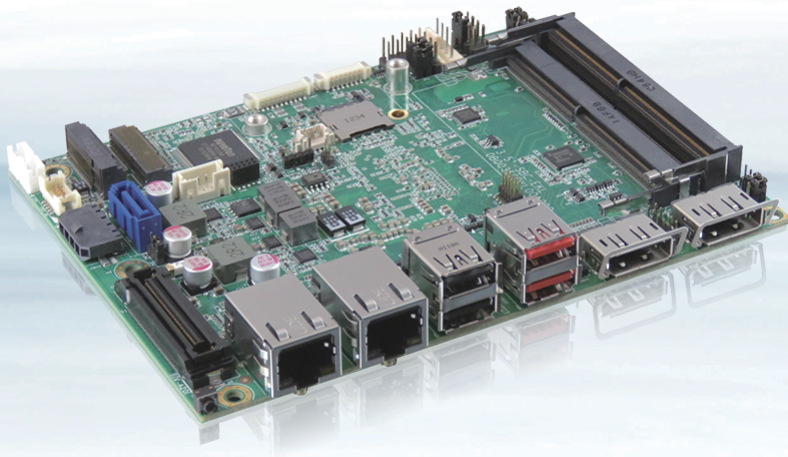


# 3.5"-SBC-EKL

## EXTENDABLE FOR MORE I/O INTERFACES

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### 3.5" SINGLE BOARD COMPUTER WITH ATOM® X6000E, CELERON® J6000 / N6000 & PENTIUM® J6000 / N6000 SERIES PROCESSORS

- ▶ 2x DP, 1x LVDS for video output
- ▶ 2x 2.5 GbE LAN for Ethernet
- ▶ 2x USB 3.2 Gen 2, 6x USB 2.0, 2x RS232/422/485, 2x CAN Bus, 8x DIO for peripherals
- ▶ 1x SATA 3.0, 1x M.2 Key B, 1x M.2 Key E, 1x M.2 Key M for storage & expansion
- ▶ 1x B2B Connector for extended I/Os: 2x PCIe x2, SM Bus, I<sup>2</sup>C, UART, GSPI & DDI (optional)

# 3.5"-SBC-EKL

## 3.5" SINGLE BOARD COMPUTER WITH INTEL® ATOM® X6000E, CELERON® J/N6000 & PENTIUM® J/N6000 SERIES CPU

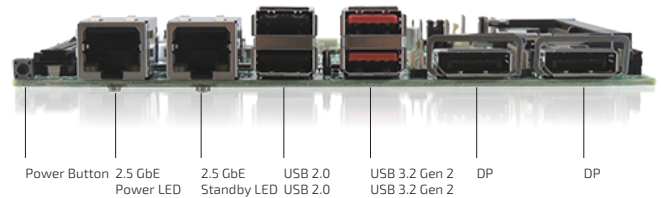
3.5"-SBC-EKL is a 3.5" single board computer powered by Intel® Atom® x6000E Series, Celeron® J6000 / N6000 Series and Pentium® J6000 / N6000 Series processors. Besides great performance improvement in graphics, it features 2.5 GbE with TSN (Time Sensitive Networking) capability and enhanced TPM 2.0 security / encryption support, ideal for a variety of IoT applications, such as

industrial automation, retail, smart city and healthcare.

