Edge AI computing

Product Guide   - Electronic

RugCon Series

Fit Anywhere and Everywhere

212

Models | Four series

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Contents

I'm AI
The world's smallest MXM GPU edge AI Computer

![CEVA logo]

Application
Fit Anywhere and everywhere

Intelligent transportation
Road / Automotive / EV

AGV / AMR
Autonomous
mobile robot

Rail /
Rolling Stock

AIoT

Factory Automation
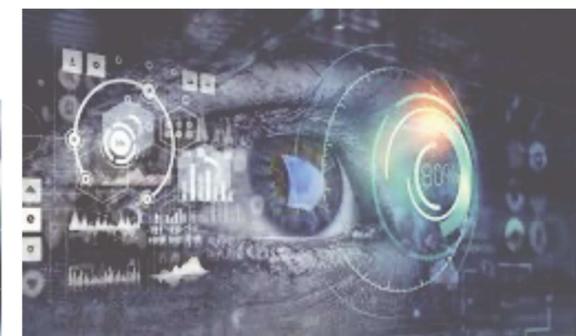
Machine Vision

Surveillance

Service

Our Service

PCB Layout · Mechanical · Hardware · ID Design · Firmware · EMC · Test · RMA
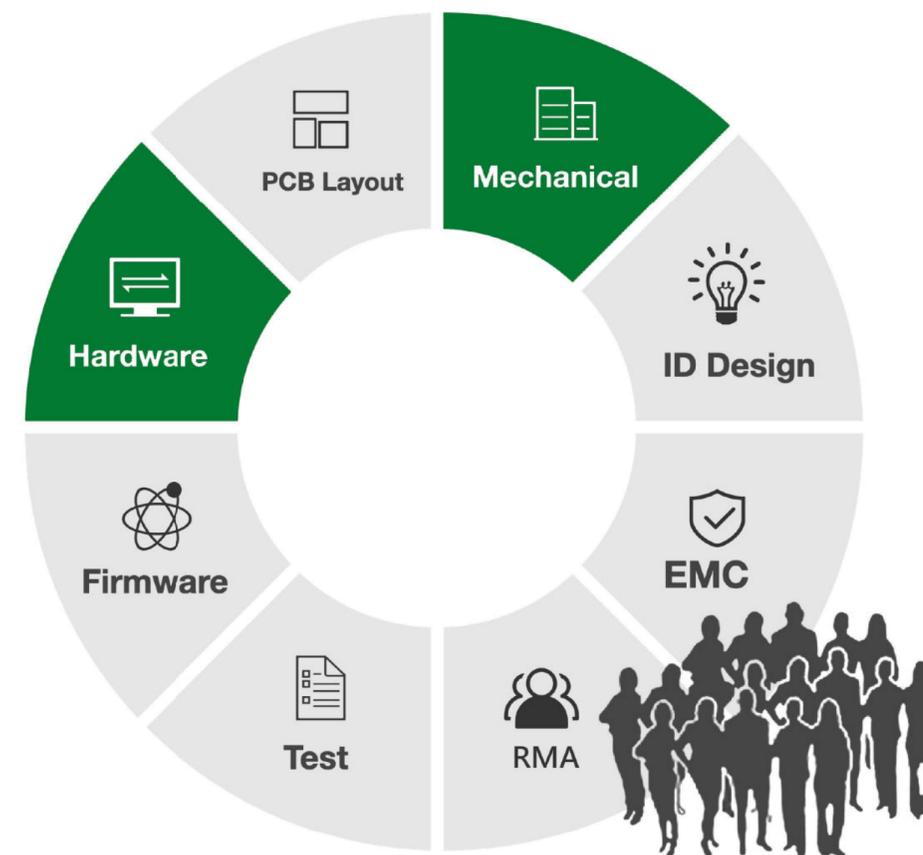
Technique Support

– Before Sale
– After Sale
– Solution Proposal
– RMA

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OEM & ODM

– Customer–specific part number and product name customization
– The semi–customized part can change the product color and add or remove some functions.。
– Fully customized part, from board design to system design according to the customer's product needs.

