

# Enabling Powerful AI Edge Solutions with UP Xtreme i11 Edge

AAEON and UP Bridge the Gap are delivering next generation AI Edge solutions that are ready to deploy, thanks to the UP Xtreme i11 Edge Compute Enabling Kit powered by 11th Generation Intel<sup>®</sup> Core™ processors.



## The UP Xtreme i11 Edge Compute Enabling Kit

The UP Xtreme i11 Edge Compute Enabling Kit from AAEON brings together hardware and software in a package that's ready to deploy out of the box. Built from the ground up for AI Edge computing, the kit features the latest edge platform from AAEON's UP Bridge the Gap brand, the UP Xtreme i11 EDGE. Additionally, it comes with a range of Intel technologies pre-installed, including the Intel® distribution of OpenVINO™ toolkit, and Intel® Edge Software Hub. Additionally, the system is Ubuntu Certified, and ships with the operating system pre-installed from AAEON's factories.

### Hardware:

UPX-I11 EDGE System  
11th Gen Intel® Core™ U  
Compact, Scalable



### Software:

Intel® OpenVINO™  
Intel® Edge Software Hub  
Ubuntu Certified

## The UP Xtreme i11 EDGE System

The UP Xtreme i11 EDGE, or UPX-i11 EDGE for short, brings the latest 11th Generation Intel® Core™ U processors (formerly Tiger Lake UP3) to a compact system solution that's designed to fit and deploy anywhere its needed. This latest generation of System on Chip processors is capable of delivering up to 20% higher performance than previous generation embedded SoCs, enabling developers to more easily bring their projects to life.

The UPX-i11 EDGE leverages the AI capabilities of the Intel SoC and delivers more, offering scalability support for AI modules, such as the AI Core XM2280 powered by Intel® Movidius® Myriad™ X. The system also offers expandability for building Edge Networks and Edge Gateway applications, including M.2 2230 for Wi-Fi cards including Wi-Fi 6; as well as M.2 3052 for 5G communication. The UPX-i11 EDGE has been tested with the most popular 5G modules on the market and proven to work readily out of the box. The M.2 2280 slot also provides support for NVMe storage, alongside SATA III connections to further expand storage.

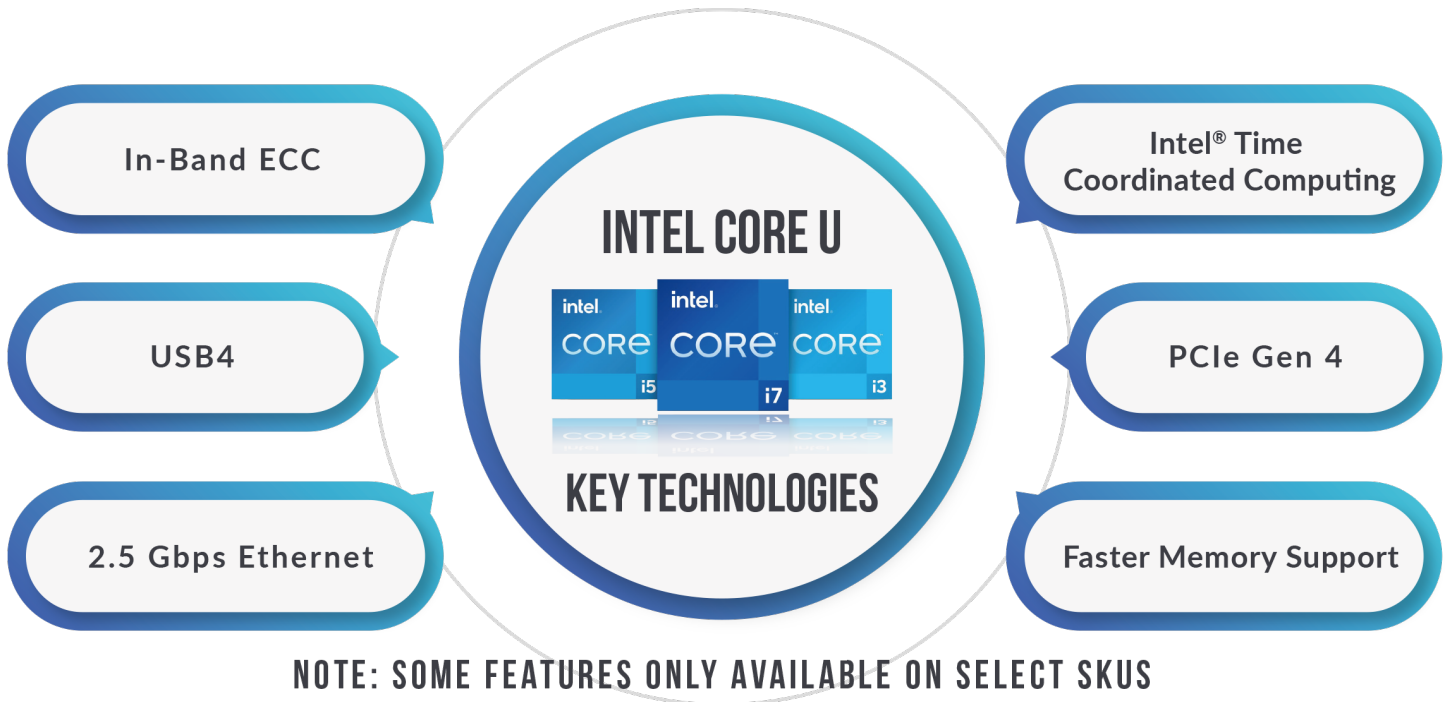
The UPX-i11 EDGE features the latest I/O ports to ensure faster, more flexible connections with cameras, sensors and more. The system features a USB4 Type C port, as well as three USB3.2 Gen 2 ports. Wired network connections are provided thanks to a pair of LAN ports, one Gigabit LAN, and one powered by the Intel® i225 chipset, delivering network speeds up to 2.5 Gbps.