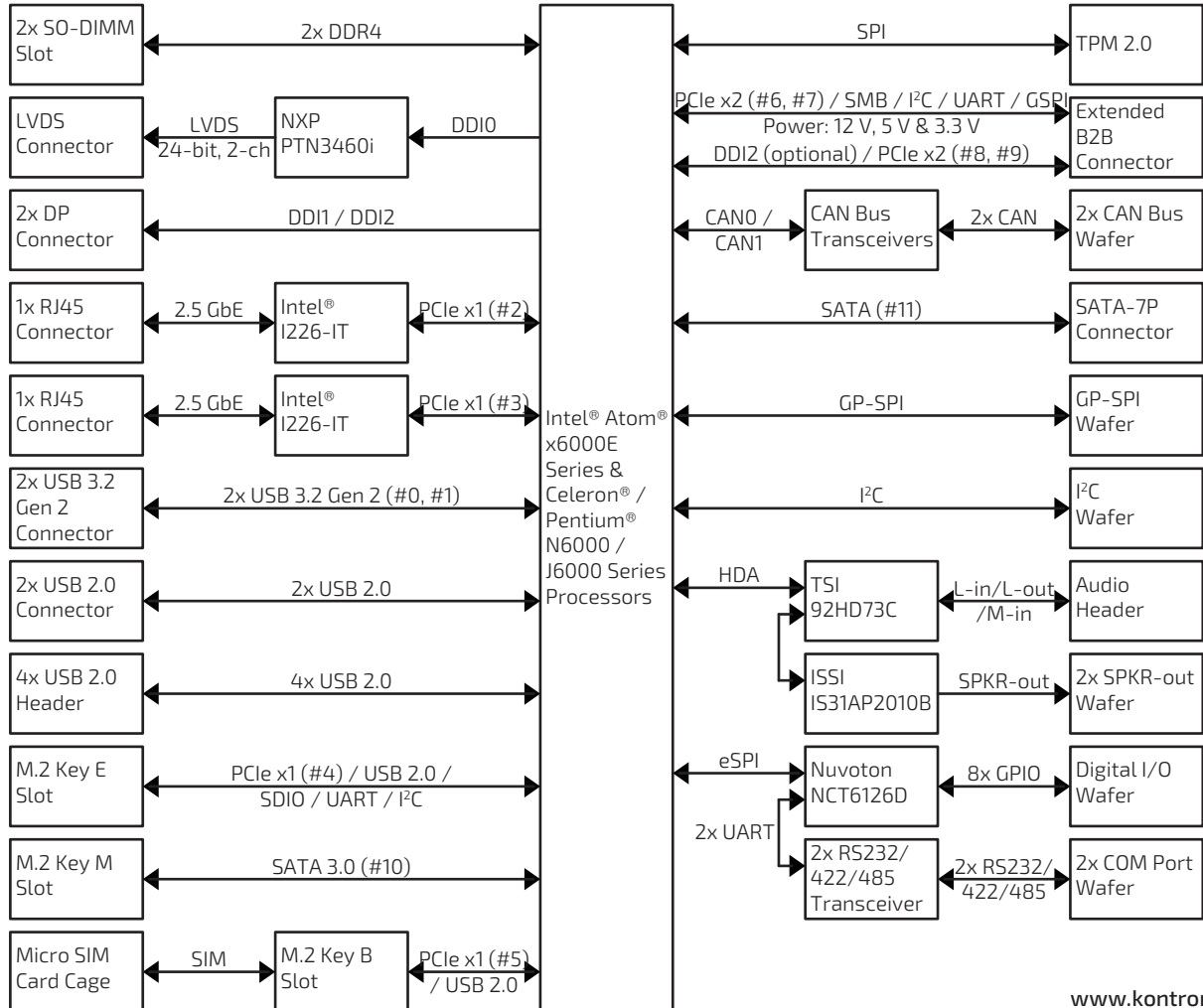
The board supports an extended B2B connector, providing additional I/O port expansion to fulfill possible application requirements.

### PRODUCT HIGHLIGHTS

- ▶ Intel® Atom® x6000E Series processors (up to 12 W TDP)
- ▶ Intel® Celeron® J6000 / N6000 Series processors (up to 10 W TDP)
- ▶ Intel® Pentium® J6000 / N6000 Series processors (up to 10 W TDP)
- ▶ 2x DDR4 SO-DIMM memory socket
- ▶ 2x DP, 1x LVDS for video output
- ▶ 2x 2.5 GbE LAN for Ethernet
- ▶ 2x USB 3.2 Gen 2, 6x USB 2.0 for USB device connection
- ▶ 2x RS232/422/485 for programmable serial communication
- ▶ 1x GP-SPI for synchronous serial communication
- ▶ 2x CAN Bus for industrial networking
- ▶ 1x I<sup>2</sup>C for sensor or other control function
- ▶ 8x DIO for device / signal control
- ▶ 1x SATA 3.0 for storage device
- ▶ 1x M.2 Key B, 1x M.2 Key M, 1x M.2 Key E for SSD, WLAN & WWAN
- ▶ 1x B2B connector for 2x PCIe x2, SM Bus, I<sup>2</sup>C, UART, GSPI & optional DDI
- ▶ TPM 2.0 support
- ▶ Extreme temperature model available: -40 °C ~ 85 °C