Longevity

Up to 5 + years
Embedded, Up to 7 + years

According to different product types, we can provide customers with long-term supply guarantee.

Installation of customer offerings

The customer can provide their own related peripheral accessories, and we will assist the customer in installation, testing and then ship.

Warranty

– 3 years for Edge Computer
– 1 year for AI Computer
– 1 year for MXM GPU Module
– 1 year for PCIE AI Card
– Extend the warranty contract

CEVA

Advantages of RugCon product line

Edge computing + AI

Have a complete product line

As many as 212 models ,Four major series,Meet the needs of various applications

Fully Modular Architecture

- MXM GPU AI BOX - Support TYPE A/B MXM GPU
- CPU modularization - configure different CPUs according to the scenario
- I/O modularization - Multi LAN / USB / COM / CAN / PoE
- Power modularization - quickly adapt to different scenario applications

Industrial-Grade Ruggedness

- **-40°C ~ 75°C**   Wide Temperature
- **6~48V DC**   Wide Voltage Input
- Passed the MIL-STD-810H vibration/ Shock test

Industrial Control & Comm.

- Isolated DIO: 4DI+4DO Opto-isolated
- **6x COM** (1x RS232/422/485 with Isolation Protection)
- 2x CAN Bus Industrial Comm.

High-Speed Network & 5G

- Up to **5x 2.5GbE** High-Speed LAN
- 5G Connectivity + Dual SIM Backup
- Link Aggregation & Load Balancing

EBC Smart Power Mgmt.

- **Watchdog Protection**
- System monitoring and protection (voltage / temperature)
- Intelligent power management (Ignition/Remote/PoE/USB/AT/ATX)
- Flexible I/O control and communication interface management
- User storage and parameter settings

Ultra-Mini design

- RVS: One of the world's Smallest MXM GPU PC   **145×125×83mm**
- Minimum size   **120×95×60mm / 120×95×45mm**
- RVP: Ultra-Thin 45mm Design

212	**4**	**668**	**-40~75°C**
Models	Series	TOPS (Max AI Performance)	Industrial Temp. Range

RugCon-key Feature (1)-AI Computing BOX

MXM GPU Integration: Unleash Upgradable Edge AI Performance

Our MXM GPU modular AI Computing Boxes **overcome all the limitations that traditional large graphics cards face in edge deployment: high power consumption, big size, poor vibration resistance, and thermal complexity.** Ranging from wall-mounted fanless units (M Series) to the highest-performance dual-heatsink models (D/DF Series), RugCon provides a standardized modular platform. This ensures customers can easily match performance levels, execute rapid upgrades, and achieve enterprise-grade AI reliability in any harsh environment.

Three AI BOX specifications (M / D / DF), suitable for all RugCon series

We have narrowed down AI and defined the standard of ultra-small MXM edge computing.

M Series Wall Mount

D Series Full FAN LESS

DF Series High AI Performance Dual FAN

AI Computing Power ladder (TOPS)

MXM GPU Computing Power Ladder
TFLOPS & TOPS Performance Comparison

TYPE A/B MXM SPEC

- Form Factor: 82 × 70 mm (TYPE A) , 82 × 105 mm (TYPE B)
- Generation : NVIDIA Ampere / Ada Lovelace
- TGP: 25W ~ 150W
- Easy to upgrade and replace

Advantages of flexible upgrade

- **Modular design** - Just replace the AI BOX.
- **Cost-effective** - Reduce the upgrade cost and extend the product life cycle
- **Flexible configuration** - Choose the suitable GPU computing power according to the application needs
- **Future expansion** - Upgrade to the latest GPU with the evolution of technology

