

## Fanless Scalable Railway Edge AI Platform

# AVA-7200

## Datasheet



### Features

- EN50155:2021 certified Edge AI platform
- NVIDIA Ampere architecture GPGPU A2000/A4500
- Intel® 13th Gen Raptor Lake mobile processor
- Wide range isolated DC 24-110V 200W/ 72-110V 300W power input by BOM option
- Operates at -25°C to 55°C (OT1, ST1) or -25°C to 70°C (OT3, ST1)
- 8x 10GbE/2.5GbE M12 X-coded Ethernet, 5x USB, 4x SATA, 4x DI/DO, 2x Serial ports, audio, and DP
- Internal expansion for 1x NVME M.2 slot, 1x 5G M.2 slot with 2x SIM slots, 1x Wifi/BT M.2 slot, 1x mPCIe, accessible by lid opening
- QMA antenna on the rear side
- Fanless rugged design, conformal-coated for durability, flexibility, and longevity support

### Specifications

|              |                |                                                                                                                                                                                                                        |
|--------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System       | Processor      | 13th Gen Intel® Core™ mobile processors (formerly Raptor Lake-P)<br>Core™ i5-13600HRE 4P+8E Core/16T 18MB Cache, 45W(35W cTDP)<br>Core™ i7-13800HRE 6P+8E Core 20T 24MB Cache, 45W(35W cTDP)<br>Other CPU upon request |
|              | AI Accelerator | GPGPU by option<br>EGX-MXM-A2000<br>Embedded NVIDIA® RTX™ A2000, MXM 3.1 type A, 82 x 70mm, PCIe Gen4 x8<br><br>EGX-MXM-A4500<br>Embedded NVIDIA® RTX™ A4500, MXM 3.1 type B, 82 x 70mm, PCIe Gen4 x8                  |
|              | Memory         | 32GB/64GB DDR5, IB ECC (selected SKUs), SO-DIMM memory, max. 4800MT/s<br>2 memory channels with 1DPC design                                                                                                            |
|              | BIOS           | AMI UEFI with CMOS backup in 32 SPI BIOS (dual BIOS opt.)                                                                                                                                                              |
|              | Display        | One Display Port from CPU                                                                                                                                                                                              |
| Storage      | NVME           | 1x PCIe Gen3 x4 M.2 M-key 2280 NVME slot                                                                                                                                                                               |
|              | SATA           | 4x removable 2.5" SATA drive tray with lock (optional)                                                                                                                                                                 |
| Connectivity | Ethernet       | Max. 8x M12 X-coded Ethernet ports including 2x 10G + 6x 2.5G<br>POE upon BoM request                                                                                                                                  |
|              | USB            | 4x USB 3.2 Gen2 Type-A ports<br>1x USB 2.0 Type-A port                                                                                                                                                                 |
|              | Digital I/O    | 1x terminal block 4 input/4 output for DC 24- 110V with isolation 1.5kVDC                                                                                                                                              |

