

# AE-3588LBT | Fanless Industrial Edge AI Computer | RK3588 32 TOPS



## Features:

- RK3588 octa-core platform with 6 TOPS onboard NPU, scalable to **32 TOPS** through one M.2 accelerator.
- HDMI 2.0 4K@60Hz input + HDMI 2.1 8K@60Hz output for closed-loop vision workflows.
- Dual GbE, 2× RS232/485 and 4-bit GPIO with non-isolated, low-latency cabinet I/O.
- Android 12 with root access; Ubuntu 20.04 and Debian 11 BSP support.
- Fanless unibody design rated from -40°C to +80°C for 24/7 operation.



|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                             |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| SKU              | AE-3588LBT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                             |
| Link:            | <a href="https://www.bitechipc.com/products/edge-ai-industrial-computers/ae-3588lbt-rk3588/">https://www.bitechipc.com/products/edge-ai-industrial-computers/ae-3588lbt-rk3588/</a>                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                             |
| Product type     | AE-3588LBT focuses on fieldbus-integrated edge AI control, while AE-3588BT targets maximum AI scalability and I/O density                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |
| Product color    | Extruded Aluminum with Heavy Duty Metal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                             |
| Operating system | Android 12/ Debian 11/Ubuntu20.04 etc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                             |
| HARDWARE         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                             |
| CPU              | RK3588, 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 1 × PCIe M.2 NPU accelerator modules (26 TOPS each)</li><li>• Total AI computing power scalable up to <b>32 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             |
|                  | Support SATA HDD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                             |
| PCIe extension   | 1x 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2x LAN 10/100/1000 Mbps                                                                                     |

|                               |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>GPS</b>                    | GPS/BD          | Built-In GPS/BD, Sensitive: -162dBm, Receiving Frequency: 1575.42MHz, Satellite channel: 20 Channels                                                                                                                                                                                                                                                                                                                                                                                              |
| <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<br>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 DC12V/5A 5.5*2.1mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                               | Phonex terminal | 1x 12PIN Phonex terminal (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            | 4-Bit GPIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                               | COM             | 4× RS232, 2× RS485/RS232                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                               | CAN Bus         | 1x CAN (option)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                               | Ethernet        | 2x LAN 10/100/1000 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                               | SIM             | 1x Sim Slot, Support 4G/5G LTE, Support eSIM                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <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>  |                 | • -10°C to +60°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 ±4KV, Air ± 8KV                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Dimensions And Weight</b>  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Dimensions (W x D x H)</b> |                 | 190 x 126 x 32mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| <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, 12V/5A                                                                                                |
| <b>Physical Design</b>                                                                                                                                                                   | • Fanless Design • Cableless Design • Jumper-less Design • Unibody Design                                                                                           |
| Lifecycle / Warranty / After-sales Service                                                                                                                                               |                                                                                                                                                                     |
| <b>Lifetime</b>                                                                                                                                                                          | 5–7 years standard platform availability; up to 10 years of lifecycle support for qualified OEM programs, subject to component availability and PCN/EOL management. |
| <b>Technical support</b>                                                                                                                                                                 | Lifetime technical support for OS configuration, BIOS/firmware updates, and CAN/RS485/PLC integration debugging.                                                    |
| <b>Warranty</b>                                                                                                                                                                          | 24-month warranty for the complete unit.                                                                                                                            |
| * 100% inspected. 18-hour full-load burn-in testing for every industrial motherboard, plus an additional 18-hour test for every complete industrial PC. Full serial-number traceability. |                                                                                                                                                                     |

**Request quotation: <https://www.bitechipc.com/rfq/> or email: [sales@bitechipc.com](mailto:sales@bitechipc.com)**

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