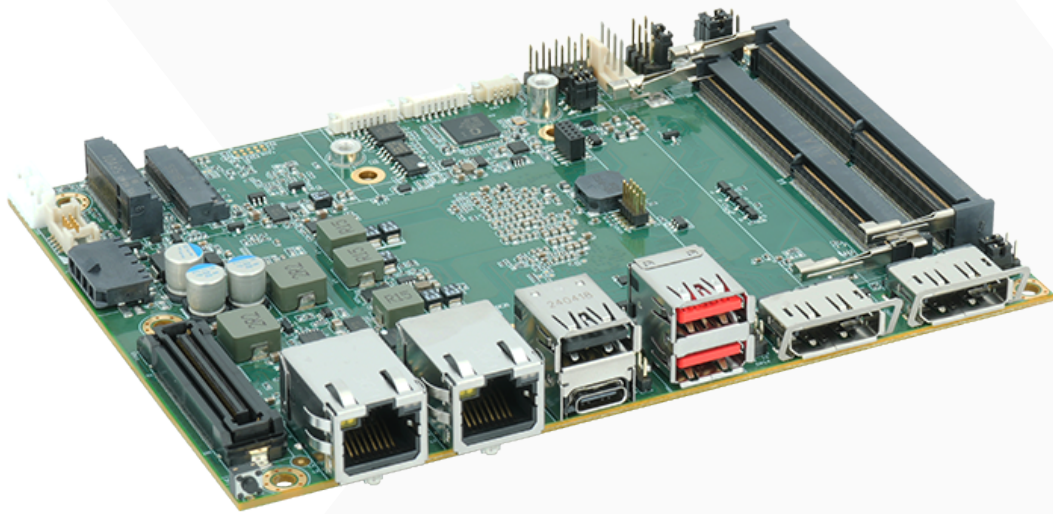


# 3.5"-SBC-P100



## 3.5" Single Board Computer with AMD Ryzen™ AI Embedded P100 Series Processors

- Advanced graphics capabilities through RDNA™ 3.5 GPU
- AI acceleration XDNA™ 2 Architecture NPU
- 2x 2.5 GbE Ethernet Controller and 2x CAN FD buses integrated
- Various expansion capabilities by board-to-board/-wire connectors, M.2 sockets
- Industrial-grade operating temperature range, wide voltage input

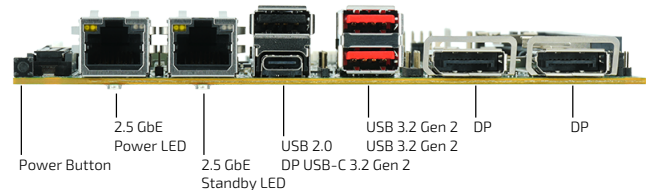
## 3.5" Single Board Computer with AMD Ryzen™ AI Embedded P100 Series Processors

3.5"-SBC-P100 is powered by AMD Ryzen™ AI Embedded P100 Series processors with integrated GPU Radeon™ RDNA 3.5 & NPU XDNA™ 2, delivering cutting-edge graphics performance and next-level AI inference acceleration. It features 2.5 GbE with TSN and dTPM 2.0