MXM Type A vs Type B Comparison of specifications

Specification items	MXM Type A	MXM Type B
Module size	82 × 70 mm	82 × 105 mm
TGP	25W ~ 65W	Up to 150W
Applicable products	RV1-M/D/DF series、RV2-M/D/DF Series、RVS-M/D/DF Series、RVP-M/D/DF Series	RV2-M/D/DF series
Support GPU examples	RTX 4050/4060/4070/A2000/RTX2000 Ada	RTX 4080/RTX4090/RTX3500 Ada
Range of AI computing power	194 ~ 668 TOPS	Higher computing power (more heat dissipation space is required)

RugCon-key Feature (2)-Modular MXM GPU: Your Edge AI Engine

Ultimate Performance and Flexible Expansion for Edge AI Computing

MXM (Mobile PCI Express Module) is a standardized GPU module designed specifically for embedded and compact systems, making it vital for high-performance **AI BOX** edge computing. An MXM module integrates a powerful discrete graphics chip onto a standardized card, enabling the system to achieve **high-efficiency AI inference and image processing capabilities** within a constrained space. The modular advantage is that users can quickly upgrade or replace the GPU without swapping out the entire AI BOX or motherboard, adapting to evolving AI algorithms and performance demands. This significantly enhances the system's **flexibility, maintainability**, and **product lifecycle**. Furthermore, the MXM standardized interface aids in thermal optimization and rapid product iteration, making it the ideal choice for deploying high-performance edge AI applications in harsh industrial environments.

Core Technical Advantages

High-Performance Parallel Computing

Desktop-class GPU architecture providing powerful parallel processing for image processing, deep learning, and large-scale AI inference

Low Power & High Bandwidth

PCIe 3.0+ interface support for efficient large-scale data flow processing with low latency for real-time transmission and processing

Modular & Upgradeable

Compact high-density design allows GPU module replacement or upgrade without changing the entire host platform, excellent long-term ROI

Software Ecosystem

Development Toolchain

- CUDA Toolkit
- TensorRT Inference
- DeepStream SDK
- cuDNN / OptiX

AI Frameworks

- TensorFlow
- PyTorch
- ONNX
- OpenCV

Operating Systems

- Windows 10/11 IoT
- Ubuntu 20.04/22.04
- CentOS / Red Hat
- Debian

Industrial Standards

- Docker / Kubernetes
- ROS2 Professional
- Hyper-V / VMware
- Container Deployment

Key Application Scenarios

Image Processing
Defect Detection

Multi-Sensor Fusion
Real-time Decision

Deep Learning Inference
Multi-task Coordination

Real-time Video
Signal Monitoring

Large-scale Data
AI Real-time Inference

RugCon-Key Feature (3)-Embedded Controller

All RugCon series are supported

CBC = CEVA Board Care

It is not only control, but also protection.
Let every CEVA computing platform have a stable, safe and perceptible "heart".

🧩 EBC (Embedded Board Controller) Feature Introduction and Highlights

The EBC (Embedded Board Controller) plays a crucial role as the **"System Guardian"** across all product lines at CEVA.
Designed with an **ARM architecture microcontroller**, the EBC is utilized to provide **real-time system management and power control**, specifically targeting industrial PCs and Edge AI computing platforms. It is positioned between the CPU module and peripheral hardware, responsible for system-level monitoring, control, and power management, ensuring the stability and reliability of the edge computing platform in multi-tasking environments.
The EBC module can **operate independently**; even if the main system CPU is in sleep mode or powered off, the EBC continues to perform system monitoring, power sequencing control, and safety protection mechanisms.

🔄 SMART power management

Support multiple power supply modes of AT / ATX / Ignition, and the power-on delay (0–255 seconds) can be programmed.

Support ignition switch control

Support PoE power on/off

🐕 System monitoring and protection

Instant monitoring of DC-IN, 12V, 5VSB, 5V, 3.3V voltage status and temperature

🐕 Watchdog Protection

Hardware-level watchdog timer, continuously monitor the system status. When the system does not respond or is down, it will automatically trigger a restart to avoid long-term downtime.

⚡ Elastic I/O control

Built-in 8 groups of isolated DIO and 8-channel programmable GPIO, which can customize the input and output logic according to application needs.

