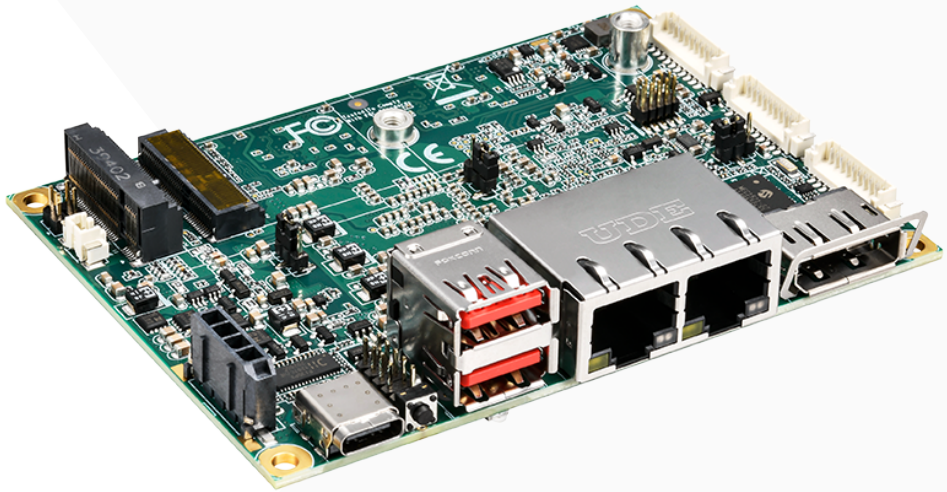
2.5”-SBC-AML/ADN



2.5" Single Board Computer with Intel® Atom® x7000(R)E Series, Intel® Core™ i3 N-Series & Intel® N-Series Processors

- Upgraded processing and graphics performance + faster AI inference capability
- Next-gen LPDDR5 memory with up to 4800 MT/s data transfer rate
- Robust design against extreme temperature conditions & unstable power supplies
- Hardware-based security for data protection and reliable authentication
- Distinct features from its twin products: 2x LAN + 1x Stnd. DP + 1x eDP + 2x COM

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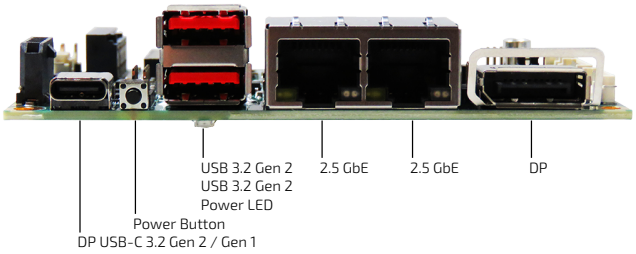
The Power of IoT

