

2.5"-SBC-AMH/ADH



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 operating temperatures & unstable power supplies
- Hardware-based security for data protection and reliable authentication
- Distinct features from its twin products: 1x LAN + 1x HDMI + 1x eDP + Audio + 2x COM

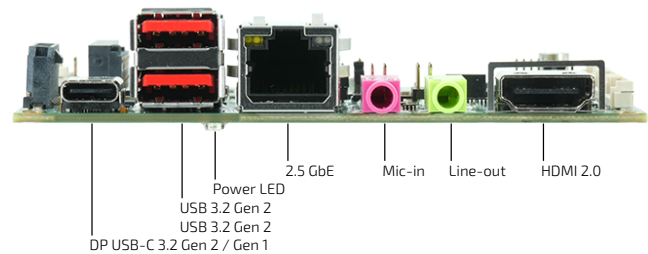
2.5" Single Board Computer w/ Intel® Atom® x7000(R)E Series, Core™ i3 N-Series & Intel® N-Series

2.5"-SBC-AMH/ADH 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,

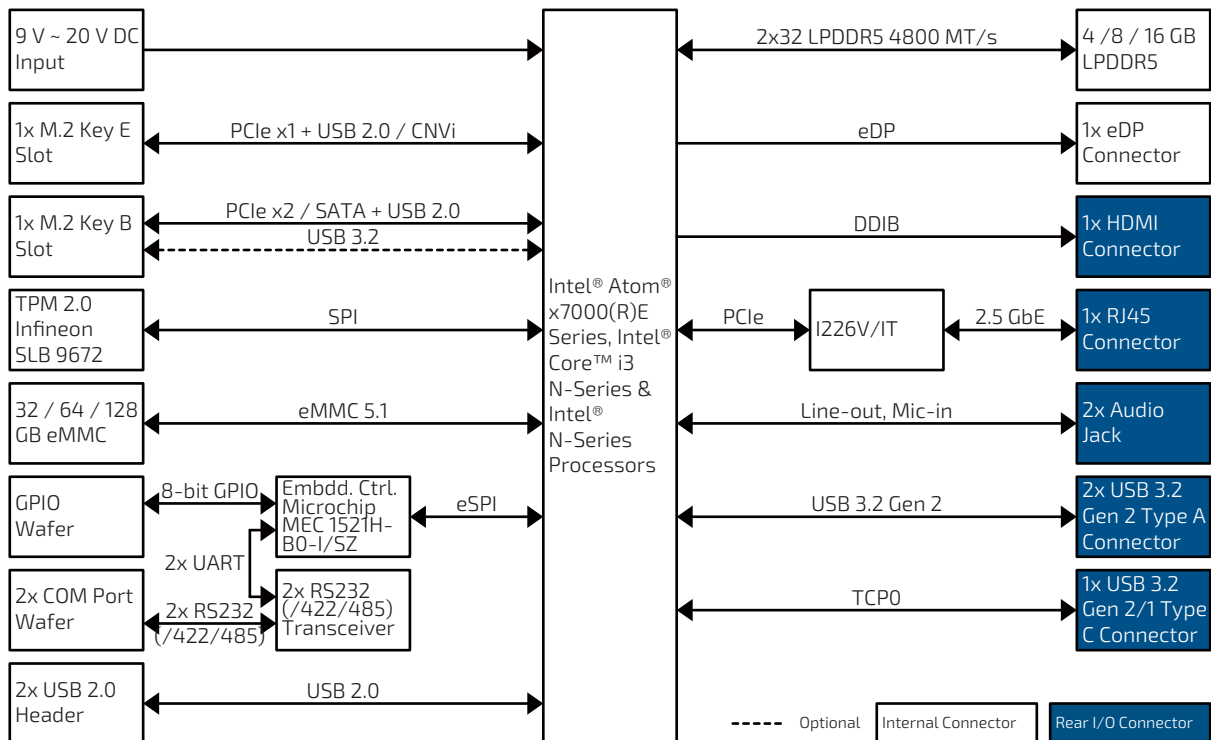
enhanced media transcoding and faster AI inference. Compared to other twin products of the same generation, it features a HDMI connector, a DP USB-C connector, an eDP connector and audio connectors, making it an ideal baseboard to be integrated into an ultra-compact or portable system or an all-in-one solution for retail, commercial and audio-enabled applications.

