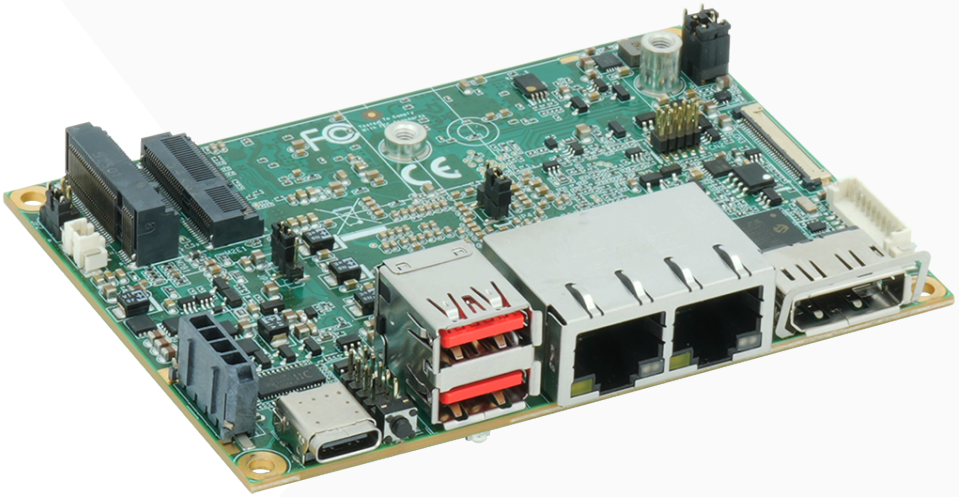
# 2.5”-SBC-AMV/ADV



## 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 LVDS / eDP

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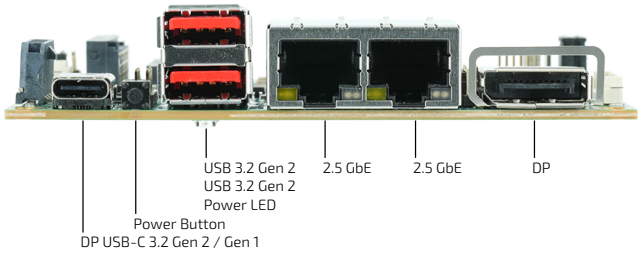
# Product Highlights

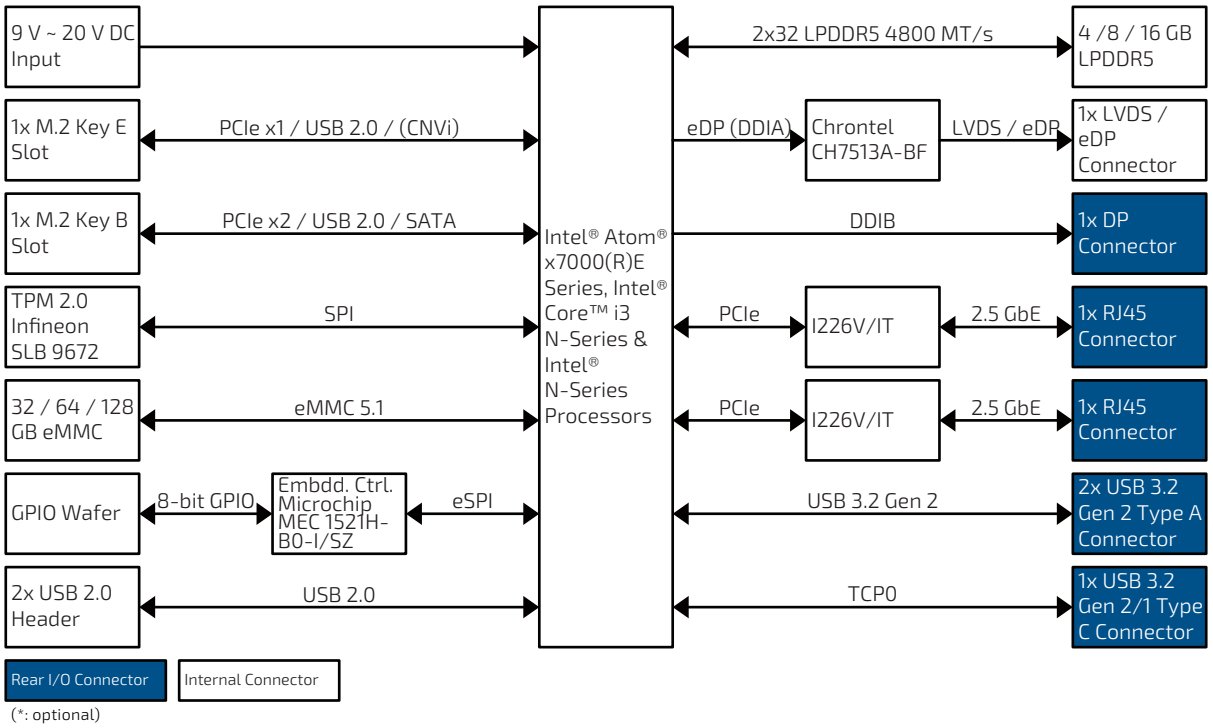
## 2.5" Single Board Computer w/ Intel® Atom® x7000(R)E Series, Core™ i3 N-Series & Intel® N-Series

2.5"-SBC-AMV/ADV 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 LVDS / eDP combo connector, making it an ideal baseboard to be integrated into an all-in-one solution for industrial display systems or projects requiring LVDS panels.

