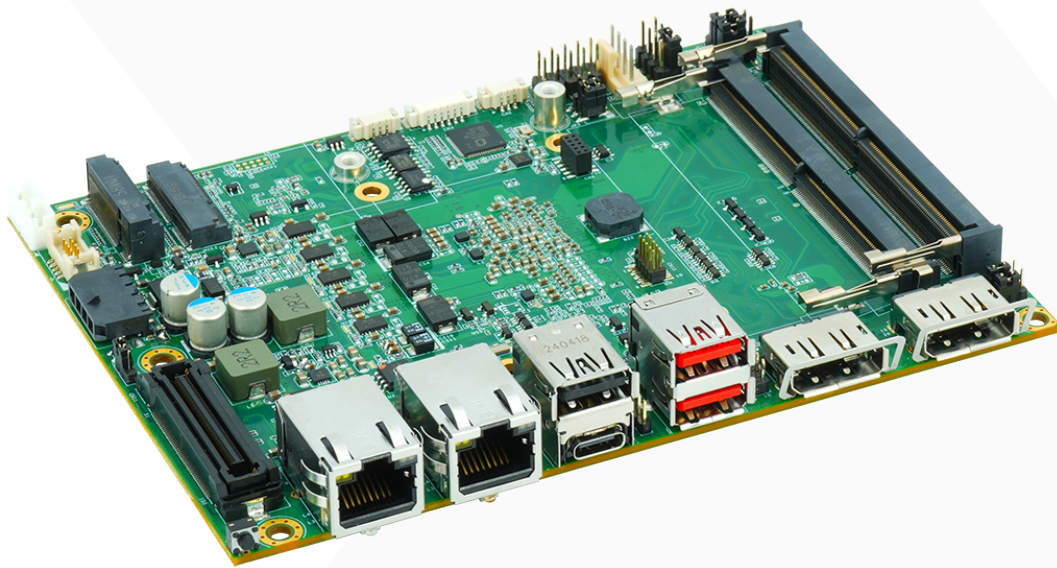




## 3.5" Single Board Computer with Intel® Core™ Ultra 300 Series Processors

- Hybrid-core-architecture computing platform with revamped iGPU and integrated NPU
- Time Coordinated Computing / Time Sensitive Networking for real-time control
- Additional rear I/O expansion via board-to-board connector
- Extra graphics / AI acceleration performance expansion via board-to-wire connector
- Industrial-grade operating temperature range for extreme environmental conditions

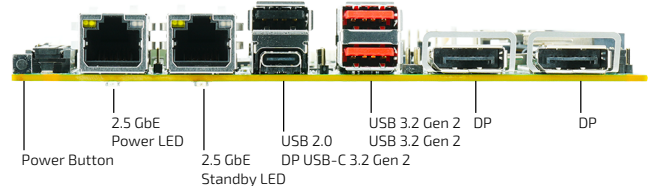
## 3.5" Single Board Computer with Intel® Core™ Ultra 300 Series Processors

3.5"-SBC-PTL is powered by hybrid-core-architecture Intel® Core™ Ultra 300 Series processors with upgraded iGPU and next-gen integrated NPU, delivering near-dGPU performance and next-level AI acceleration. It features 2.5 GbE with TSN and dTPM 2.0 support,

ensuring real-time and secure communications. Finally, the board supports a board-to-board connector and a board-to-wire connector, providing additional I/O ports and extra graphics / AI acceleration card(s) respectively without the restriction of small form factor.

- ▶ Intel® Core™ Ultra 300 Series processors (TDP up to 45 W)
- ▶ 2x DDR5 SO-DIMM memory socket
- ▶ 3x DP (2x Full DP, 1x USB-C), 1x eDP / LVDS for video output
- ▶ 2x 2.5 GbE LAN for Ethernet
- ▶ 3x USB 3.2 Gen 2 (2x Typ. A, 1x Typ. C), 2x USB 2.0 (1x Typ. A)
- ▶ 2x RS232/422/485 for serial device connection
- ▶ 8x DIO for device / signal control
- ▶ 2x CAN Bus for industrial networking
- ▶ 2x CAN Bus for industrial networking
- ▶ 1x M.2 Key B for SSD, WWAN or other expansion
- ▶ 1x M.2 Key E for WLAN, Bluetooth or other expansion
- ▶ 1x M.2 Key M for NVMe SSD

- ▶ 1x board-to-board connector for additional rear I/Os
- ▶ 1x board-to-wire connector for extra GPU / AI performance
- ▶ TPM 2.0 support
- ▶ Wide power input voltage range available: DC 9 V ~ 36 V
- ▶ Extreme temperature model available: -40 °C ~ 85 °C