## The 11th Generation Intel® Core™ U Processor

The 11th Generation Intel® Core™ U embedded processors (formerly Tiger Lake UP3) is the latest in Intel’s line of embedded processors, built on the Willow Cove microarchitecture, and built using Intel’s third generation 10 nm process node known as 10SF (10 nm SuperFin). Compared to previous generation embedded processors, the 11th Generation Intel Core U delivers higher performance and greater efficiency at lower costs, providing outstanding price to performance. The platform also delivers a host of technologies built around IoT-centric deployment, powering faster and more flexible communication. Additionally, the system provides several key benefits making it the perfect platform for a wide range of embedded applications.



## Intel® Iris® Xe Graphics

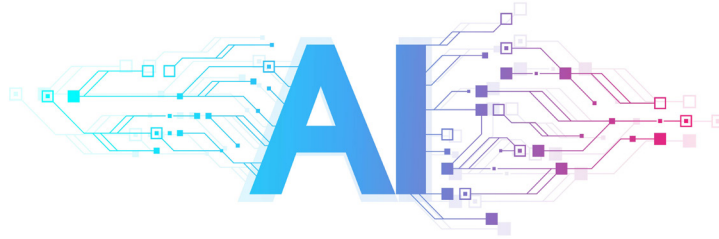
The 11th Generation Intel Core U embedded processors include the Intel® Iris® Xe embedded graphics processor† featuring up to 96 execution units, 50% more than the previous generation. Intel Iris Xe is capable of delivering video quality up to 8K 12-bit HDR on a single display, or 4K 10-bit HDR on two displays. It is also capable of powering up to four independent displays at 4K 60Hz, a feature which every AAEON embedded solution with 11th Generation Intel Core U supports.

Additionally, the Iris Xe graphics can be leveraged for powering AI applications thanks to compatibility with the Intel distribution of OpenVINO™ toolkit. This helps to offload inference processing from the CPU, increasing overall AI compute performance. Additionally, it can work in tandem with AI modules such as the AI Core X and AI Core XM 2280 from AAEON, powered by the Intel® Movidius® Myriad™ X.


- Intel Iris Xe only available on Core i7 and Core i5 processors.

## AI Ready Kit

The UP Xtreme i11 Edge Compute Enabling Kit is designed ready to deploy out of the box. To achieve this, the kit comes pre-installed with a range of software tools to help shorten development times and accelerate time-to-market for users and developers. This starts with a pre-installed Intel® Edge Software Hub image, providing users with a library of development tools and sample programs. The system also features the OpenVINO™ toolkit, providing optimization of AI models, and allowing users to leverage both the Intel Iris Xe graphics and scalability with the AI Core XM2280 module, to bring ultimate AI Edge performance to the system. Finally, the system is certified by Canonical for Ubuntu, and comes with Ubuntu 20.04 pre-installed, eliminating one of the major concerns for users and developers.