- 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
- 1x 2.5 GbE LAN for Ethernet with TSN support
- 1x HDMI 2.0, 1x DP (USB-C), 1x eDP for triple display
- 1x Line-out, 1x Mic-in for audio output & input
- 3x USB 3.2 Gen 2 / Gen 1 (2x Type A, 1x Type C), 2x USB 2.0
- 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



SYSTEM	PROCESSOR (STANDARD)	Intel® Atom® x7835RE (Octa Core, 6M Cache, 1.3 / 3.6 GHz, 12 W TDP) Intel® N97 (Quad Core, 6M Cache, 2.0 / 3.6 GHz, 12 W TDP) Intel® Core™ i3-N305 (Octa Core, 6M Cache, 1.8 / 3.8 GHz, 9 W ← 15 W TDP)
	PROCESSOR (PROJECT BASE)	Intel® Atom® x7211RE (Dual Core, 6M Cache, 1.0 / 3.2 GHz, 6 W TDP) Intel® Atom® x7213RE (Dual Core, 6M Cache, 2.0 / 3.4 GHz, 9 W TDP) Intel® Atom® x7433RE (Quad Core, 6M Cache, 1.5 / 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	Intel® UHD Graphics Gen12 1x eDP (4096 x 2160 @ 60 Hz) 1x DP (4096 x 2160 @ 60 Hz, DP USB-C on rear) 1x HDMI 2.0 (4096 x 2160 @ 60 Hz, HDMI Type A on rear)
	MULTIPLE DISPLAY	Triple Display
AUDIO	CODEC AUDIO INTERFACE	TSI 92HD91B 1x Line-out (3.5 mm Jack on rear) 1x Mic-in (3.5 mm Jack on rear)
NETWORK CONNECTION	ETHERNET	1x 2.5 GbE LAN (RJ45 on rear, Intel® I226-V/IT, TSN support ⁽¹⁾)
PERIPHERAL CONNECTION	USB	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)
	SERIAL PORT OTHER I/Os	2x RS232/422/485 (def.) / RS232 (opt.) (by wafer, 4-wire RS232 support) 8x GPIO (by wafer)
STORAGE & EXPANSION	eMMC M.2	32 GByte / 64 GByte / 128 GByte eMMC 1x M.2-B (2242/3042/3052/2280, PCIe x2 / SATA ⁽²⁾ + USB 3.2 ⁽³⁾ + USB 2.0 + UIM)
	SIM CARD HOLDER	1x M.2-E (2230, PCIe x1 + USB 2.0 / CNVi ⁽⁴⁾) 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 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	0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard) -40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)
	STORAGE TEMPERATURE	-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard) -55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)
	HUMIDITY	0 % ~ 95 %
COMPLIANCE	EMC SAFETY	CE Class B, FCC Class B, ICES Class B, UKCA Class B UR (UL Recognized), CSA

⁽¹⁾ TSN support for models with Atom® processors

⁽²⁾ Switch between PCIe x2 and SATA can be done through jumper selections

⁽³⁾ USB 3.2 support is a BOM-dependent option

⁽⁴⁾ Atom® x7000RE Series processors do not support CNVi

Ordering Information

ARTICLE	ORDER CODE#	PROCESSOR	LAN CHIP	LPDDR	eMMC	COM PORT	OP. TEMP.
	EMEA / AMER						
2.5"-SBC-AMH-0-x7835RE-XT	TBD	Intel® Atom® x7835RE	I226-IT	16 GB	128 GB	RS232/422/485	-40 ~ 85 °C
2.5"-SBC-AMH-1-x7433RE-XT	TBD	Intel® Atom® x7433RE	I226-IT	8 GB	128 GB	RS232/422/485	-40 ~ 85 °C
2.5"-SBC-ADH-0-i3-N305	TBD	Intel® Core™ i3-N305	I226-V	8 GB	64 GB	RS232/422/485	0 ~ 60 °C
2.5"-SBC-ADH-1-N97	TBD	Intel® N97	I226-V	8 GB	64 GB	RS232/422/485	0 ~ 60 °C
2.5"-SBC-ADH-2-i3-N305	TBD	Intel® Core™ i3-N305	I226-V	8 GB	128 GB	RS232/422/485	0 ~ 60 °C
2.5"-SBC-ADH-3-N97	TBD	Intel® N97	I226-V	8 GB	128 GB	RS232/422/485	0 ~ 60 °C

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

Accessories

NO.	ARTICLE	ORDERING CODE		DESCRIPTION
		EMEA / AMER	APAC	
1	DC IN CABLE*	1064-2433	0C502000004220L	2.5 mm DC Jack to H-300F-XX 1x4P 3.0 mm pitch, L = 300 mm
2	COM PORT CABLE	1064-2427	0C5020000005130L	1x10P 1.25 mm pitch to DB9 connector, L = 350 mm
3	GPIO CABLE	1065-3137	0C502000003360L	D-SUB-9P (Female) to MX51021-10P 1x10P 1.25 mm pitch, L = 200 mm
4	USB CABLE (2 PORT)	1069-7893	0C5020003000010L	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		DESCRIPTION
	EMEA / AMERICA	APAC	
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/AMV/AMH	1074-7412	0ZHK25SAML0000A4	Including above accessories table NO. 1 ~ 6 & 8

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