

# AX-238BT | 12th/13th Gen Intel® Core™ U/P | Dual CAN USB4 | Wide Voltage



## Features:

- \* 12th / 13th Gen Intel® Core™ U & P series in a compact 3.5" SBC (102 × 146 mm)
- \* DDR5 SO-DIMM up to 96 GB (13th Gen) — high memory bandwidth for edge workloads
- \* Dual 2.5 GbE (Intel® i226-V), dual CAN, up to 5× COM — built for machine & vehicle integration
- \* USB4 / 40 Gbps Type-C with DisplayPort — high-speed data and display on one connector
- \* Wide voltage 9–36 VDC input — designed for in-vehicle and unstable industrial power
- \* PCIe 5.0 ×4 M.2 storage; M.2 B-Key & E-Key for 4G/5G, Wi-Fi/BT and SSD expansion



|                                      |                                                                                                              |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------|
| SKU                                  | AX-238BT                                                                                                     |
| Product type                         | Industry Computers (FANLESS)                                                                                 |
| Product color                        | Extruded Aluminum with Heavy Duty Metal                                                                      |
| Operating system                     | Windows 10 · Windows 11 · Linux                                                                              |
| FOR IN-VEHICLE & MOBILE APPLICATIONS |                                                                                                              |
| Wide Voltage Input                   | DC 9–36 V, 120 W — suitable for in-vehicle and mobile power                                                  |
| Fieldbus & I/O                       | 2× CAN · COM1/2 RS232/485 (BIOS-selectable) · COM3–5 RS232 · 8-bit GPIO                                      |
| Dual 2.5 GbE                         | 2× Intel® i226-V 2.5 GbE — bandwidth for machine vision and edge data                                        |
| Operating Range                      | –20 °C to +60 °C · humidity 5–90%                                                                            |
| PROCESSOR/RAM/STORAGE                |                                                                                                              |
| Processor Name                       | Intel® Core i5 1235U (up to 4.4 GHz with Intel® Turbo Boost Technology, 12MB L3 cache, 10 cores, 12 threads) |
| Processor Base Power(TDP)            | 15 W (configurable 12–28 W)                                                                                  |
| Max Turbo Power                      | up to 55 W (package peak)                                                                                    |
| Memory                               | 2× DDR5 SO-DIMM — up to 64 GB (12th Gen) / up to 96 GB (13th Gen)                                            |
| Storage                              | 1× SATA 3.0 (with 2-pin 5 V power)                                                                           |
|                                      | 1× M.2 2280 (PCIe 5.0 ×4)                                                                                    |
| TPM2.0                               | External TPM 2.0 — optional (not fitted by default)                                                          |
| BIOS                                 | AMI BIOS                                                                                                     |
| Graphics                             |                                                                                                              |
| Graphic card                         | Integrated Intel® Iris® Xe Graphics 80EU                                                                     |
| Display                              | 1× 24-bit LVDS (LVDS/eDP selectable)                                                                         |
|                                      | 1× DisplayPort 1.4 · 1× HDMI 2.0 · 2× USB Type-C (with DisplayPort) - <b>4 Independent display</b>           |
| I/O PORTS (front & rear panel)       |                                                                                                              |
| I/O ports                            | USB/Type-C 2× USB3.0 Type-A                                                                                  |
|                                      | 2× USB4 Type-C (DisplayPort + 40 Gbps)                                                                       |
|                                      | COM COM1/2: RS232/485 (BIOS-selectable) · COM3/4/5: RS232                                                    |
|                                      | CAN 2× CAN (2.0 mm pitch header)                                                                             |
|                                      | LAN 2× 2.5 GbE, Intel® i226-V                                                                                |
|                                      | Audio Audio (line-out / mic via codec)                                                                       |
|                                      | GPIO 1× 8-bit GPIO expandable                                                                                |

|                            |                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fan                        | 1× 4-pin PWM CPU fan · 1× 3-pin system fan                                                                                                                                                                                                                                        |
| WIRELESS & EXPANSION       |                                                                                                                                                                                                                                                                                   |
| 4G/5G                      | 1× M.2 B-Key (USB 2.0 + USB 3.0 + PCIe) — 4G / 5G / SSD module                                                                                                                                                                                                                    |
| Wi-Fi / BT                 | 1x M.2 E-Key ( USB 2.0 + PCIe ) — Wi-Fi / Bluetooth module                                                                                                                                                                                                                        |
| Expansion                  | 2× USB 2.0 pin headers (2×5-pin, 2.0 mm pitch)                                                                                                                                                                                                                                    |
| Power                      |                                                                                                                                                                                                                                                                                   |
| Power input                | DC 9-36 v, Ø5.5×2.5 mm DC jack + 1× Phoenix terminal<br>1x Remote Power On/Off, 2-pin Terminal Block                                                                                                                                                                              |
| Environment                |                                                                                                                                                                                                                                                                                   |
| Operation Temperature      | <ul style="list-style-type: none"> <li>• -20°C to +60°C</li> <li>• PassMark BurnInTest: 100% CPU, 2D/3D Graphics (without thermal throttling)</li> <li>• With extended temperature peripherals; Ambient with air flow</li> <li>• According to IE61000-3-2, IE61000-3-3</li> </ul> |
| Storage Temperature        | -40°C to +85°C                                                                                                                                                                                                                                                                    |
| Relative Humidity          | • 95% RH @ 70°C (Non-condensing)                                                                                                                                                                                                                                                  |
| Shock                      | 15G, 11ms                                                                                                                                                                                                                                                                         |
| Vibration                  | 5 - 500 Hz/1 Grms                                                                                                                                                                                                                                                                 |
| Dimensions And Weight      |                                                                                                                                                                                                                                                                                   |
| Dimensions (W x D x H)     | 210 x 150 x 70 mm                                                                                                                                                                                                                                                                 |
| Weight                     | 1.8 kg                                                                                                                                                                                                                                                                            |
| Mounting                   | • Wall / Side / DIN-RAIL / VESA Moun                                                                                                                                                                                                                                              |
| Physical Design            | Fanless · cable-less · jumper-less · unibody extruded aluminium with heavy-duty metal                                                                                                                                                                                             |
| Lifecycle/Warranty/Quality |                                                                                                                                                                                                                                                                                   |
| Product Lifecycle          | 5-7 years lifecycle for mainboard, modules, shells, ICs.                                                                                                                                                                                                                          |
| Warranty                   | 24-Month for completely unit                                                                                                                                                                                                                                                      |
| Quality Assurance          | AQL-audited consistency · 100% 18-hour power-on burn-in under load · full serial-number traceability                                                                                                                                                                              |
| Technical support          | lifetime for OS support, BIOS/Firmware updates, CAN/RS485/PLC debugging,                                                                                                                                                                                                          |
| Business Terms (OEM/ODM)   |                                                                                                                                                                                                                                                                                   |
| MOQ                        | MOQ 100   Light Customization   NRE Refund @ 2K Units                                                                                                                                                                                                                             |
| Customization              | I/O layout changes · wireless pre-integration · storage upgrades · front-panel branding · pre-loaded system images for volume projects                                                                                                                                            |
| Delivery time              | 35 days for light customization; NRE projects quoted per requirement                                                                                                                                                                                                              |
| Platform                   | Scalable 3.5" SBC platform with optional SDK and OS customization for fast system integration                                                                                                                                                                                     |
| Notes                      | PM 2.0, LVDS/eDP and wireless modules are build-time options — configured per project                                                                                                                                                                                             |