### BLOCK DIAGRAM



► TECHNICAL INFORMATION

<b>SYSTEM</b>	<b>PROCESSOR</b>	Intel® Atom® x6211E (Dual Core, 1.5M Cache, 1.3 / 3.0 GHz, FCBGA1493, 6 W TDP) Intel® Atom® x6212RE (Dual Core, 1.5M Cache, 1.2 GHz, FCBGA1493, 6 W TDP) Intel® Atom® x6425RE (Quad Core, 1.5M Cache, 1.9 GHz, FCBGA1493, 12 W TDP) Intel® Celeron® J6413 (Quad Core, 1.5M Cache, 1.8 / 3.0 GHz, FCBGA1493, 10 W TDP)
	<b>MEMORY</b>	2x DDR4 3200 S0-DIMM up to 32 GByte
<b>VIDEO</b>	<b>GRAPHICS</b>	Intel® UHD Graphics for 10th Gen Intel® Processors
	<b>DISPLAY INTERFACE</b>	1x LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz)
	<b>MULTIPLE DISPLAY</b>	2x DP (4096 x 2160 @ 60 Hz, on rear, DDIZ can support on B2B optionally) Triple Display
<b>AUDIO</b>	<b>AUDIO CODEC</b>	TSI 92HD73C
	<b>AUDIO INTERFACE</b>	1x Speaker-out (Stereo, 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 2.5 GbE LAN (RJ45 on rear, Intel® I226-LM/IT)
<b>PERIPHERAL CONNECTION</b>	<b>USB</b>	2x USB 3.2 Gen 2 (Type A on rear)
	<b>SERIAL PORT</b>	6x USB 2.0 (2x Type A on rear, 4x by header)
	<b>OTHER I/Os</b>	2x RS232/422/485 (by header) 8x DIO (by header) 2x CAN bus (by header) 1x GP-SPI (by header) 1x I <sup>2</sup> C (by header)
<b>STORAGE &amp; EXPANSION</b>	<b>SATA</b>	1x SATA 3.0
	<b>M.2</b>	1x M.2 Key B (Type 2242 / 2280, w/ PCIe x1 / USB 2.0 / UIM) 1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0 / SDIO / UART / I <sup>2</sup> C) 1x M.2 Key M (Type 2280, w/ SATA 3.0)
	<b>SIM CARD HOLDER</b>	1x SIM Card Holder (Micro type)
	<b>EXTENDED B2B CONNECTOR</b>	2x PCIe x2 1x SM Bus 1x I <sup>2</sup> C 1x UART 1x GSPI 1x DDI (optional)
<b>POWER</b>	<b>INPUT VOLTAGE</b>	DC 12 V
	<b>CONNECTOR</b>	1x4-pin pitch 3.0 mm Wafer
<b>FIRMWARE</b>	<b>BIOS</b>	AMI uEFI BIOS w/ 256 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>	SoC integrated RTC
	<b>SECURITY</b>	TPM 2.0 Support (Infineon SLB 9670)
<b>SYSTEM CONTROL &amp; MONITORING</b>	<b>FP HEADER</b>	1x Header for Reset Button, HDD LED & External Speaker
	<b>BUTTON, SWITCH &amp; INDICATOR</b>	1x Header for Power Button, Power LED & SM Bus 1x Standby LED (on rear) 1x Power LED (on rear, GPIO controlled) 1x Power Button (on rear)
<b>COOLING</b>	<b>COOLING METHOD</b>	Passive
<b>SOFTWARE</b>	<b>OS SUPPORT</b>	Windows 10, Linux
<b>MECHANICAL</b>	<b>DIMENSION (L x W)</b>	ECX (146 mm x 105 mm / 5.75" x 4.13")
<b>ENVIRONMENTAL</b>	<b>OPERATING TEMPERATURE</b>	0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)
	<b>STORAGE TEMPERATURE</b>	-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)
	<b>HUMIDITY</b>	0 % ~ 95 %
<b>COMPLIANCE</b>	<b>EMC &amp; SAFETY</b>	CE Class B, FCC Class B

## ▶ ORDERING INFORMATION

ARTICLE	DESCRIPTION
3.5"-SBC-EKL-0-J6413	Intel® Celeron® J6413, Operating Temperature: 0 °C ~ 60 °C
3.5"-SBC-EKL-1-x6211E-XT	Intel® Atom® x6211E, Operating Temperature: -40 °C ~ 85 °C
3.5"-SBC-EKL-2-x6212RE-XT	Intel® Atom® x6212RE, Operating Temperature: -40 °C ~ 85 °C
3.5"-SBC-EKL-3-x6425RE-XT	Intel® Atom® x6425RE, Operating Temperature: -40 °C ~ 85 °C

### ACCESSORIES

ARTICLE	PART NO.	DESCRIPTION
DC IN CABLE	0C502000004220L	2.5 mm DC Jack w/ 2 mm nut, 0.5 mm washer to H-300F-XX 1x4P 3.0 pitch, L = 300 mm
SATA CABLE	0C502000004240L	1x7-pin connector with lock, pitch = 1.27 mm, L = 460 mm
SATA POWER CABLE*	0C502000004230L	PH 2.0 HSG 1x4P 2.0 mm pitch to SATA 1x15P Pitch: 1.27 mm, L = 460 mm
COM PORT CABLE*	0C502000005130L	10-pin pitch = 1.25 mm to DB9 connector, L = 350 mm
DIO CABLE*	0C502000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 pitch, L = 200 mm
USB CABLE (2 PORT)*	0C5020003000010L	2x5-pin pitch 2.0 mm to 2x USB Type A 4P Female w/ bracket, L = 270 mm
AUDIO CABLE*	0C502000005840L	HRS DF13-10DS-1.25C 1.25 pitch to PJ-2509CTPC-5-L (3.5 phone jack) x3, L = 400 mm
HEATSINK*	0ZHK35SEKLO00001	Aluminum heatsink w/ thermal pad & screws for Celeron® / Pentium® N / J Series
HEATSINK*	0ZHK35SEKLO00002	Aluminum heatsink w/ thermal pad & screws for Atom® x6000E Series
I/O BOARD (3.5"-eIO-GPA-0)*	0W0035EGPA00A100	2x DP, 2x 2.5 GbE, 1x UART, 1x I <sup>2</sup> C, 1x SMBus, 1x GSPi, 1x DC In Term Blk, 0~60°C Op. Temp.
I/O BOARD (3.5"-eIO-GPA-1)*	0W0035EGPA10A100	2x DP, 2x 2.5 GbE, 1x UART, 1x I <sup>2</sup> C, 1x SMBus, 1x GSPi, 0 °C ~ 60 °C Op. Temp.

(\*: Optional)

## ▶ GLOBAL HEADQUARTERS

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