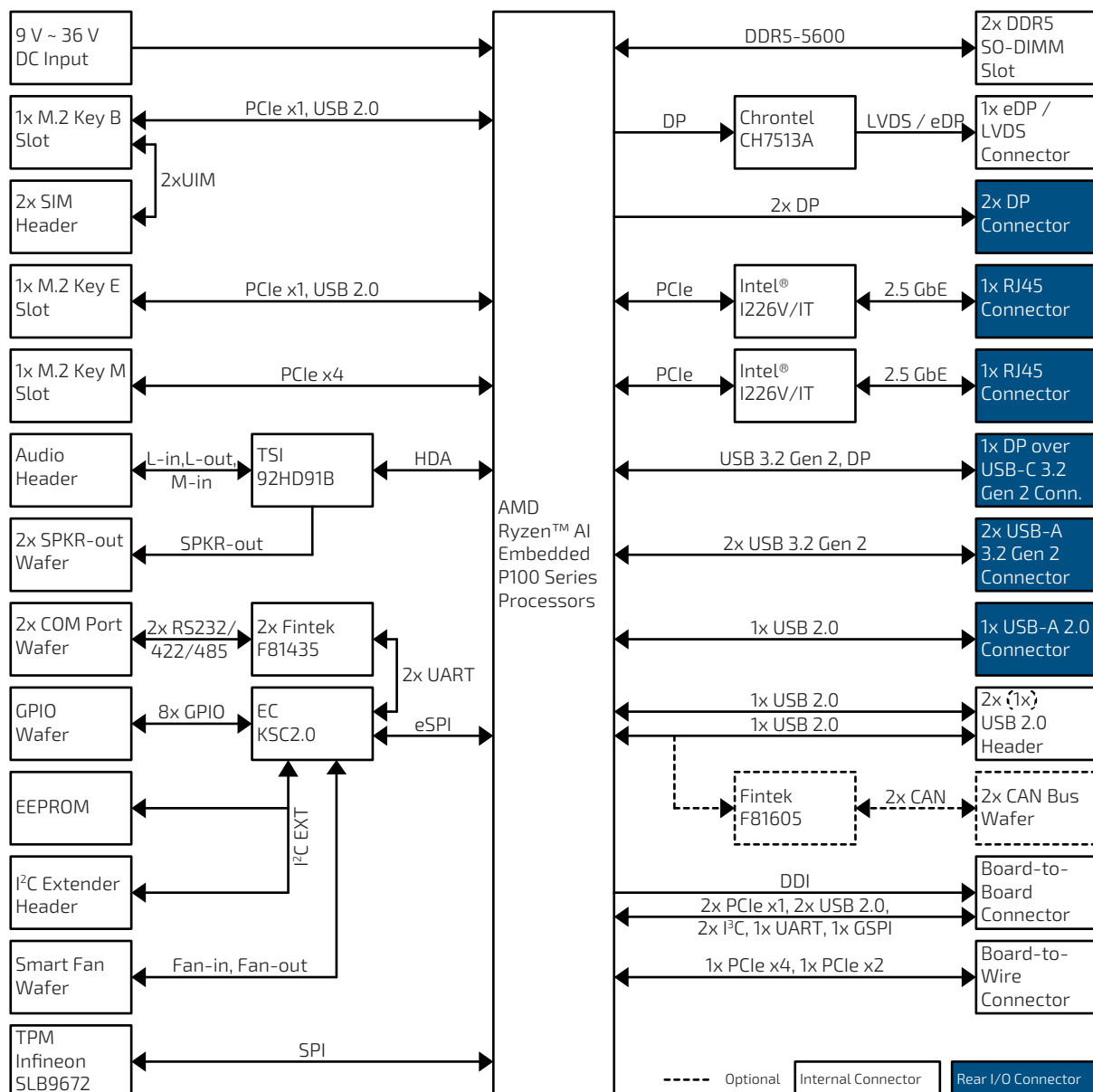
support, ensuring real-time & secure communications. The board supports a board-to-board connector and a board-to-wire connector, providing additional I/O ports and extra graphics / AI acceleration card(s) respectively without the restriction of small form factor.

- AMD Ryzen™ AI Embedded P100 Series Processors
- 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 with TSN support
- 3x USB 3.2 Gen 2 (2x Typ. A, 1x Typ. C), 3x USB 2.0 (1x Typ. A)
- 2x RS232/422/485 for serial device connection
- 8x GPIO for device / signal control
- 2x CAN FD Bus for industrial networking (optional)
- 2x CAN FD Bus for industrial networking (optional)
- 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