## Specifications

|                    |                     |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                |             |
|--------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Connectivity       | Serial Ports        | 2x DB-9 Serial ports supporting RS-232/422/485                                                                                                                                                                                                                       |                                                                                                                                                                                                                |             |
|                    | CAN/MVB             | 2x DB-9 ports reserved for CAN/MVB with optional mPCIe module selected                                                                                                                                                                                               |                                                                                                                                                                                                                |             |
|                    | Audio               | Mic-in/Line-out                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                |             |
|                    | Wireless            | 1x PCIe Gen3 x1 M.2 B-key-3040/3050/3052 slot with optional 5G/LTE module selected                                                                                                                                                                                   |                                                                                                                                                                                                                |             |
|                    |                     | 1x PCIe Gen3 x1 M.2 E-key slot with optional Wi-Fi module selected                                                                                                                                                                                                   |                                                                                                                                                                                                                |             |
|                    | Antenna             | 4+3 QMA antennas on rear panel                                                                                                                                                                                                                                       |                                                                                                                                                                                                                |             |
|                    | SIM                 | Dual external accessible SIM slots on rear                                                                                                                                                                                                                           |                                                                                                                                                                                                                |             |
|                    | Internal Expansion  | 1x mPCIe slot expansion                                                                                                                                                                                                                                              |                                                                                                                                                                                                                |             |
| Miscellaneous      | TPM                 | TPM 2.0 with 2048-bit RSA                                                                                                                                                                                                                                            |                                                                                                                                                                                                                |             |
|                    | LED                 | 1x Power (G), 1 x Storage (Y), 1 x WDT (Y) on front panel                                                                                                                                                                                                            |                                                                                                                                                                                                                |             |
|                    | Power Connector     | IEC 61076 M12 K-coded connector                                                                                                                                                                                                                                      |                                                                                                                                                                                                                |             |
|                    | Power               |                                                                                                                                                                                                                                                                      | A2000                                                                                                                                                                                                          | A4500       |
|                    |                     | Power capability                                                                                                                                                                                                                                                     | 200W                                                                                                                                                                                                           | 300W        |
|                    |                     | Power input                                                                                                                                                                                                                                                          | DC +24-110V                                                                                                                                                                                                    | DC +72-110V |
|                    |                     | Ignition support                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                                                            | Optional    |
|                    | GND                 | M6 threaded stainless steel stud                                                                                                                                                                                                                                     |                                                                                                                                                                                                                |             |
|                    | Battery             | CR2032X coinell battery by default<br>Gold capacitor (optional)                                                                                                                                                                                                      |                                                                                                                                                                                                                |             |
|                    | Coating             | The conformal coating on AVA-7200 boards is applied by default.<br>Coating on add-on cards is available upon request                                                                                                                                                 |                                                                                                                                                                                                                |             |
|                    | MTBF                | Target 200,000 hrs. by Telcordia issue 3, GC, GB, 40°C                                                                                                                                                                                                               |                                                                                                                                                                                                                |             |
|                    | Mechanical          | Dimensions                                                                                                                                                                                                                                                           | 360 mm (W) x 255.7 mm (D) x 99.1 mm (H)                                                                                                                                                                        |             |
| Weight             |                     | Est. approx. 9.4kg with wall mount brackets                                                                                                                                                                                                                          |                                                                                                                                                                                                                |             |
| Mounting           |                     | Rack mount<br>Wall mount                                                                                                                                                                                                                                             |                                                                                                                                                                                                                |             |
| Cooling            |                     | Fanless design with passive cooling<br>Suggest air convection air flow 1.0m/s                                                                                                                                                                                        |                                                                                                                                                                                                                |             |
| Ingress Protection |                     | EN60529 IP20                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                |             |
| Environmental      |                     | Operating Temperature                                                                                                                                                                                                                                                | OT1: -25°C - 55°C (EN50155: 2021 OT1 Class, ST1 +15C for 10mins)<br>OT3: -25°C - 70°C (EN50155: 2021 OT3 Class, ST1 +15C for 10mins)<br>Depending on CPU & MXM module selection. min. ambient airflow required |             |
|                    | Storage Temperature | -40°C to +85°C                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                |             |
|                    | Humidity            | Operating: 10% to 95% relative humidity (non-condensing)<br>Non-Operating: 5% to 95% relative humidity (non-condensing)                                                                                                                                              |                                                                                                                                                                                                                |             |
|                    | Vibration           | EN50155:2021 13.4.10 (Ref. to EN 61373:2010 category 1 class B )                                                                                                                                                                                                     |                                                                                                                                                                                                                |             |
|                    | Shock               | EN50155:2021 13.4.10 (Ref. to EN 61373:2010 category 1 class B )                                                                                                                                                                                                     |                                                                                                                                                                                                                |             |
|                    | Safety              | EN 50124-1:2017 Compliant<br>EN 50153 Compliant                                                                                                                                                                                                                      |                                                                                                                                                                                                                |             |
|                    | EMC                 | EN 50155:2021 Clause 13.4.9<br>With reference to EN 50121-1:2017; EN 50121-3-2:2016<br>EN 50121-4:2016 (upon request)<br>EN 61000-4-2:2009; EN 61000-4-3:2006 + A1:2008 + A2:2010<br>EN 61000-4-4:2012; EN 61000-4-5:2014 + A1: 2017<br>EN 61000-4-6:2014 + AC: 2015 |                                                                                                                                                                                                                |             |
|                    | Fire Protection     | EN45545-2:201320+A1:2015 (HL 1-3) EL9 for PCB (R24 / R25)                                                                                                                                                                                                            |                                                                                                                                                                                                                |             |
|                    | Operating System    | Ubuntu 22.04, 64-bit<br>Windows 10 IoT Enterprise LTSC<br>Other OS upon request                                                                                                                                                                                      |                                                                                                                                                                                                                |             |

