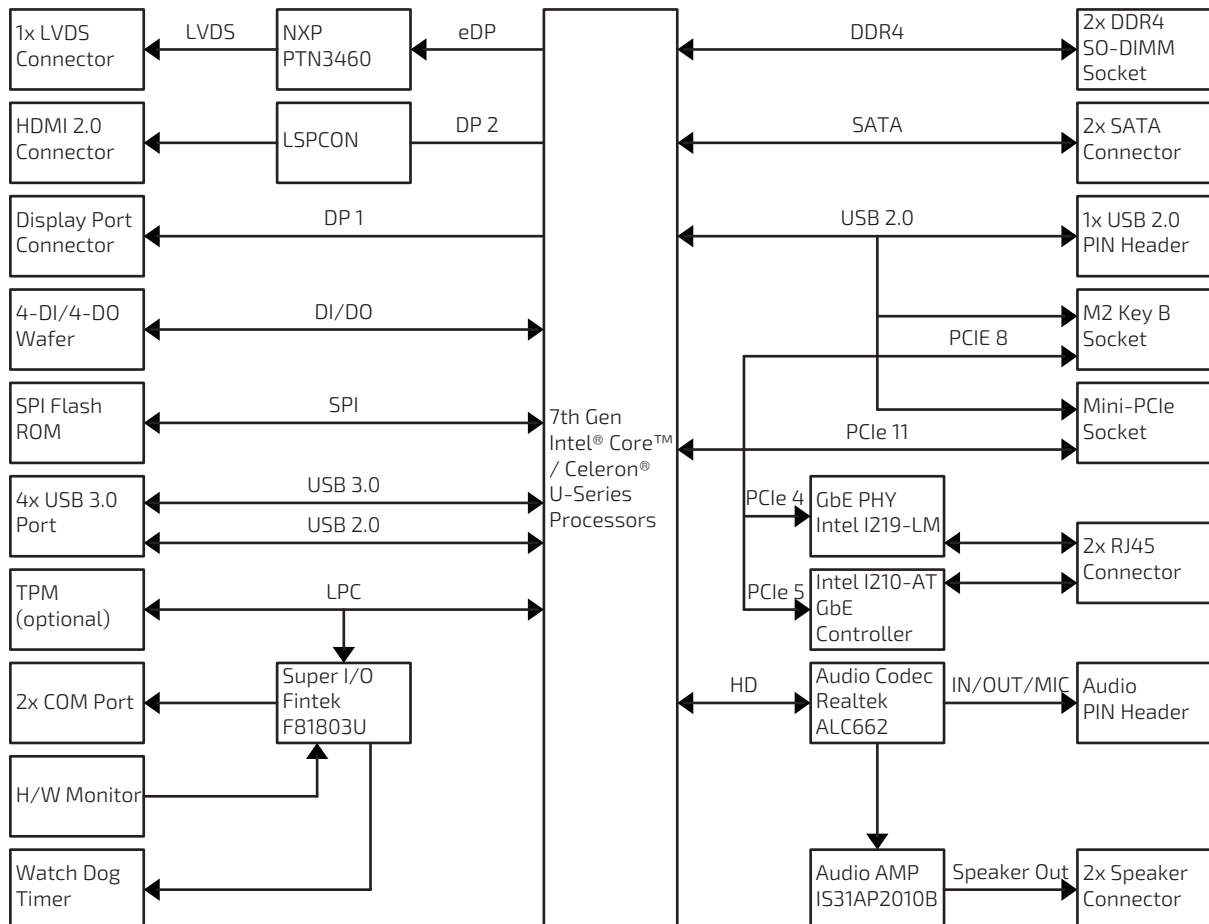
- ▶ **Multi-functional integration:**  
1x M.2 (Key B) provides more expansion possibilities, such as USB, WWAN (3G, 4G, ...), GNSS (GPS ...) and SSDs.

## ▶ PRODUCT HIGHLIGHTS

- ▶ 7th Generation Intel® Core™ / Celeron® U-Series Processors
- ▶ 2x DDR4 SO-DIMM memory socket
- ▶ 1x LVDS, 1x DP, 1x HDMI 2.0 for triple display support
- ▶ 2x GbE LAN for Ethernet
- ▶ 4x USB 3.0, 2x USB 2.0 for USB device connection
- ▶ 2x RS232/422/485 for serial device connection
- ▶ 8-bit DIO for device / signal control
- ▶ 2x SATA 3.0 for storage
- ▶ 1x mPCIe, 1x M.2 Key B for expansion
- ▶ Extended temperature model available: -20 °C~ 70 °C



## ▶ BLOCK DIAGRAM



► TECHNICAL INFORMATION

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