Product Highlights

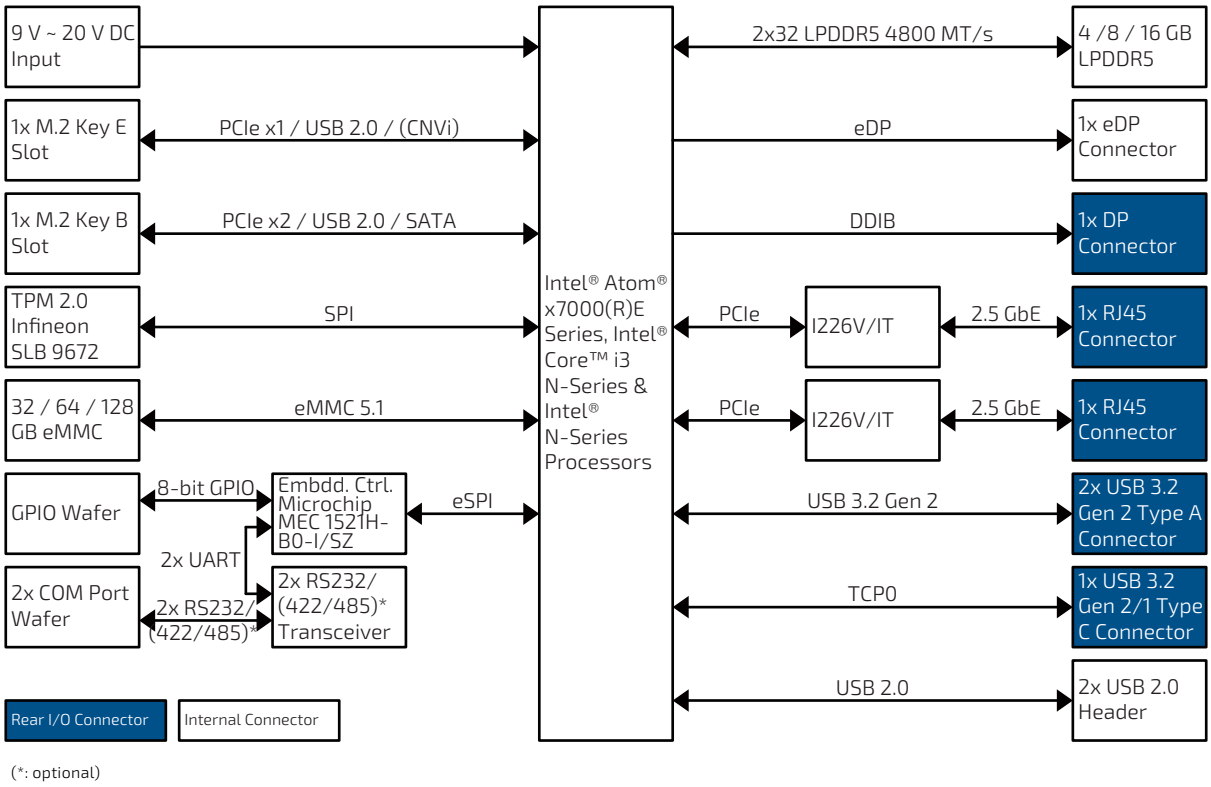
2.5" Single Board Computer w/ Intel® Atom® x7000(R)E Series, Core™ i3 N-Series & Intel® N-Series

2.5"-SBC-ADN is a 2.5" single board computer in Pico-ITX form factor powered by Intel® Atom® x7000RE Series (codenamed Amston Lake), Intel® Atom® x7000E Series, Intel® Core™ i3 N-Series and Intel® N-Series (codenamed Alder Lake N) processors integrated with Intel® UHD Graphics Gen12 as well as next-gen high-speed LPDDR5 memory. Thus, it can deliver upgraded performance, enhanced media transcoding and faster AI inference. Compared to other twin products of the same generation, it features two 2.5 GbE LAN ports and two serial ports, making it an ideal baseboard to be integrated into an ultra-compact or portable IoT edge system or an all-in-one solution for a variety of applications, such as industrial manufacturing and real-time control.

- Intel® Atom® x7000(R)E Series Processors
- Intel® Core™ i3 N-Series Processors
- Intel® N-Series Processors
- 4 GByte / 8 GByte / 16 GByte LPDDR5 memory down
- 2x 2.5 GbE LAN for Ethernet
- 2x DP (1x Stnd. DP, 1x USB-C), 1x eDP for 3-display support
- 3x USB 3.2 Gen 2 / Gen 1 (2x Type A, 1x Type C), 2x USB 2.0
- 2x RS232 or 2x RS232/422/485 for serial device connection
- 8x GPIO for device / signal control
- 32 GByte / 64 GByte / 128 GByte eMMC for storage
- 1x M.2 Key B for SSD, WWAN or other possible expansion
- 1x M.2 Key E for WLAN, Bluetooth or other expansion
- TPM 2.0 support
- Wide power input voltage range available: DC 9 V ~ 20 V
- Extreme temperature model available: -40 °C ~ 85 °C



Block Diagram



(*: optional)