📊 Communication interface management

It supports the UART command interface and can switch between RS232/422/485, and flexibly integrates a variety of external control systems.

📊 User storage and parameter settings

Built-in 32-byte non-volatile memory, which supports serial number, key and custom parameter saving to enhance system integrity and security.
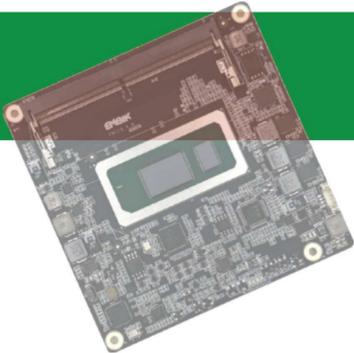
RugCon-Key Feature (4)-BGA Packaging - Eliminating CPU Mechanical Failure Points

"Stability Trumps All: BGA vs. LGA Socket in Extreme Industrial Settings"

Our choice is not just about technical specifications; it is a commitment to long-term stability. By utilizing BGA permanently soldered CPUs, we fundamentally eliminate the risks of mechanical failure, poor contact, and long-term maintenance issues associated with LGA sockets. This enables the RugCon system to achieve the highest operational reliability and the lowest unplanned downtime in harsh industrial and in-vehicle applications characterized by high vibration and extreme temperature variations.

Technical Indicator	BGA: Permanent, Robust Connection	BGA (Ball Grid Array)	LGA Socket : Mechanical , Fragile Pins	LGA (Land Grid Array / Socket)
Connection Method		✓ Solder Ball Permanent to PCB		Spring Pin Contact, Removable
Vibration Resistance		✓ Extremely High (MIL-STD-810H)		Low (Contact Points Loosen)
Thermal Resistance		✓ Lower (Direct Solder Path)		Higher (Multi-layer Interface)
Signal Integrity		✓ Higher (Short Path, Low Impedance)		Lower (Contact Resistance, Parasitic)
MTBF (Mean Time Between Failures)		✓ Higher (No Mechanical Wear)		Lower (Oxidation, Wear)
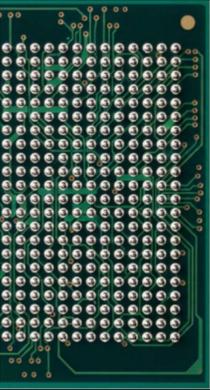
Metallurgical Permanent Connection

✓ Solder balls form permanent metallurgical bond with PCB

✓ Eliminates socket mechanical contact points

✓ Passes 5G vibration testing

✓ Zero contact failure, lifetime maintenance-free

Optimized Thermal Path

✓ Thermal resistance reduced by 20-30%

✓ Direct solder path reduces thermal interfaces

✓ Supports higher TDP processors

✓ Stable operation under sustained high load

Higher Signal Integrity

✓ Shorter signal path, lower impedance

✓ Reduced parasitic capacitance and inductance

✓ Supports higher frequency and bandwidth

✓ Lower EMI electromagnetic interference

CEVA Commitment : All RugCon Series Use BGA Packaging

Sacrificing cost flexibility for industrial-grade reliability · Ideal for harsh long-term operation

Automotive   Industrial   Rail Transit   Outdoor
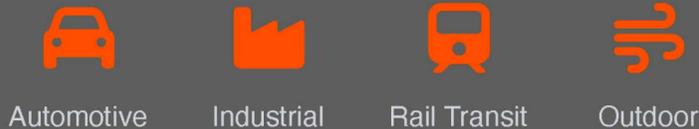
RugCon - 4 Main Series Introduction