## Explore the Advantages of UP Xtreme i11 Edge Compute Enabling Kit




### Powerful

- ◆ 11th Gen Intel® Core™ U Processors (formerly Tiger Lake)
- ◆ Intel® Iris® Xe onboard graphics, twice as powerful as previous generation
- ◆ Clock speeds up to 4.4 GHz with only 28 Watt TDP




### Faster Communication

- ◆ 5G Communication for low latency communication
- ◆ Intel® i225 Ethernet Controller for up to 2.5 Gbps LAN
- ◆ NVMe storage, USB4.0 Type C, and USB3.2 Gen 2




### Expandable

- ◆ 40-pin I/O expansion powered by Intel® Altera MAX 5
- ◆ Multiple M.2 slots and PCIe [x4]
- ◆ Read to Connect Support for 5G, WiFi 5/6, Bluetooth




### Industrial and Secure

- ◆ Industry standard 12V lockable power input
- ◆ Features Intel® TCC, TSN, and supports TPM 2.0 and In-Band ECC
- ◆ COM Ports (RS232/422/485), Phoenix Connector



### AI Ready

- ◆ Compatible with Intel® Distribution of OpenVINO™ Toolkit
- ◆ Scalable AI with UP AI Core XM2280
- ◆ Optimize inferences across CPU, GPU and VPU



### Production Ready Solution

- ◆ Production Ready Solution for Robotics, Automation, and other vertical markets
- ◆ Intel® Distribution of OpenVINO™ Toolkit pre-loaded
- ◆ Compatible with Intel® OneAPI

## Application Driven Solution

The UP Xtreme i11 Edge Compute Enabling Kit is designed with performance, flexibility and industrial ruggedness, ensuring a perfect fit no matter where it's deployed. From robotics and automation to Smart Retail and hospital monitoring systems, the system delivers the tools each user needs to successfully power their projects and applications.



Robotics



Automation



Retail



IOT



AI

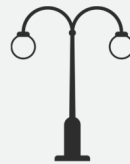


### Service Robot

While the service robot concept was originally designed for service industry uses such as hotels and boutique restaurants, this application has seen widespread use during the COVID19 pandemic among hospitals and quarantine hotels to help deliver needed supplies to patients while eliminating vectors for the spread of the disease.

#### Advantages

- ▶ Compatible with Intel<sup>®</sup> RealSense™ Camera
- ▶ 11th Gen Intel Core
- ▶ I/O Flexibility
- ▶ Longevity Support



### Smart Street Lamp

One of the foundational and key pieces to building the Smart City ecosystem is the Street Lamp. At its most basic, the system allows for intelligent operation of the city lighting system, but can easily expand to include weather monitoring, Smart Parking meters, traffic control, and even Wi-Fi and 5G hotspots, enabling a range of communication.

#### Advantages

- ▶ 11th Gen Intel Core
- ▶ Compact System Design
- ▶ Multiple OS Support
- ▶ I/O Flexibility



### Patient Monitoring System

With the onset of the pandemic, hospitals need a way to adapt patient monitoring equipment to be accessible remotely. By utilizing the UP Xtreme i11 Edge Compute Enabling Kit, hospitals do not need to upgrade current equipment, and can easily add on AI capabilities to provide a range of health benefits for the patients.

#### Advantages

- ▶ 11th Gen Intel Core
- ▶ Expandability with HDMI-input card
- ▶ Compact System Design
- ▶ Longevity Support



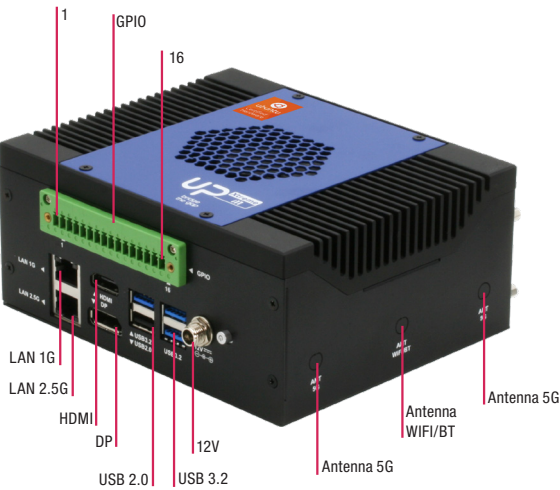
# UP Xtreme i11 Edge Compute Enabling Kit

