

# AE-3588BT | Edge AI computer | Up to 58 TOPS | BITECH



## Features:

- Fanless industrial AI edge computer for harsh environments
- Built-in NPU with expandable AI computing power up to 58 TOPS
- Native Android OS with open root access for deep customization
- Supports AI frameworks: TensorFlow, ONNX, Caffe, MXNet, Darknet
- Rich industrial I/O with isolated GPIO, CAN Bus, RS232/RS485
- Designed for 7×24 continuous operation



|                  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| SKU              |           | AE-3588BT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Product type     |           | Best for industrial edge AI applications requiring AI inference with CAN & serial fieldbus integration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Product color    |           | Extruded Aluminum with Heavy Duty Metal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Operating system |           | Android 12/ Debian 11/Ubuntu20.04 etc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HARDWARE         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CPU              |           | RK3588J, Octa core, 4x A76, 4x A55, Up to 2.4GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Graphic card     |           | Mali-G610, Support OpenGL ES3.2, OpenGL2.2, 450 GFLOFS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| NPU              |           | <ul style="list-style-type: none"><li>• Built-in Neural Processing Unit (NPU) for high-efficiency AI inference</li><li>• Supports multiple data precisions: IN4 / IN8 / INT16 / FP16</li><li>• Onboard AI performance up to 6.0 TOPS</li><li>• Supports expansion via 2 × PCIe M.2 NPU accelerator modules (26 TOPS each)</li><li>• Total AI computing power scalable up to <b>58 TOPS</b></li><li>• Compatible with mainstream AI frameworks including Caffe, MXNet, TensorFlow, TensorFlow Lite, ONNX, Darknet</li><li>• Provides AI development tools for fast model conversion and deployment</li></ul> |
| Memory           |           | On board LPDDR4 8GB (16G/32G Option)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Storage          |           | On board 128GB EMCC (256GB for option)<br>Support PCIE M.2 SSD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| PCIe extension   |           | 2x PCIe M.2 Extension, 4-lane(PICex 4 ) high-speed communication, support M2242, M2260                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Network          | WI-FI     | Support Dual wifi 2.4G&5G, WIFI 6 option                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                  | Bluetooth | BT5.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                  | 4G        | Built-in 4G Module, Mini PCIe port<br>Support LTE-TDD/LTE-FDD/TD-SCDMA/EDGE/GPRS/GSM option                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                  | 5G        | Built-in 5G Module, Mini PCIe port<br>Support 5G-NR-NSA/5G-NR-SA/LTE-TDD/LTE-FDD/LAA/WCDMA/MIMO/GNSS option                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                  | Ethernet  | 3x LAN 10/100/1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| GPS              | GPS/BD    | Built-In GPS/BD, Sensitive: -162dBm, Receiving Frequency: 1575.42MHz, Satellite channel: 20 Channels                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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| <b>Gravity sensor</b>        | Supports manual rotation at 0, 90, 180, and 270 degrees, and automatic screen rotation via gravity sensor (optional).                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Display</b>               | 1x eDP (Compliant with eDP 1.3 4 lanes, up to 5.4 Gbps per lane Supports 3.3V / 5V)<br>1 × LVDS (single-channel / dual-channel,6-bit / 8-bit color depth, 1080P @ 60Hz output Supports 3.3V / 5V / 12V panel power output<br>1 × HDMI 2.1 (up to 8K @ 60Hz output)<br>1 × HDMI 2.0 (up to 4K @ 60Hz input)<br>1 × MIPI display output (up to 5.7 Gbps )<br>Support <b>Multi-display independent output</b>                                                                                        |
| <b>Camera</b>                | 1x MIPI Camera, support max 4800w                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Audio</b>                 | 1x Speaker (2x 18W 4R), 1x Microphone, 1x Earphone                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>INTERFACE</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>I/O ports</b>             | Power Button 1x Power on/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                              | DC 1x DC 9-36 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | Phonex terminal 1x 12PIN Phonex termial (Power/232*1/485*1/CAN*1/GPIO*3)                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                              | HDMI 1x HDMI 2.1, 8K 60Hz Output<br>1x HDMI 2.0, 4K 60Hz Input                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | USB 2x 5Gbps USB 3.2 Gen1, Type A<br>2x 480Mbps USB2.0, Type A                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                              | GPIO <b>4-Bit GPIO</b> (4000V optical isolation)                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | COM <b>4× RS232</b> (4000V optical isolation) , <b>2× RS485</b> (4000V optical isolation);<br>1× UART TTL (4×10-pin header)                                                                                                                                                                                                                                                                                                                                                                       |