Core specifications and features of the four series of RV1, RV2, RVS and RVP

Compare items	RVS Series (18 Models)	RVP Series (98 Models)	RV1 Series (36 Models)	RV2 Series (60 Models)
Series positioning	Palm Size edge AI computer	Ultra-thin edge AI computer	Ultra-small edge AI computer	High-performance edge AI computer
Dimension	145×125×60-85.6mm	203×125×45-82.7mm	177×129×77-107.5mm	210.6×176.1×82-108mm
Weight	1kg	1.1kg	1.7kg	2.5kg
LAN	2x LAN (1x 2.5G + 3x 1G) ,3x/4x LAN (2.5G)	2x LAN (1x 2.5G + 3x 1G) ,3x/4x LAN (2.5G)	4x LAN (1x 2.5G + 3x 1G)	3 or 5x 2.5GbE
Display	2x Display (HDMI+DP)	3x Display (2x HDMI+DP)	2x Display (DVI+DP)	2x Display (DVI+DP)
Isolation DIO/GPIO	✗ Not supported	✓ Spec number 3 and 5 (4DI+4DO with Isolation)	✓ Spec number 2 and 3 (4DI+4DO with Isolation)	✓ All RV2, 8x Isolation DIO (4x in, 4x Out)
PCIe Expansion slot BOX (E-BOX)	✗ Not supported	✓ E Series (PCIe x4/x8)	✗ Not supported	✓ E Series (PCIe x4/x8)
MXM GPU AI Computing BOX	✓ M/D/DF series , up to TGP 65W	✓ M/D/DF series , up to TGP 65W	✓ M/D/DF series , up to TGP 65W	✓ M/D/DF series , up to TGP 135W
Double heat dissipation for AI BOX and CPU	✓ D Series (full fanless) / DF Series (dual FAN)	✓ D Series (full fanless) / DF Series (dual FAN)	✓ D Series (full fanless) / DF Series (dual FAN)	✓ D Series (full fanless) / DF Series (dual FAN)
M12 LAN Ports	✓ X Series	✓ X Series	✓ X Series	✓ X Series
CAN Bus	✗ Not supported	✗ Not supported	✓ Spec number 3 supports 2x CAN Bus	✓ Spec number 2 supports 2x CAN Bus
Number of models	18 Models	98 Models	36 Models	60 Models
Main application scenarios	IoT, robots, drones, AGV, intelligent transportation	Multi-screen applications, digital billboards, edge computing, drones	Industrial automation, intelligent manufacturing, intelligent transportation , Machine Vision	Machine Vision , industrial automation, AI reasoning, intelligent transportation

NOTE 1 : The AI BOX of RV2 Series can option with 2x SFP+ 10G LAN

RugCon : Product Code name

1. RugCon Model Series

Code	Series name
RV1	Ultra-small edge AI computer
RV2	High-performance edge AI computer
RVS	Palm Size edge AI computer
RVP	Ultra-thin edge AI computer

2. Network port type corresponding code

Code	Type of connector
T	RJ45 standard network connector
X	M12 industrial-grade connector

3. Key function suffix code

Code	Description of the code
F	CPU with FAN kit (support 28W/45W TDP CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	fanless , CPU on one side, MXM GPU on the other side
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports
E	EBOX, 1x PCIe slot expansion BOX

3. Definition of product model name

Example I.

RV1-T1FM-UC626 Core i3-1215UE

Model Series
T : RJ45 , X: M12
Spec Code
CPU with FAN
M : AI BOX
CPU Code

Example II.