Technical Information

SYSTEM	PROCESSOR (STANDARD)	Intel® Atom® x7211RE (Dual Core, 6M Cache, 1.0 / 3.2 GHz, 6 W TDP) Intel® Atom® x7433RE (Quad Core, 6M Cache, 1.5 / 3.4 GHz, 9 W TDP) Intel® Atom® x7835RE (Octa Core, 6M Cache, 1.3 / 3.6 GHz, 12 W TDP) Intel® Core™ i3-N305 (Octa Core, 6M Cache, 1.8 / 3.8 GHz, 9 W ← 15 W TDP) Intel® N97 (Quad Core, 6M Cache, 2.0 / 3.6 GHz, 12 W TDP)
	PROCESSOR (PROJECT BASE)	Intel® Atom® x7213RE (Dual Core, 6M Cache, 2.0 / 3.4 GHz, 9 W TDP) Intel® Atom® x7211E (Dual Core, 6M Cache, 1.0 / 3.2 GHz, 6 W TDP) Intel® Atom® x7213E (Dual Core, 6M Cache, 1.7 / 3.2 GHz, 10 W TDP) Intel® Atom® x7425E (Quad Core, 6M Cache, 1.5 / 3.4 GHz, 12 W TDP) Intel® N50 (Dual Core, 6M Cache, 1.0 / 3.4 GHz, 6 W TDP) Intel® N200 (Quad Core, 6M Cache, 1.0 / 3.7 GHz, 6 W TDP)
	MEMORY	4 GByte / 8 GByte / 16 GByte LPDDR5 4800 memory down
VIDEO	GRAPHICS DISPLAY INTERFACE MULTIPLE DISPLAY	Intel® UHD Graphics Gen12 1x eDP (4096 x 2160 @ 60 Hz) 2x DP (4096 x 2160 @ 60 Hz, 1x Full-size DP on rear, 1x DP USB-C on rear) Triple Display
NETWORK CONNECTION	ETHERNET	2x 2.5 GbE LAN (RJ45 on rear, Intel® I226-V/IT, TSN support*)
PERIPHERAL CONNECTION	USB SERIAL PORT OTHER I/Os	2x USB 3.2 Gen 2 Type A (on rear) 1x USB 3.2 Gen 2 Type C (on rear, w/ DP & PD 5 V / 3 A, except Atom® x7000RE) 1x USB 3.2 Gen 1 Type C (on rear, w/ DP & PD 5 V / 3 A, only Atom® x7000RE) 2x USB 2.0 (by header) 2x RS232 (def.) / RS232/422/485 (opt.) (by header, Tx/Rx only for RS232 signal) 8x GPIO (by wafer)
STORAGE & EXPANSION	eMMC M.2 SIM CARD HOLDER	32 GByte / 64 GByte / 128 GByte eMMC 1x M.2 Key B (Type 2242/3042/3052/2280, w/ PCIe x2 / USB 2.0 / SATA / UIM) 1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0 / CNVi**) 1x SIM Card Holder (by Wafer)
POWER	INPUT VOLTAGE CONNECTOR	DC 9 V ~ 20 V 1x4-pin pitch 3.0 mm Wafer
FIRMWARE	BIOS WATCHDOG H/W MONITOR REAL TIME CLOCK SECURITY	AMI uEFI BIOS w/ 256 Mb SPI Flash Programmable WDT to generate system reset event Voltages, Temperatures Processor integrated RTC TPM 2.0 Support (Infineon SLB 9672)
SYSTEM CONTROL & MONITORING	BUTTON, SWITCH & INDICATOR FP HEADER	1x Power Buttom (on rear) 1x Power LED (Green, on board) 1x Header for Power Button, Reset Button, Power LED & SATA LED
SOFTWARE	OS SUPPORT	Windows 11, Windows 10, Linux
MECHANICAL	DIMENSION (L x W)	Pico-ITX (100 mm x 72 mm / 3.94" x 2.83")
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE HUMIDITY	0 °C~ 60 °C / 32 °F ~ 140 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme) -20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme) 0 % ~ 95 %
COMPLIANCE	EMC SAFETY	CE Class B, FCC Class B, ICES Class B, UKCA Class B UR (UL Recognized), CSA

