

# AFE-R750

## NVIDIA® Jetson Orin™ NX / AGX Orin™ AMR Control System

NEW



### Features

- AMR AI Controller Board up to 275 TOPS AI computing
- Dedicated I/Os for AMR: 4xGbE, 2xCOM, DIO, CANFD
- Sensor connection for camera, LiDAR, IMU...etc.
- Supports Ubuntu 22.04, JetPack 6.1SDK
- IEC 61000-6-4 Heavy Industry Certificate
- Supports Advantech Robotic Suite



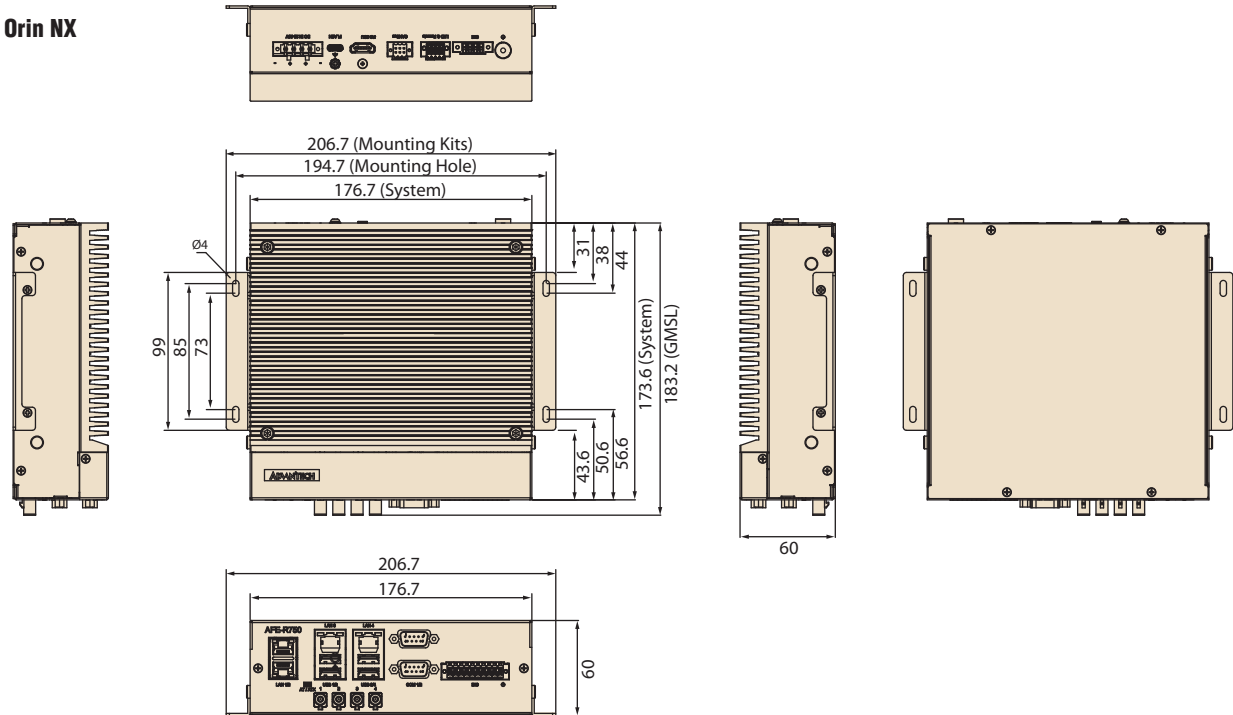
### Specifications

|                  |                          |                                                                                                                        |                                                                                                                                                                                              |
|------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor System | NVIDIA Jetson Series     | Optional Orin NX 16GB                                                                                                  | Optional AGX Orin 32GB/64GB                                                                                                                                                                  |
|                  | CPU                      | 8-core NVIDIA Arm® Cortex A78AE v8.2                                                                                   | 8/12-core NVIDIA Arm® Cortex A78AE v8.2                                                                                                                                                      |
|                  | GPU                      | 1024-core NVIDIA Ampere GPU with 32 Tensor Cores<br>Maximum Operating Frequency: 918MHz                                | 1792/2048-core NVIDIA Ampere GPU with 56/64 Tensor Cores,<br>Maximum Operating Frequency: 930MHz/1.3GHz                                                                                      |
|                  | AI Performance Reference | Up to 100 Sparse TOPs (INT8)                                                                                           | Up to 200/275 Sparse TOPs (INT8)                                                                                                                                                             |
|                  | TDP                      | 10~25W                                                                                                                 | 15~40/50W                                                                                                                                                                                    |
|                  | Memory                   | 16GB 256-bit LPDDR5 DRAM                                                                                               | 32/64GB 256-bit LPDDR5 DRAM                                                                                                                                                                  |
|                  | Flash                    | NA                                                                                                                     | 64GB eMMC5.1                                                                                                                                                                                 |
| Ethernet         | Interface                | RJ-45                                                                                                                  |                                                                                                                                                                                              |
|                  | Controller               | Intel® i226                                                                                                            |                                                                                                                                                                                              |
|                  | Speed                    | 4 x GbE                                                                                                                | 4 x 2.5GbE                                                                                                                                                                                   |
| Display          | HDMI                     | 1 x HDMI 2.0 (Max. resolution 3840 x 2160 @ 24Hz)                                                                      |                                                                                                                                                                                              |
| IO Ports         | USB                      | 4 x USB 3.2 Type A                                                                                                     |                                                                                                                                                                                              |
|                  | OTG USB                  | 1 x Type C USB (for system recovery only)                                                                              |                                                                                                                                                                                              |
|                  | CANBus                   | 1 x isolated CANFD 1Mbps/2Mbps                                                                                         | 2 x isolated CANFD 1Mbps/2Mbps                                                                                                                                                               |
|                  | DI/DO                    | 8bit isolated DIO                                                                                                      | 16bit isolated DIO                                                                                                                                                                           |
|                  | COM                      | 2 x RS232/422/485                                                                                                      |                                                                                                                                                                                              |
|                  | Remote switch            | LED/WDT/PWS/GND/RESET/Debug                                                                                            |                                                                                                                                                                                              |