RV1-DX1F-UC626 Core i3-1215UE
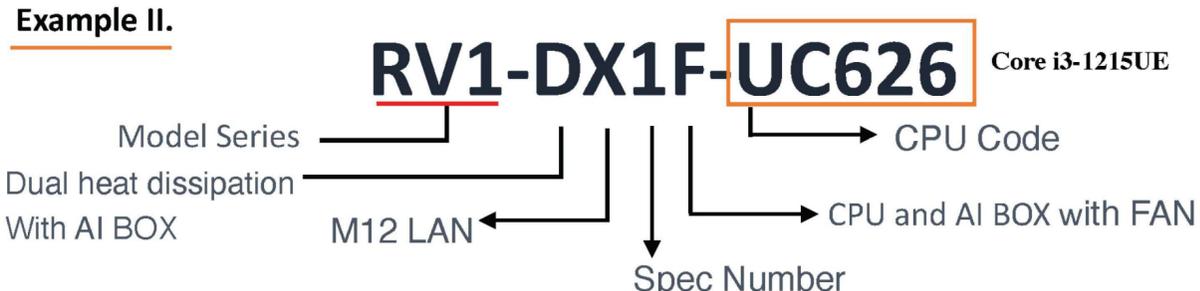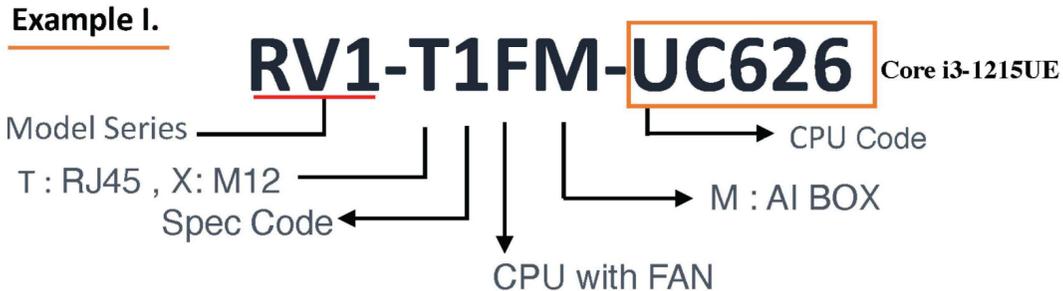
Model Series
Dual heat dissipation With AI BOX
M12 LAN
Spec Number
CPU and AI BOX with FAN
CPU Code

CPUs List Table(1), cost-effective

CPU Code	Model	Generation	Cores / Threads	P-Core / E-Core	Base / Turbo Frequency	TDP (Power)	GPU	Memory Support	Remarks
UC626	Core i3-1215U	12th Gen Alder Lake	6C / 8T	2P + 4E	1.2GHz / Up to 4.4GHz	15W	Intel® UHD Graphics (64EU)	DDR4-3200 / LPDDR5-5200	Entry-level power-efficient CPU for compact edge AI devices
UC631	Core i3-1315U	13th Gen Raptor Lake	6C / 8T	2P + 4E	1.2GHz / Up to 4.5GHz	15W	Intel® UHD Graphics (64EU)	DDR5-5200 / LPDDR5x-6400	Enhanced cache and performance, ideal for IoT gateways
UC625	Core i5-1235U	12th Gen Alder Lake	10C / 12T	2P + 8E	1.3GHz / Up to 4.4GHz	15W	Intel® Iris Xe (80EU)	DDR5-4800 / LPDDR5-5200	Balanced performance for industrial control and AI edge computing
PC627	Core i5-1250P	12th Gen Alder Lake	12C / 16T	4P + 8E	1.7GHz / Up to 4.4GHz	28W	Intel® Iris Xe (96EU)	DDR5-4800 / LPDDR5-5200	Performance-optimized for real-time image recognition and analytics
PC63G	Core i5-1350P	13th Gen Raptor Lake	12C / 16T	4P + 8E	1.9GHz / Up to 4.7GHz	28W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	Next-gen upgrade with 10–12% higher inference speed
HC621	Core i9-12900H	12th Gen Alder Lake	14C / 20T	6P + 8E	2.5GHz / Up to 5.0GHz	45W	Intel® Iris Xe (96EU)	DDR5-4800 / LPDDR5-5200	Flagship high-performance CPU for GPU-integrated AI systems
HC63A	Core i9-13900HK	13th Gen Raptor Lake	14C / 20T	6P + 8E	2.6GHz / Up to 5.4GHz	45W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	Overclockable flagship CPU for high-end edge AI deployment