- 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., 1x USB-C), 1x LVDS / eDP for triple display
- 3x USB 3.2 Gen 2 / Gen 1 (2x Type A, 1x Type C), 2x USB 2.0
- 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: DC 9 V ~ 20 V
- Extreme temperature model available: -40 °C ~ 85 °C




# Block Diagram



# Technical Information



| | | |
|---|---|---|
| SYSTEM | PROCESSOR (STANDARD) | Intel® Atom® x7433RE (Quad Core, 6M Cache, 1.5 / 3.4 GHz, 9 W TDP)<br>Intel® Atom® x7835RE (Octa Core, 6M Cache, 1.3 / 3.6 GHz, 12 W TDP)<br>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)<br>Intel® Atom® x7213RE (Dual Core, 6M Cache, 2.0 / 3.4 GHz, 9 W TDP)<br>Intel® Atom® x7211E (Dual Core, 6M Cache, 1.0 / 3.2 GHz, 6 W TDP)<br>Intel® Atom® x7213E (Dual Core, 6M Cache, 1.7 / 3.2 GHz, 10 W TDP)<br>Intel® Atom® x7425E (Quad Core, 6M Cache, 1.5 / 3.4 GHz, 12 W TDP)<br>Intel® N50 (Dual Core, 6M Cache, 1.0 / 3.4 GHz, 6 W TDP)<br>Intel® N97 (Quad Core, 6M Cache, 2.0 / 3.6 GHz, 12 W TDP)<br>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<br>DISPLAY INTERFACE<br><br>MULTIPLE DISPLAY | Intel® UHD Graphics Gen12<br>1x LVDS / eDP (24-bit, 2-ch, 1920 x 1200 @ 60 Hz / 2-lane, 1920 x 1200 @ 60 Hz)<br>2x DP (4096 x 2160 @ 60 Hz, 1x Standard DP on rear, 1x DP USB-C on rear)<br>Triple Display |
| NETWORK CONNECTION | ETHERNET | 2x 2.5 GbE LAN (RJ45 on rear, Intel® I226-V/IT, TSN support*) |
| PERIPHERAL CONNECTION | USB<br><br><br>GPIO | 2x USB 3.2 Gen 2 Type A (on rear)<br>1x USB 3.2 Gen 2 Type C (on rear, w/ DP & PD 5 V / 3 A, except Atom® x7000RE)<br>1x USB 3.2 Gen 1 Type C (on rear, w/ DP & PD 5 V / 3 A, only Atom® x7000RE)<br>2x USB 2.0 (by header)<br>8x GPIO (by wafer) |
| STORAGE & EXPANSION | eMMC<br>M.2<br><br>SIM CARD HOLDER | 32 GByte / 64 GByte / 128 GByte eMMC<br>1x M.2 Key B (Type 2242/3042/3052/2280, w/ PCIe x2 / USB 2.0 / SATA / UIM)<br>1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0 / CNVi**)<br>1x SIM Card Holder (by Wafer) |
| POWER | INPUT VOLTAGE<br>CONNECTOR | DC 9 V ~ 20 V<br>1x4-pin pitch 3.0 mm Wafer |
| FIRMWARE | BIOS<br>WATCHDOG<br>H/W MONITOR<br>REAL TIME CLOCK<br>SECURITY | AMI uEFI BIOS w/ 256 Mb SPI Flash<br>Programmable WDT to generate system reset event<br>Voltages, Temperatures<br>Processor integrated RTC<br>TPM 2.0 Support (Infineon SLB 9672) |
| SYSTEM CONTROL & MONITORING | BUTTON, SWITCH & INDICATOR<br><br>FP HEADER | 1x Power Buttom (on rear)<br>1x Power LED (Green, on board)<br>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<br><br>STORAGE TEMPERATURE<br><br>HUMIDITY | 0 °C~ 60 °C / 32 °F ~ 140 °F (Standard)<br>-40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)<br>-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard)<br>-55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)<br>0 % ~ 95 % |
| COMPLIANCE | EMC<br>SAFETY | CE Class B, FCC Class B, ICES Class B, UKCA Class B<br>UR (UL Recognized), CSA |

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

# Ordering Information

| ARTICLE | ORDER CODE# | DESCRIPTION | | | | |
|---|---|---|---|---|---|---|
| | EMEA / AMER | PROCESSOR | LAN CHIP | LPDDR5 | eMMC | OPERATING TEMP. |
| 2.5"-SBC-AMV-0-x7835RE-XT | TBD | Intel® Atom® x7835RE | Intel® I226-IT | 16 GB | 128 GB | -40 °C ~ 85 °C |
| 2.5"-SBC-AMV-1-x7433RE-XT | TBD | Intel® Atom® x7433RE | Intel® I226-IT | 8 GB | 128 GB | -40 °C ~ 85 °C |
| 2.5"-SBC-ADV-0-i3-N305 | TBD | Intel® Core™ i3-N305 | Intel® I226-V | 8 GB | 64 GB | 0 °C ~ 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 | 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 | 0C50200003000010L | 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
#: not applicable to 3.5"-SBC-AMV/ADV

## 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 N0. 1 ~ 6 & 8 |

# Global Headquarters

**Kontron Europe GmbH**

Gutenbergstraße 2
85737 Ismaning, Germany
Tel.: + 49 821 4086-0
info@kontron.com

**www.kontron.com**

kontron
The Power of IoT

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