11th Generation Intel® Core™ i7/i5 Processor SoC (formerly Tiger Lake UP3)

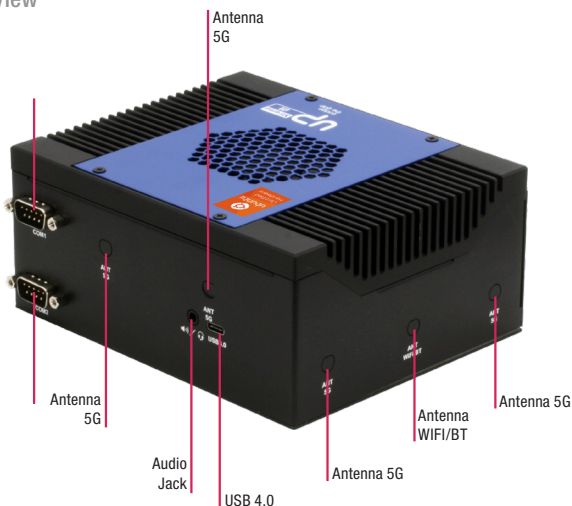


\*Power Adapter/ Cord : Optional Accessories

## Front View



## Rear View



## Features

- 11th generation Intel® Core™ i7/i5 Processor SoC (formerly Tiger Lake UP3)
- 16-pin GPIO connector x 1
- Pre-load Software
- Supports 5G via M.2 3052
- Supports AI Accelerator via M.2 2280
- Supports WiFi 6
- Supports USB 4.0
- Supports LAN up to 2.5Gbps