Segment	Entry-Level	Mid-Range	High-End / Flagship
Representative Models	i3-1215U / i3-1315U	i5-1235U / i5-1250P / i5-1350P	i9-12900H / i9-13900HK
Power Range	15W	15–28W	45W
Typical Platform	Low-power Edge Device / IoT Gateway	AI Box / Smart Factory Controller	GPU-based AI Server / Edge Data Center
Overall Performance	★★☆☆☆	★★★★☆	★★★★★
AI Inference Efficiency (with MXM GPU)	Basic	Optimized	Maximum
Feature Description	Feature Description	Feature Description	Feature Description

CPUs List Table(2), Embedded

P/N	Model	Architecture	Process Technology	Cores / Threads	P-Core / E-Core	Base / Turbo Frequency	Base Power (TDP)	GPU	Memory Support	Remarks
UC623	Core i3-1215UE	12th Gen Alder Lake	Intel 7 (10nm)	6C / 8T	2P + 4E	1.2GHz / 4.4GHz	15W	Intel® UHD Graphics (64EU)	DDR5-4800 / LPDDR5-5200	Embedded low-power version, ideal for IoT Edge and lightweight AI devices
UC633	Core i3-1315UE	13th Gen Raptor Lake	Intel 7	6C / 8T	2P + 4E	1.2GHz / 4.5GHz	15W	Intel® UHD Graphics (64EU)	DDR5-5200 / LPDDR5x-6400	Faster cache and frequency, suitable for industrial IoT and edge AI computing
PC629	Core i5-1250PE	12th Gen Alder Lake	Intel 7 (10nm)	12C / 16T	4P + 8E	1.7GHz / 4.4GHz	28W	Intel® Iris Xe (96EU)	DDR5-4800 / LPDDR5-5200	Mid-tier embedded CPU, balanced performance and efficiency, suitable for AI vision control
PC63B	Core i5-1340PE	13th Gen Raptor Lake	Intel 7	12C / 16T	4P + 8E	1.9GHz / 4.6GHz	28W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	New-gen upgrade with ~10% AI inference performance boost
PC63K	Core i5-1350PE	13th Gen Raptor Lake	Intel 7	12C / 16T	4P + 8E	1.9GHz / 4.7GHz	28W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	High-performance embedded platform for smart manufacturing and edge AI gateways
UC635	Core i5-1335UE	13th Gen Raptor Lake	Intel 7	10C / 12T	2P + 8E	1.3GHz / 4.6GHz	15W	Intel® Iris Xe (80EU)	DDR5-5200 / LPDDR5x-6400	Low-power embedded processor, ideal for AI Box and machine vision systems
HC632	Core i5-13600HE	13th Gen Raptor Lake	Intel 7	14C / 20T	6P + 8E	2.0GHz / 4.8GHz	45W	Intel® UHD Graphics (32EU)	DDR5-5600 / LPDDR5x-6400	High-efficiency embedded processor with long-term supply, ideal for high-load AI edge applications
UC634	Core i7-1365UE	13th Gen Raptor Lake	Intel 7	10C / 12T	2P + 8E	1.7GHz / 5.2GHz	15W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	Ultra-low-power and high-efficiency embedded CPU, suitable for compact edge AI devices
PC63A	Core i7-1370PE	13th Gen Raptor Lake	Intel 7	14C / 20T	6P + 8E	1.9GHz / 5.2GHz	28W	Intel® Iris Xe (96EU)	DDR5-5200 / LPDDR5x-6400	Premium embedded processor supporting AI vision and industrial applications
HC631	Core i7-13800HE	13th Gen Raptor Lake	Intel 7	14C / 20T	6P + 8E	2.0GHz / 5.2GHz	45W	Intel® UHD Graphics (32EU)	DDR5-5600 / LPDDR5x-6400	Flagship embedded processor with long-term availability, ideal for AI servers and industrial edge systems