|                             |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM                      | <p>PROCESSOR</p> <p>INTEGRATED GRAPHICS<br/>INTEGRATED AI ENGINE<br/>MEMORY</p>               | <p>AMD Ryzen™ AI Embedded P164 (8C, 16M, ~ 5 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Ryzen™ AI Embedded P164i (8C, 16M ~ 5 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Ryzen™ AI Embedded P132 (6C, 8M, ~ 4.5 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Ryzen™ AI Embedded P132i (6C, 8M, ~ 4.5 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Ryzen™ AI Embedded P121 (4C, 8M, ~ 4.4 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Ryzen™ AI Embedded P121i (4C, 8M, ~ 4.4 GHz, 15 W ← 28 W → 54 W TDP)<br/>AMD Radeon™ RDNA™ 3.5 (2.8 / 2.8 / 2.8 / 2.8 / 2.7 / 2.7 GHz resp.)<br/>AMD XDNA™ 2 (50 / 50 / 50 / 50 / 30 / 30 TOPS resp.)<br/>2x DDR5 5600 SO-DIMM up to 128 GByte (Sideband ECC support)</p> |
| VIDEO                       | <p>DISPLAY INTERFACE</p> <p>MULTIPLE DISPLAY</p>                                              | <p>1x eDP (1920 x 1200 @ 60 Hz) / LVDS (24-bit, 2-ch, 1920 x 1200 @ 60 Hz) <sup>(1)</sup><br/>3x DP (7680 x 4320 @ 60 Hz, 2x Full-size DP on rear, 1x DP USB-C on rear)<br/>Quadruple Display</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AUDIO                       | AUDIO CODEC<br>AUDIO INTERFACE                                                                | <p>TSI 92HD91B<br/>1x Speaker-out (Stereo, by header)<br/>1x Line-in (by header)<br/>1x Line-out (by header)<br/>1x Mic-in (by header)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| NETWORK CONNECTION          | ETHERNET CONTROLLER<br>ETHERNET PORT                                                          | <p>Intel® I226-V/IT<br/>2x 2.5 GbE LAN (RJ45 on rear, TSN support <sup>(2)</sup>)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| PERIPHERAL CONNECTION       | <p>USB</p> <p>SERIAL PORT<br/>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)<br/>3x USB 2.0 (1x Type A on rear, 2x by header &amp; -1 in case of CAN Buses)<br/>2x RS232/422/485 (by header)<br/>8x GPIO (by header)<br/>2x CAN FD Bus (optional, by header, optional, trade off 1x USB 2.0 header)</p>                                                                                                                                                                                                                                                                                                                                                              |
| STORAGE & EXPANSION         | <p>M.2</p> <p>SIM CARD HOLDER<br/>BOARD-TO-BOARD CONNECTOR</p> <p>BOARD-TO-WIRE CONNECTOR</p> | <p>1x M.2 Key B (Type 3042/3052/2280, w/ PCIe x1 / USB 2.0 / 2x UIM)<br/>1x M.2 Key E (Type 2230, w/ PCIe x1 / USB 2.0)<br/>1x M.2 Key M (Type 2280, w/ PCIe x4)<br/>2x SIM Card Holder (by header)<br/>1x DDI (DP / HDMI / eDP)<br/>2x PCIe x1<br/>2x USB 2.0<br/>2x I<sup>2</sup>C<br/>1x UART<br/>1x GSPi<br/>1x PCIe x4<br/>1x PCIe x2 (p164(i) only)</p>                                                                                                                                                                                                                                                                                                               |
| POWER                       | INPUT VOLTAGE<br>CONNECTOR                                                                    | <p>DC 9 V ~ 36 V<br/>1x4-pin pitch 3.0 mm Wafer</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FIRMWARE                    | <p>BIOS</p> <p>WATCHDOG<br/>H/W MONITOR<br/>REAL TIME CLOCK<br/>SECURITY</p>                  | <p>AMI uEFI BIOS<br/>Programmable WDT to generate system reset event<br/>Voltages, Temperatures<br/>Processor integrated RTC<br/>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<br/>1x Header for Power Button, Power LED &amp; SM Bus<br/>1x Standby LED (Yellow, on rear)<br/>1x Power LED (Green, on rear)<br/>1x Power Button (on rear)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| COOLING                     | FAN                                                                                           | 1x Wafer for Smart Fan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SOFTWARE                    | OS SUPPORT                                                                                    | Windows 11, Linux                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MECHANICAL                  | DIMENSION (L x W)                                                                             | ECX (146 mm x 105 mm / 5.75" x 4.13")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ENVIRONMENTAL               | <p>OPERATING TEMPERATURE</p> <p>STORAGE TEMPERATURE</p> <p>HUMIDITY</p>                       | <p>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 %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| COMPLIANCE                  | EMC<br>SAFETY                                                                                 | <p>CE Class B, FCC Class B, ICES Class B, UKCA Class B<br/>UR (UL Recognized), CSA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

<sup>(1)</sup> switchable by BIOS

<sup>(2)</sup> TSN support for models with P121(i) & P132(i) CPUs

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

\* Standard shipment in bulk packaging. For ordering code for APAC or for box packaging, contact your local account manager.

## Accessories

| NO. | ARTICLE                                      | ORDERING CODE |                  | DESCRIPTION                                                         |
|-----|----------------------------------------------|---------------|------------------|---------------------------------------------------------------------|
|     |                                              | EMEA / AMER   | APAC             |                                                                     |
| 1   | DC IN CABLE <sup>(1)</sup>                   | 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   | GPIO 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-3 <sup>(2)</sup> )    | 1073-6700     | B35EGPA0-131002T | Refer to 3.5"-eIO-GPA datasheet for supported functions             |
| 8   | I/O CARD (3.5"-eIO-GPA-4-XT <sup>(2)</sup> ) | 1073-8651     | B35EGPAI-141002T | Refer to 3.5"-eIO-GPA datasheet for supported functions             |

<sup>(1)</sup> Standard supplied accessories for APAC single-piece box packaging

<sup>(2)</sup> Customized model. Contact your local account manager for detailed information.

## Global Headquarters

Kontron Europe GmbH

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

www.kontron.com