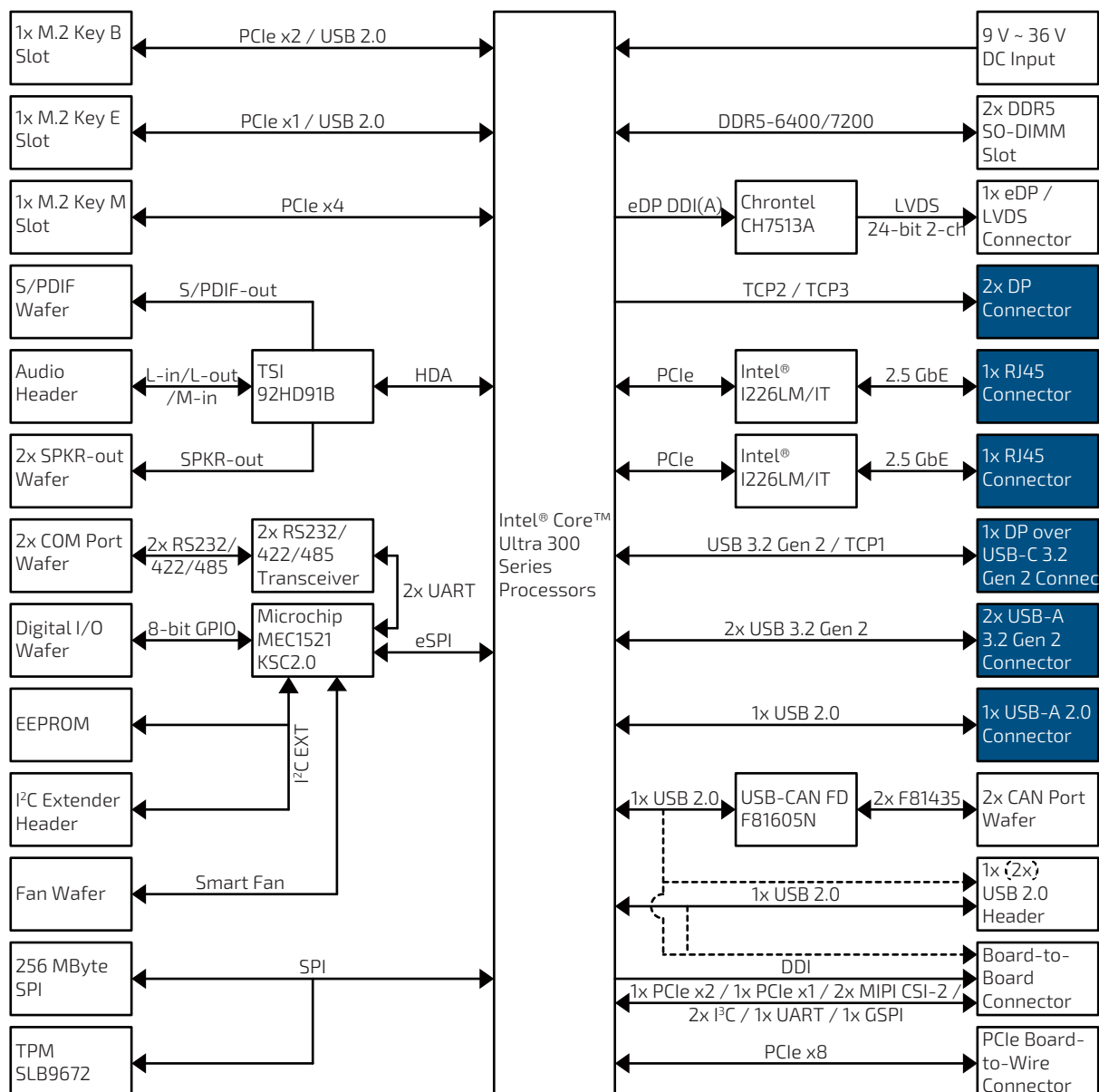


## Block Diagram

----- Optional Route

Internal Connector

Rear I/O Connector



|                             |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM                      | <p>PROCESSOR</p> <p>MEMORY</p>                                                                   | <p>Intel® Core™ Ultra 9 386H (4P+8E+4LP-E, 18M, ~ 4.9 GHz, 25 W → 65 W)</p> <p>Intel® Core™ Ultra 7 366H (4P+8E+4LP-E, 18M, ~ 4.8 GHz, 25 W → 65 W)</p> <p>Intel® Core™ Ultra 7 365 (4P+0E+4LP-E, 12M, ~ 4.8 GHz, 25 W → 55 W)</p> <p>Intel® Core™ Ultra 7 356H (4P+8E+4LP-E, 18M, ~ 4.7 GHz, 25 W → 65 W)</p> <p>Intel® Core™ Ultra 7 355 (4P+0E+4LP-E, 12M, ~ 4.7 GHz, 25 W → 55 W)</p> <p>Intel® Core™ Ultra 5 338H (4P+4E+4LP-E, 18M, ~ 4.7 GHz, 25 W → 65 W)</p> <p>Intel® Core™ Ultra 5 336H (4P+4E+4LP-E, 18M, ~ 4.6 GHz, 25 W → 65 W)</p> <p>Intel® Core™ Ultra 5 335 (4P+0E+4LP-E, 12M, ~ 4.6 GHz, 25 W → 55 W)</p> <p>Intel® Core™ Ultra 5 325 (4P+0E+4LP-E, 12M, ~ 4.5 GHz, 25 W → 55 W)</p> <p>Intel® Core™ Ultra 5 332 (2P+0E+4LP-E, 12M, ~ 4.4 GHz, 25 W → 55 W)</p> <p>Intel® Core™ Ultra 5 322 (2P+0E+4LP-E, 12M, ~ 4.4 GHz, 25 W → 55 W)</p> <p>2x DDR5 6400/7200 SO-DIMM up to 128 GByte</p> |
| VIDEO                       | <p>GRAPHICS CONTROLLER</p> <p>DISPLAY INTERFACE</p> <p>MULTIPLE DISPLAY</p>                      | <p>Intel® Arc™ B370 (Core™ Ultra 5 338H)</p> <p>Intel® Graphics (others)</p> <p>1x eDP / LVDS (24-bit, 2-ch)</p> <p>3x DP (2x Full-size DP on rear, 1x DP USB-C on rear)</p> <p>Quadruple Display</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| AUDIO                       | <p>AUDIO CODEC</p> <p>AUDIO INTERFACE</p>                                                        | <p>TSI 92HD91B</p> <p>1x Speaker-out (Stereo, by header)</p> <p>1x Line-in (by header)</p> <p>1x Line-out (by header)</p> <p>1x Mic-in (by header)</p> <p>1x S/PDIF Out (by header)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| NETWORK CONNECTION          | <p>ETHERNET CONTROLLER</p> <p>ETHERNET PORT</p>                                                  | <p>Intel® I226-LM/IT</p> <p>2x 2.5 GbE LAN (RJ45 on rear)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PERIPHERAL CONNECTION       | <p>USB</p> <p>SERIAL PORT</p> <p>OTHER I/Os</p>                                                  | <p>3x USB 3.2 Gen 2 (2x Type A on rear, 1x Type C on rear w/ DP &amp; PD 5 V / 3 A)</p> <p>2x USB 2.0 (1x Type A on rear, 1x by header &amp; +1 in case of no CAN Bus)</p> <p>2x RS232/422/485 (by header)</p> <p>8x DIO (by header)</p> <p>2x CAN Bus (by header, -2 in case of 2x USB 2.0 by header or on B2B)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| STORAGE & EXPANSION         | <p>M.2</p> <p>SIM CARD HOLDER</p> <p>BOARD-TO-BOARD CONNECTOR</p> <p>BOARD-TO-WIRE CONNECTOR</p> | <p>1x M.2 Key B (Type 3042/3052/2280, w/ PCIe x2 / USB 2.0 / UIM)</p> <p>1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0)</p> <p>1x M.2 Key M (Type 2280, w/ PCIe x4)</p> <p>1x SIM