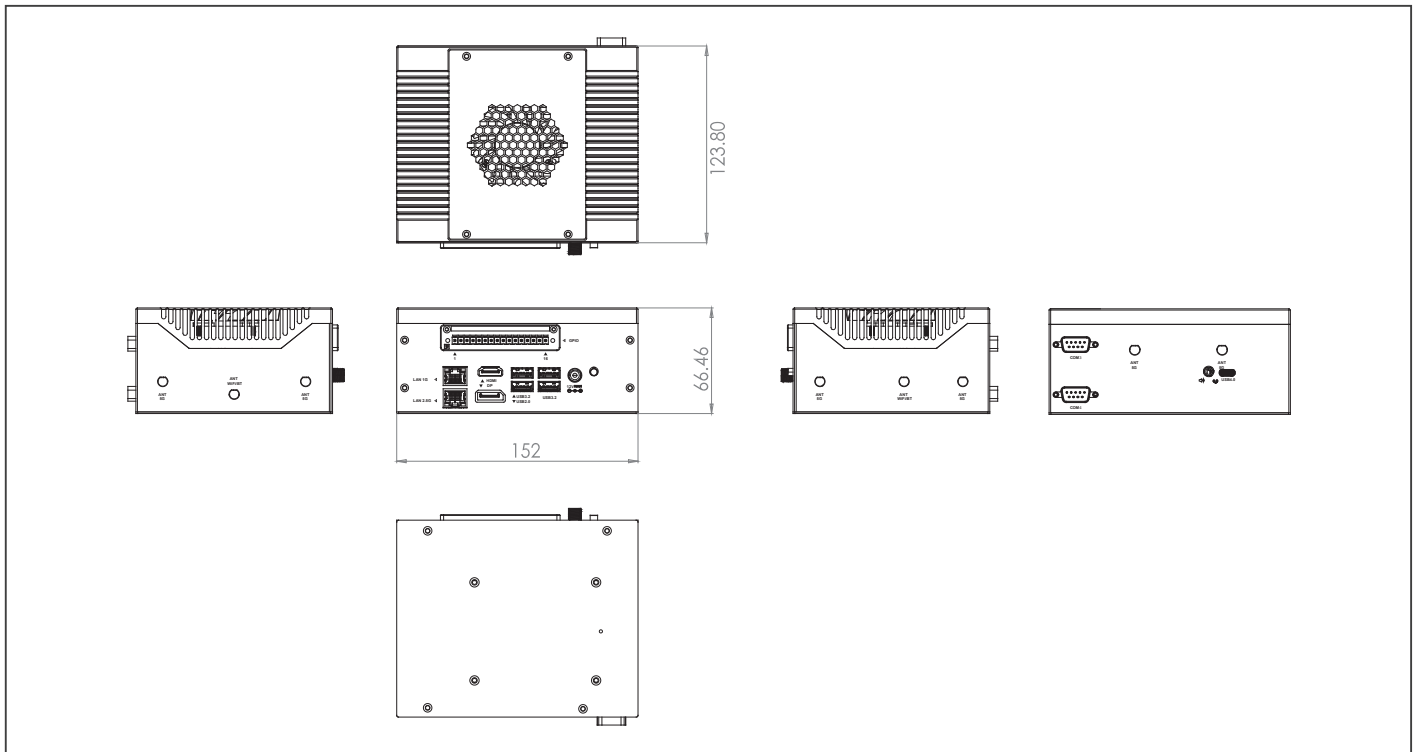


## Specifications

System	
CPU	11th Gen Intel® Core™ Processor SoC Core i7-1185GRE Core i5-1145GRE
Memory	8GB 3200MHz SODIMM modules x 2
Graphics	Intel® Iris® Xe graphics
Storage	128GB 2.5" SSD x 1
Ethernet	Intel® i225IT (TSN) x 1, Intel® i219 (vPRO) x 1
WiFi/BT	Optional
Audio	Realtek ALC888s x 1 (Mic /Line out)
USB	USB 3.2 Gen2 x 3 USB 2.0 x 1 (Type A) USB 4.0 via USB type C
Expansion Slot	M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 with SIM
I/O Placements	
Power	12V DC-in (Lockable plug)/ Phoenix connector
USB	USB3.2 Gen2 x 3 USB2.0 x 1 (Type A) USB4.0 via USB type C
Display Port	HDM 2.0 x 1 /DP 1.4 x 1 eDP x 1, 4K at 60hz panel
Ethernet	Intel® i225IT x 1, Intel® i219 (vPRO) x 1
Environment	
Power	12V (AT & ATX)
Form Factor	4.88" x 5.98" x 2.62" (124mm x 152mm x 66.5mm)
Product Dimension	10.94" x 10.59" x 5.87" (278mm x 269mm x 149mm)
Gross Weight	5.07 lb (2.3kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE,FCC Class A
OS Support	Preinstalled Software Ubuntu 20.04 LTS and 5.11 Kernel Intel® Distribution of OpenVINO™ toolkit 2021 R1 Intel® Media SDK Intel® Distribution for Python* MRAA and UPM I/O and sensor libraries for C++, Python*, Java*, and JavaScript* Docker-CE k3s Kubernetes ONNX AWS Greengrass SQLite 3 Node.js cmake gcc Openssl Openssh-server/client git vim tmux