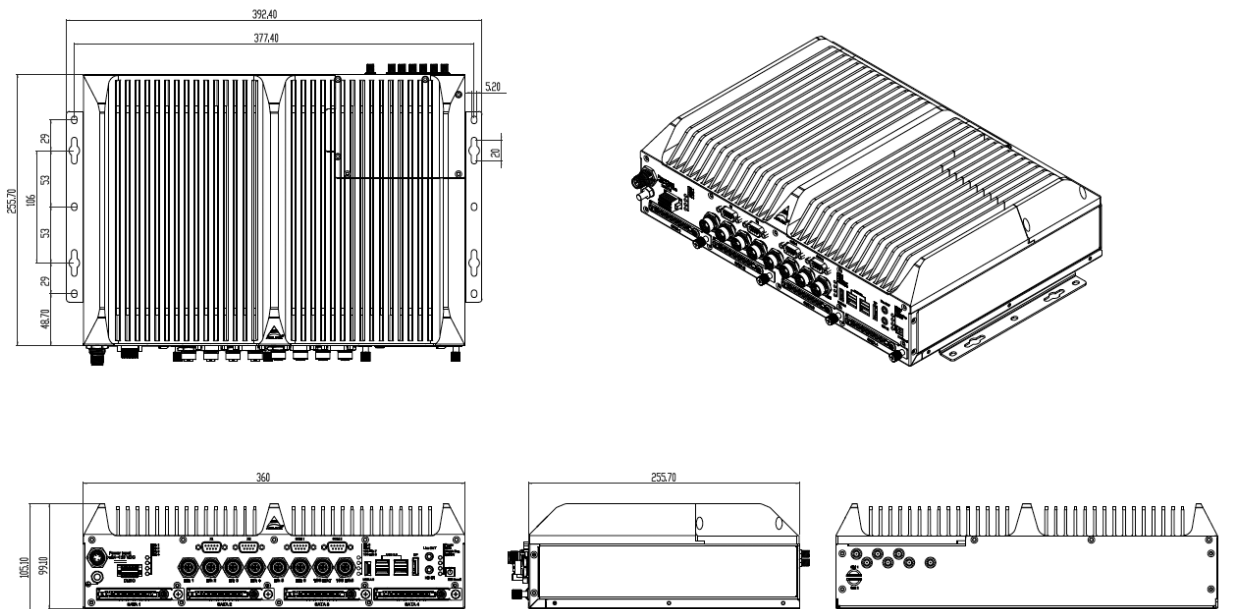
## Ordering Information

|                            |                                                                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| AVA-7200/5136/64G, CC      | Fanless AI box with Intel® Core™ i5-13600HRE. 64GB DDR5, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 200W power, w/conformal coating, w/o GPGPU |
| AVA-7200/5136/32G/A20, CC  | Fanless AI box with Intel® Core™ i5-13600HRE, 32GB DDR5, A2000 MXM, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 200W power, w/conformal coating |
| AVA-7200/5136/64G/A20, CC  | Fanless AI box with Intel® Core™ i5-13600HRE, 64GB DDR5, A2000 MXM, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 200W power, w/conformal coating |
| AVA-7200/7138/64G, CC      | Fanless AI box with Intel® Core™ i7-13800HRE, 64GB DDR5, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 200W power, w/conformal coating, w/o GPGPU |
| AVA-7200/H7138/32G/A45, CC | Fanless AI box with Intel® Core™ i7-13800HRE, 32GB DDR5, A4500 MXM, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 300W power, w/conformal coating |
| AVA-7200/H7138/64G/A45, CC | Fanless AI box with Intel® Core™ i7-13800HRE, 64GB DDR5, A4500 MXM, supporting 8x M12 Ethernet ports, 5x USB, 4x SATA, 300W power, w/conformal coating |

## Optional Accessories

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| AVA-7200 AC-DC Power Supply | 200W AC-DC power adapter with phoenix connector for AV-7200 200W power |
| AVA-7200 Cable Kit          | 1x M12 K-coded power cord, 8x M12 X-coded Ethernet cable               |
| AVA-7200 Rack Mount Kit     | 19" Rack mount kit for AVA-7200                                        |

## Dimensions



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