Card Holder (by header)</p> <p>1x DDI (DP / HDMI / eDP)</p> <p>2x MIPI CSI-2 (2x2 / 1x4)</p> <p>1x PCIe x2 / 2x PCIe x1</p> <p>1x PCIe x1</p> <p>2x I<sup>3</sup>C (up to 2x Camera support)</p> <p>1x UART</p> <p>1x GSPI</p> <p>2x USB 2.0 (optional, trade off 1x USB 2.0 header + 2x CAN Bus)</p> <p>1x PCIe x8 / 2x PCIe x4 (Core™ Ultra 9 386H / 7 366H / 7 356H only)</p>                                                                                                                                                                                                                                                                                                                                             |
| POWER                       | <p>INPUT VOLTAGE</p> <p>CONNECTOR</p>                                                            | <p>DC 9 V ~ 36 V</p> <p>1x4-pin pitch 3.0 mm Wafer</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FIRMWARE                    | <p>BIOS</p> <p>WATCHDOG</p> <p>H/W MONITOR</p> <p>REAL TIME CLOCK</p> <p>SECURITY</p>            | <p>AMI uEFI BIOS</p> <p>Programmable WDT to generate system reset event</p> <p>Voltages, Temperatures</p> <p>Processor integrated RTC</p> <p>dTPM 2.0 (Infineon SLB 9672)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SYSTEM CONTROL & MONITORING | <p>FP HEADER</p> <p>BUTTON, SWITCH &amp; INDICATOR</p>                                           | <p>1x Header for Reset Button, HDD LED &amp; External Speaker</p> <p>1x Header for Power Button, Power LED &amp; SM Bus</p> <p>1x Standby LED (Yellow, on rear)</p> <p>1x Power LED (Green, on rear)</p> <p>1x Power Button (on rear)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| COOLING                     | <p>FAN</p>                                                                                       | <p>1x Wafer for Smart Fan</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SOFTWARE                    | <p>OS SUPPORT</p>                                                                                | <p>Windows 11, Linux</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| MECHANICAL                  | <p>DIMENSION (L x W)</p>                                                                         | <p>ECX (146 mm x 105 mm / 5.75" x 4.13")</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ENVIRONMENTAL               | <p>OPERATING TEMPERATURE</p> <p>STORAGE TEMPERATURE</p> <p>HUMIDITY</p>                          | <p>0 °C ~ 60 °C / 32 °F ~ 140 °F (Standard)</p> <p>-40 °C ~ 85 °C / -40 °F ~ 185 °F (Extreme)</p> <p>-20 °C ~ 80 °C / -4 °F ~ 176 °F (Standard)</p> <p>-55 °C ~ 85 °C / -67 °F ~ 185 °F (Extreme)</p> <p>0 % ~ 95 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| COMPLIANCE                  | <p>EMC</p> <p>SAFETY</p>                                                                         | <p>CE Class B, FCC Class B, ICES Class B, UKCA Class B</p> <p>UR (UL Recognized), CSA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