# UP Xtreme i11 Edge Compute Enabling Kit

Dimension Unit: mm



## Ordering Information

Part Number	CPU	Core	LAN	Memory	Storage	USB	COM Ports	Expansion slot	AI Core XM 2280	GPIO	Display	Power	Operation temp	Preload Software
UPX-EDGE-TGLi7-A10-16128-FDKT	Intel Core i7-1185GRE	4	GbE x 2 (Intel i225 IT up to 2.5Gbps, Intel i219 up to 1Gbps)	8GB*2 3200MHz SODIMM	2.5" SATA SSD 128GB	USB 3.2 Gen 2 x 3 USB 2.0 x 1 USB4.0 x 1	2	M.2 2280 M key x 1, M.2 2230 E key x 1, M.2 3052 B key x 1 SATA 3 x 1 PCIe 4.0 x 1 (need customized chassis)	NO	16pin x 1	HDMI, DP, eDP, DP via USB type C	12V	32°F ~140°F (0°C ~ 60°C)	Ubuntu 20.04 LTS and 5.11 Kernel Intel® Distribution of OpenVINO™ toolkit 2021 R1 Intel® Media SDK Intel® Distribution for Python® MRAA and UPM I/O and sensor libraries for C++, Python®, Java®, and JavaScript® Docker-CE k3s Kubernetes ONNX AWS Greengrass SQLite 3 Node.js cmake gcc Openssl Openssh-server/client git vim tmux
UPX-EDGE-TGLi5-A10-16128-FDKT	Intel Core i5-1145GRE	2	GbE x 2 (Intel i225 IT up to 2.5Gbps, Intel i219 up to 1Gbps)	8GB*2 3200MHz SODIMM	2.5" SATA SSD 128GB	USB 3.2 Gen 2 x 3 USB 2.0 x 1 USB4.0 x 1	2	M.2 2280 M key x 1, M.2 2230 E key x 1, M.2 3052 B key x 1 SATA 3 x 1 PCIe 4.0 x 1 (need customized chassis)	NO	16pin x 1	HDMI, DP, eDP, DP via USB type C	12V	32°F ~140°F (0°C ~ 60°C)	
UPX-EDGE-TGLi7-A10-16128-FDAI	Intel Core i7-1185GRE	4	GbE x 2 (Intel i225 IT up to 2.5Gbps, Intel i219 up to 1Gbps)	8GB*2 3200MHz SODIMM	2.5" SATA SSD 128GB	USB 3.2 Gen 2 x 3 USB 2.0 x 1 USB4.0 x 1	2	M.2 2280 M key x 1, M.2 2230 E key x 1, M.2 3052 B key x 1 SATA 3 x 1 PCIe 4.0 x 1 (need customized chassis)	x1	16pin x 1	HDMI, DP, eDP, DP via USB type C	12V	32°F ~140°F (0°C ~ 60°C)	
UPX-EDGE-TGLi5-A10-16128-FDAI	Intel Core i5-1145GRE	2	GbE x 2 (Intel i225 IT up to 2.5Gbps, Intel i219 up to 1Gbps)	8GB*2 3200MHz SODIMM	2.5" SATA SSD 128GB	USB 3.2 Gen 2 x 3 USB 2.0 x 1 USB4.0 x 1	2	M.2 2280 M key x 1, M.2 2230 E key x 1, M.2 3052 B key x 1 SATA 3 x 1 PCIe 4.0 x 1 (need customized chassis)	x1	16pin x 1	HDMI, DP, eDP, DP via USB type C	12V	32°F ~140°F (0°C ~ 60°C)	

## Packing List

- UPX-EDGE i11 x 1
- 8GB 3200MHz SODIMM modules x 2
- 128GB 2.5" SSD x 1
- PER-TAIX2-A20-2280 x 1 (for UPX-EDGE-TGLi7- A10-16128-FDAI & UPX-EDGE-TGLi5- A10-16128-FDAI only)
- Ubuntu License sticker x 1

## Optional Accessories

- **1255X00032**  
(TF)AC/DC Adapter.Input AC.100-240V.Output DC.12V.MAX 72W.6.0A.180D.W/LOCK.EDAC. EA10681U(120)  
(Remark)
- **1255300960**  
(TF)Power Adapter.100-240VAC~50/60Hz.12V/8A.96W.DC jack W/lock.FSP.FSP096-AHAN3/GNA0961403  
(Use this adapter if select AI Core XM)
- **1702031802**  
(TF)POWER CORD.3P-125V 10A 180D.1.8M.USA. FANJET.YP12/YC-12
- **1702031803**  
(TF)POWER CORD.3P-250V 10A 180D.1.8M.VDE. FAN-JET.YP-22/YC-12
- **170203180E**  
(TF)Power cord.3P.125V/7A.1.8M.PSE YP12/YC12 Certificate
- **9741364A00**  
Wireless LAN Kit M.2 2230 802.11ac/a/b/g/n + BT4.0,2T2R,with 2 sets of cable & antenna (Enli,QCNFA364A)
- **9651926001**  
(TF).M.2 2230 WiFi Kit.802.11ac.2.4G/5G,W/BT Intel.9260.NGWF.NV,958867 w/2 cable & antenna

## About AAEON

Established in 1992, AAEON is one of the leading designers and manufacturers of industrial IoT and AI Edge solutions. With continual innovation as a core value, AAEON provides reliable, highquality computing platforms including industrial motherboards and systems, rugged tablets, embedded AI Edge systems, uCPE network appliances, and LoRaWAN/WWAN solutions. AAEON also provides industry-leading experience and knowledge to provide OEM/ODM services worldwide. AAEON also works closely with cities and governments to develop and deploy Smart City ecosystems, offering individual platforms and end-to-end solutions. AAEON works closely with premier chip designers to deliver stable, reliable platforms, and is recognized as an Associate member of the Intel® Internet of Things Solutions Alliance. For an introduction to AAEON's expansive line of products and services, visit [www.aaeon.com](http://www.aaeon.com)