* TSN support for models with Atom® processors
** Atom® x7000RE Series processors do not support CNVi

Ordering Information

ARTICLE	ORDER CODE# EMEA / AMER	PROCESSOR	LAN CHIP	LPDDR5	eMMC	COM PORT	OP. TEMP.
2.5"-SBC-ADN-1-i3-N305*	-	Intel Core i3-N305	Intel I226-V	16 GB	128 GB	2x RS232/422/485	0 ~ 60 °C
2.5"-SBC-ADN-8-N97	44013-ST-2001	Intel N97	Intel I226-V	8 GB	64 GB	2x RS232	0 ~ 60 °C
2.5"-SBC-ADN-9-N97*	44013-ST-2003	Intel N97	Intel I226-V	4 GB	64 GB	2x RS232	0 ~ 60 °C
2.5"-SBC-ADN-A-N97	44013-ST-2002	Intel N97	Intel I226-V	8 GB	128 GB	2x RS232	0 ~ 60 °C
2.5"-SBC-ADN-B-i3-N305	44013-ST-2004	Intel Core i3-N305	Intel I226-V	8 GB	128 GB	2x RS232	0 ~ 60 °C
2.5"-SBC-AML-4-x7211RE-XT	44013-XT-2009	Intel Atom x7211RE	Intel I226-IT	8 GB	64 GB	2x RS232	-40 ~ 85 °C
2.5"-SBC-AML-5-x7433RE-XT	44013-XT-2008	Intel Atom x7433RE	Intel I226-IT	8 GB	128 GB	2x RS232	-40 ~ 85 °C
2.5"-SBC-AML-6-x7835RE-XT	44013-XT-2006	Intel Atom x7835RE	Intel I226-IT	16 GB	128 GB	2x RS232	-40 ~ 85 °C

*: Project based
#: For ordering code for APAC, contact your local account manager.
Contact your account manager for other processor variants, LPDDR5 variants, eMMC variants, COM port configuration or operating temperature ranges.

Accessories

NO.	ARTICLE	ORDERING CODE EMEA / AMER	ORDERING CODE APAC	DESCRIPTION
1	DC IN CABLE*	1064-2433	0C50200000004220L	2.5 mm DC Jack to H-300F-XX 1x4P 3.0 mm pitch, L = 300 mm
2	COM PORT CABLE	1064-2427	0C50200000005130L	1x10P 1.25 mm pitch to DB9 connector, L = 350 mm
3	GPIO CABLE	1065-3137	0C50200000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 mm pitch, L = 200 mm
4	USB CABLE (2 PORT)	1069-7893	0C50200030000010L	2x5P 2.0 mm pitch to 2x USB 2.0 Type A female w/ bracket, L = 27 cm
5	ADAPTER	1069-3055	0I0902GST60A106L	Input: AC 90 V ~ 264 V, output: DC 12 V @ 5 A Max. 60 W
6	COPPER PILLAR KIT	TBD	0ZHK35SBC0000001	4x 39.6 mm pillar, 3x 19L pillar, 4x 15L screw, 1x 5L screw
7	HEATSINK	1074-8498	0ZHK25SADN0000C1	Al heatsink w/ pads, 2x standoff, 4x pillar, 6x screw, for 2.5"-SBC-ADN/V/H
8	HEATSINK	1074-8828	0ZHK25SAML0000A3	Al +Cu heatsink w/ pads, 2x standoff, 4x pillar, 6x screw, 2.5"-SBC-AML/V/H

(*: standard supplied accessories for single-piece box packing)

Starter Kits

ARTICLE	ORDERING CODE EMEA / AMERICA	ORDERING CODE APAC	DESCRIPTION
STARTER KIT FOR 2.5"-SBC-ADN/ADV/ADH	1074-6151	0ZHK25SADN0000C2	Including above accessories table No. 1 ~ 6 & 7
STARTER KIT FOR 2.5"-SBC-AML/ADV/ADH	1074-7412	0ZHK25SAML0000A4	Including above accessories table N0. 1 ~ 6 & 8

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