|                  | Fan                      | 1x Fan connector (12V/1A)                                                                                              |                                                                                                                                                                                              |
|                  | Switch                   | AT/ATX                                                                                                                 |                                                                                                                                                                                              |
| Expansion        | M.2 E key                | 1 x 2230 (PCIex1, USB2)                                                                                                |                                                                                                                                                                                              |
|                  | M.2 B key                | 1 x 2280/3042/3052 (PCIex1, USB2, SIM)                                                                                 |                                                                                                                                                                                              |
|                  | GMSL                     | 4 x FAKRA (Optional)                                                                                                   | 4 or 8 x FAKRA (Optional)                                                                                                                                                                    |
|                  | IMU                      | BOSCH BMI088 6-axis (Optional), Movella Xsens MTi3 AHRS 9-axis (Only for AGX, optional by AFE-RM05 with AFE-RM04-8PA1) |                                                                                                                                                                                              |
| Others           | TPM                      | TPM2.0                                                                                                                 |                                                                                                                                                                                              |
|                  | Time Sync                | Supports GPS PPS signal (optional)                                                                                     |                                                                                                                                                                                              |
| Storage          | M.2 M key                | 1 x M.2 2280 (PCIex4)                                                                                                  |                                                                                                                                                                                              |
| Power            | Power Supply voltage     | 20~28V                                                                                                                 |                                                                                                                                                                                              |
|                  | Power Type               | ATX/AT mode, ATX default                                                                                               |                                                                                                                                                                                              |
| Environment      | Operational Temperature  | -10 ~ 55°C with 0.7 m/s air flow                                                                                       | 32GB: -10 ~ 60°C with 0.7 m/s air flow<br>64GB : -10 ~ 50°C with 0.7 m/s air flow<br>(MaxN MODE_50W on AMK-A0057 fan kit)<br>Note: 64GB requires fan kit for optimal temperature management. |
|                  | Operating Humidity       | 95% @ 40 °C (non-condensing)                                                                                           |                                                                                                                                                                                              |
|                  | Vibration                | 3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis                                                                                 |                                                                                                                                                                                              |
| Mechanical       | Dimensions (W x D x H)   | 177 x 174 x 60 mm                                                                                                      | 177 x 174 x 80 mm                                                                                                                                                                            |
|                  | Weight                   | 1.83Kg                                                                                                                 | 2.66Kg                                                                                                                                                                                       |
|                  | Mounting Support         | Wall mounting                                                                                                          |                                                                                                                                                                                              |
| Operating System | Linux                    | Ubuntu 22.04 LTS with JetPack 6.1                                                                                      |                                                                                                                                                                                              |
| Software Support | ROS2                     | Ready by Advantech Robotic Suite                                                                                       |                                                                                                                                                                                              |
| Certifications   | EMC/Safety               | CE/FCC Class B, CB, UL, CCC and BSMI (No RED Certificate)                                                              |                                                                                                                                                                                              |