# Ordering Information

3.5"-SBC-PTL

| ARTICLE     | ORDERING CODE* | DESCRIPTION |                       |
|-------------|----------------|-------------|-----------------------|
|             | EMEA / AMERICA | PROCESSOR   | OPERATING TEMPERATURE |
| COMING SOON |                |             |                       |

\* For ordering code for APAC, contact your local account manager.

## Accessories

| NO. | ARTICLE                      | ORDERING CODE  |                  | DESCRIPTION                                                                             |
|-----|------------------------------|----------------|------------------|-----------------------------------------------------------------------------------------|
|     |                              | EMEA / AMERICA | APAC             |                                                                                         |
| 1   | DC IN CABLE*                 | 1075-3152      | 0C5020000001920L | 1x4P 3.0 pitch to EHDP-2P 5.08 pitch + JST 110 1x2P, L = 230 mm                         |
| 2   | COM PORT CABLE               | 1064-2427      | 0C5020000005130L | 1x10P 1.25 mm pitch to DB9 connector, L = 350 mm                                        |
| 3   | DIO CABLE                    | 1065-3137      | 0C5020000003360L | 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   | AUDIO CABLE                  | 1070-1245      | 0C5020000005840L | 2x5P 1.25 mm pitch to 3x 3.5 mm ear phone jack, L = 400 mm                              |
| 6   | ADAPTER                      | 1074-9217      | 0I09025PU151A02L | Input: AC 100 V ~ 240 V, output: DC 24 V @ 6.25 A Max. 150 W                            |
| 7   | I/O CARD (3.5"-eIO-GPA-0)    | 1069-6159      | B35EGPA0-001001T | 2x DP, 2x 2.5 GbE, 1x UART, 1x I <sup>2</sup> C, 1x SMBus, 1x GSPI, 1x DC In, 0 ~ 60 °C |
| 8   | I/O CARD (3.5"-eIO-GPA-1)    | 1069-6922      | B35EGPA0-011001T | 2x DP, 2x 2.5 GbE, 1x UART, 1x I <sup>2</sup> C, 1x SMBus, 1x GSPI, 0 ~ 60 °C           |
| 9   | I/O CARD (3.5"-eIO-GPA-2-XT) | 1073-9682      | B35EGPAI-021000T | 2x DP, 2x 2.5 GbE, 1x UART, 1x I <sup>2</sup> C, 1x SMBus, 1x GSPI, 1x DC In, -40~85°C  |

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

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