|                              | CAN Bus <b>2× CAN Bus</b> (4000V optical isolation)                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                              | LAN 3x LAN 10/100/1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                              | Audio 1x 3.5mm Combo audio jack                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | SIM 1x Sim Slot, Support 4G/5G LTE, Support eSIM                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | TF 1x TF card slot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                              | I2C 1x I2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Systems support</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Android systems</b>       | <ul style="list-style-type: none"> <li>• Native Android operating system with open root access, supporting customized product development</li> <li>• Enables system-level application development and deep functional customization</li> <li>• Supports real-time remote monitoring with automatic system recovery, designed for 24/7 unattended operation</li> <li>• Supports OTA remote system and application upgrades</li> <li>• Supports WiFi Display for wireless screen casting</li> </ul> |
| <b>Watchdog</b>              | <ul style="list-style-type: none"> <li>• Built-in system watchdog, with both software and hardware watchdog support to ensure long-term system stability</li> </ul>                                                                                                                                                                                                                                                                                                                               |
| <b>RTC</b>                   | <ul style="list-style-type: none"> <li>• Built-in real-time clock (RTC) with backup battery to maintain accurate system time during power loss</li> <li>• Integrated super capacitor design for improved power-off protection and system reliability</li> <li>• Supports scheduled power on/off for unattended operation and centralized device management</li> </ul>                                                                                                                             |
| <b>Compatibility</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Operation Temperature</b> | • -40°C to +80°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Storage Temperature</b>   | • -20°C to +70°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Relative Humidity</b>     | • 10-80 % RH @ 70°C (Non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Shock</b>                 | 15G, 11ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Vibration</b>             | 5 - 500 Hz/1 Grms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>EMI</b>                   | • CE certification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>ESD</b>                   | • Terminal <u>±</u> 4KV, Air <u>±</u> 8KV                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Dimensions And Weight</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| <b>Dimensions (W x D x H)</b>                                                                                              | 225*145*65mm                                                               |
| <b>Weight</b>                                                                                                              | 1.3 kg                                                                     |
| <b>Mounting</b>                                                                                                            | Rack mount or Desk                                                         |
| <b>Power adapter</b>                                                                                                       | Input: 100-240V 50/60HZ,<br>Output: DC DIAMETER $\phi$ 5.5mm*2.1mm, 12V/5A |
| <b>Physical Design</b>                                                                                                     | • Fanless Design • Cableless Design • Jumper-less Design • Unibody Design  |
| Lifetime/Warranty/After sales service (For more details, Pls check our after-sales service policy document)                |                                                                            |
| <b>Lifetime</b>                                                                                                            | 5-7 years lifecycle for mainboard, modules, shells, ICs.                   |
| <b>Technical support</b>                                                                                                   | lifetime for OS support, BIOS/Firmware updates, CAN/RS485/PLC debugging,   |
| <b>Warranty</b>                                                                                                            | 24-Month for completely unit                                               |
| * We deliver audited consistency with <b>AQL inspection, 100% 6-hour power-on burn-in under load, full SN traceability</b> |                                                                            |

**Shenzhen Bitech Co., Ltd |**

**sales@bitechipc.com | whatsapp: +86 13538164607**

BITECH provides scalable hardware platform solutions with optional SDK and OS customization for fast system integration