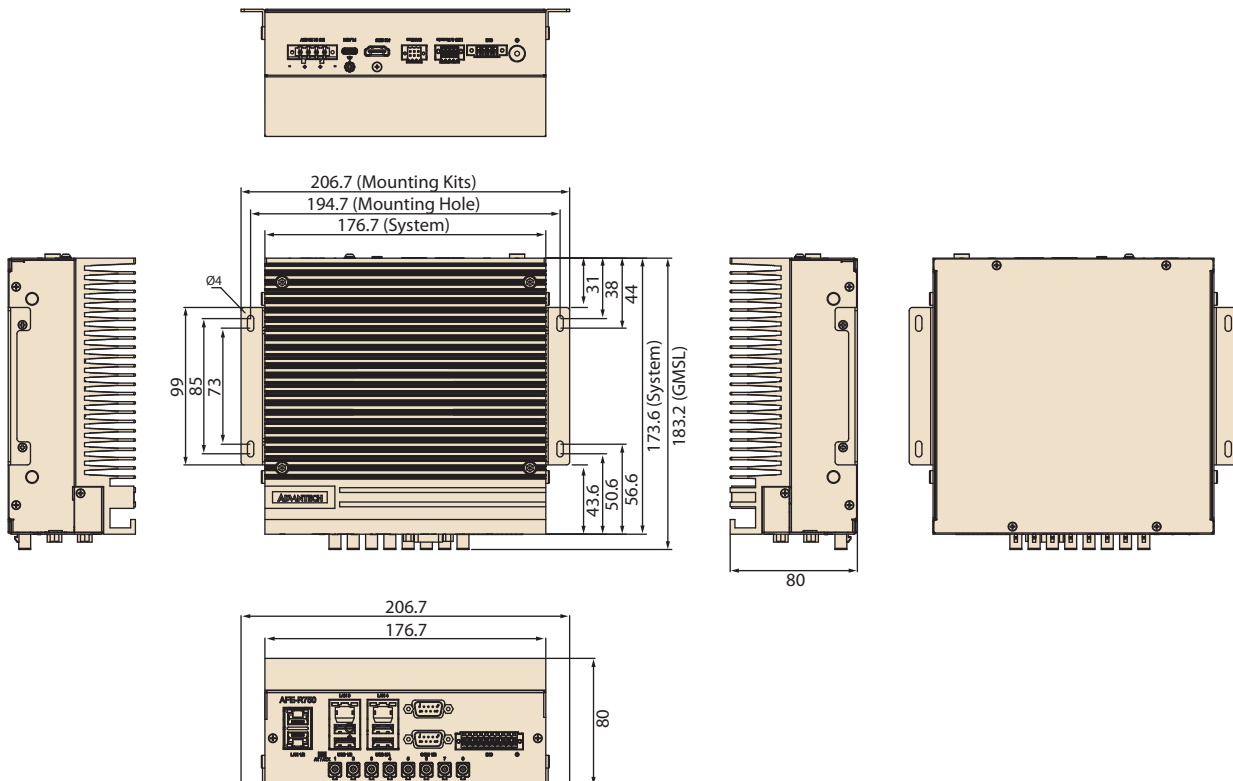
## Dimensions

Unit: mm

### Orin NX



### AGX Orin



## Front Panel I/O Mechanical Layout

### Orin NX



### AGX Orin



## Rear Panel I/O Mechanical Layout

### Orin NX



### AGX Orin



## Ordering Information

| Part No.   | Description                        |
|------------|------------------------------------|
| 968DD00269 | NVIDIA Jetson AGX Orin 64GB Module |
| 968DD00255 | NVIDIA Jetson AGX Orin 32GB Module |
| 968DD00537 | NVIDIA Jetson Orin NX 16GB Module  |

| Part No.       | Module                | Memory                        | eMMC | NVME     | HDMI | GbE | USB | CANBus | COM | DIO   | Power input          | Made in |
|----------------|-----------------------|-------------------------------|------|----------|------|-----|-----|--------|-----|-------|----------------------|---------|
| AFE-R750-X1A1U | AGX Orin              | 64GB                          | 64GB | Optional | 1    | 4   | 4   | 2      | 2   | 16bit | 20-28V <sub>DC</sub> | Taiwan  |
| AFE-R750-X2A1U | AGX Orin              | 32GB                          | 64GB | Optional | 1    | 4   | 4   | 2      | 2   | 16bit | 20-28V <sub>DC</sub> | Taiwan  |
| AFE-R750-M1A1U | Orin NX               | 16GB                          | -    | 128GB    | 1    | 4   | 4   | 1      | 2   | 8bit  | 20-28V <sub>DC</sub> | Taiwan  |
| AFE-R750-X0A1U | Without Jetson module | Barebone for AGX Orin 32/64GB | 64GB | Optional | 1    | 4   | 4   | 2      | 2   | 16bit | 20-28V <sub>DC</sub> | Taiwan  |
| AFE-R750-M0A1U | Without Jetson Module | Barebone for Orin NX 16GB     | -    | Optional | 1    | 4   | 4   | 1      | 2   | 8bit  | 20-28V <sub>DC</sub> | Taiwan  |

## Packing List

| Part Number | Description                      |
|-------------|----------------------------------|
| -           | AFE-R750 Unit                    |
| -           | User Manual (Simplified Chinese) |
| -           | China RoHS                       |
| -           | Mounting Kit                     |

## Optional Item for Default SKU

| Part Number       | Description                                    |
|-------------------|------------------------------------------------|
| 96PSA-A230W24P4-3 | AC to DC adapter, DC 24V 230W, -20 ~ 60 °C     |
| 1702002600        | Power cable 3-pin 183cm, USA type              |
| 1702002605        | Power cable 3-pin 183cm, EU type               |
| 1702031801-11     | Power cable 3-pin 183cm, UK type               |
| 1700000237        | Power cable, 3-Pin 183cm, PSE type             |
| AFE-RM04-4PA1     | MAX96712, 4ports GMSL for Orin NX and AGX Orin |
| AFE-RM04-8PA1     | MAX96712, 8ports GMSL for AGX Orin             |
| AMK-A0057         | External Fan kit for AFE-R750                  |

## Compatible Sensors List

| Compatible Sensors for Autonomous Applications |              |        |                  |                           |               |              |
|------------------------------------------------|--------------|--------|------------------|---------------------------|---------------|--------------|
| Sensors                                        | Manufacturer | Spec   | Sensor MPN       | Camera Resolution         | Camera Sensor | Advantech PN |
| GMSL Camera                                    | oToBrite     | 2D     | oToCAM222        | 2MP                       | Sony ISX021   | 96ICAM-222   |
|                                                | Orbbec       | 2D+3D  | Gemini 335Lg     | 1MP (RGB)<br>1 MP (depth) | -             | TBD          |
|                                                | StereoLabs   | 3D     | ZED-311110       | 2.3MP                     | -             | -            |
|                                                | StereoLabs   | 2D     | ZEDX ONE         | 8.4MP                     | SONY IMX678   | -            |
|                                                | StereoLabs   | 2D     | ZEDX ONE         | 2.3MP                     | Onsemi AR0234 | -            |
| USB Camera                                     | Orbbec       | 2D+3D  | Gemini 335L      | 1MP (RGB)<br>1 MP (depth) | -             | -            |
| IMU                                            | BOSCH        | 6-axis | BMI088           | -                         | -             | On board     |
|                                                | Movella      | 9-axis | MTi-3-5A-DK      | -                         | -             | AFE-RM05     |
| Lidar                                          | Slamtec      | 2D     | RPLIDAR-A2M12    | -                         | -             | -            |
|                                                | Slamtec      | 2D     | RPLIDAR C1 LiDAR | -                         | -             | -            |
|                                                | SICK         | 2D     | NanoScan3        | -                         | -             | -            |
|                                                | SICK         | 3D     | multiScan100     | -                         | -             | -            |

# Tento produkt můžete zakoupit u společnosti AutoCont IPC a.s.



## AutoCont IPC a.s.

Váš dodavatel průmyslových počítačů, komponent a speciálních průmyslových IT systémů.

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### PRŮMYSLOVÉ POČÍTAČE

*fanless embedded PC, do racku, ...*



### POČÍTAČE S DISPLEJEM

*panelové PC, terminály, do vozidel, ...*



### AUTOMATIZACE A SBĚR DAT

*převodníky, karty, moduly, switche, ...*



### PERIFERIE A KOMPONENTY

*monitory, klávesnice, desky, skříně, ...*



### NOTEBOOKY A TABLETY

*odolné, windows, android, IP65, ...*



### INFORMAČNÍ KIOSKY

*interiérové, venkovní, ...*



### MEDICÍNSKÁ TECHNIKA

*počítače, tablety, LCD, klávesnice, ...*



### SOFTWAREVÁ ŘEŠENÍ

*pro výrobu, zaměstnance, kiosky, ...*



### PŘEJÍT DO E-SHOPU

[eshop.autocont-ipc.cz](http://eshop.autocont-ipc.cz)



### DOPRAVA ZDARMA

Doprava zdarma v ČR a SR při objednávce nad 10 000 Kč bez DPH nebo nad 400 EUR.



### PRODLOUŽENÁ ZÁRUKA

Záruka 2 roky na vyráběné počítače s možností jejího prodloužení až na 5 let.



### ODMĚNA ZA VĚRNOST

Pravidelní zákazníci u nás nakupují za nižší ceny. Výše slevy se odvíjí od realizovaného obrátu.



### SERVIS ON-SITE A IN-TIME

K projektovým dodávkám nabízíme rozšířenou podporu a servis s garancí výměny zařízení do 48 hodin.