Category	Entry Level	Mid Range	High-End / Flagship
Representative Models	i3-1215UE / i3-1315UE	i5-1335UE / i5-1340PE / i5-1350PE	i5-13600HE / i7-1370PE / i7-13800HE
Power Range	15W	15–28W	28–45W
Target Platform	Low-power edge devices / Smart terminals	AI Box / Intelligent factory control systems	GPU-assisted AI platforms / Smart server nodes
Overall Performance	★★☆☆☆	★★★★☆	★★★★★
AI Inference Performance (with MXM GPU)	Suitable	Enhanced	Optimal
Feature Description	Compact and energy-efficient design with long-term availability, ideal for IoT sensing nodes	Balanced power and performance, supporting AI vision computing	Multi-core high-efficiency architecture, ideal for edge AI servers and in-vehicle systems

RugCon RVS Series

Palm-sized rugged edge AI computing computer

A palm-sized, rugged, fanless edge AI computer designed specifically for harsh environments and high-performance AI applications. Supporting flexible CPU configurations, it provides rich industrial I/O interfaces and seamless MXM GPU AI BOX integration, making it the ideal choice for deploying your next-generation edge AI scenarios.

Fit Anywhere and Everywhere

Dimension	Temperature range	Wide Input Voltage	2x / 3x LAN	8x USB
145×125×60mm	**-40°C ~ 70°C**	**6 ~ 48V**	1x 2.5GbE + 1x GbE **3**x 2.5GbE	6x USB 3.2 + 2x USB 2.0

2x COM	M12 LAN Connector
1x RS232/422/485, 1x RS232	**RVS-X Series support**

AI AI Computing BOX
M/D/DF with TYPE A MXM GPU

18
Models

RVS Series- Product types

Product Type - RVS Series

Code	Description of the code
F	CPU with FAN kit (support 28W/45W TDP CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	fanless , CPU on one side, MXM GPU on the other side
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports

RVS T/ X Series

Fanless

X

T

Rugged Fanless Edge Computer

RVS TF / XF Series

CPU with FAN

TF

XF

High Performance Rugged Edge Computer

RVS D / DX Series

MXM GPU AI BOX

Dual Heat Sink , Fanless
CPU + MXM GPU

DX

D

Fanless, CPU + MXM GPU , Edge AI Computer

RVS TM / XM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU Fanless

Internal MXM GPU active heat dissipation solution

XM

TM

CPU + MXM GPU , Edge AI Computer

RV1 TFM / XFM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU with FAN

Internal MXM GPU active heat dissipation solution

XFM

TFM

CPU + MXM GPU , Edge AI Computer

RVS DF / DXF Series

MXM GPU AI BOX

Dual Heat Sink with FAN
CPU + MXM GPU

DXF

DF

CPU + MXM GPU , High Performance Edge AI Computer

RVS Series -Specification

Palm Size edge AI computer | 2x/3x LAN

- The RVS series has three specifications corresponding to "1", "2" and "3" spec number respectively.
- In the part of the LAN port interface of the RVS series, the M12 LAN port with the "X" code and the RJ45 LAN port with the "T" code.
- The RVS series can **support 28W/45W high-performance CPU through fan, and you need to choose the model with the code "F".**
- To support MXM GPU, you need to choose the M, D or DF series with AI BOX installed.

Regarding MXM GPU computing power support:

- RVS models designated with an **"M"** are hosts pre-installed with an AI BOX that features an active cooling MXM GPU solution.
- RVS models designated with a **"D"** are AI BOX-equipped systems with a dual-sided completely fanless design (both CPU and GPU are fanless).
- RVS models designated with a **"DF"** are AI BOX-equipped systems with a dual-sided fan-assisted cooling design (both CPU and GPU are fanless).

I. Core specifications and architecture (RVS-1/2 common specifications)

SYSTEM SPEC	Description
CPU	Intel® 12/13 Gen Core™ i9/i7/i5/i3 Processor (U_15W)。 Only F series with fan supports 28W/45W CPU
Memory	**Up to 64GB DDR5**，2x SO-DIMM。
Display	2x Display Port (4096*2304@60Hz)；1x DVI (1920*12000@60Hz)。
Storage	**2x M.2 2242 M key** (SATA III)，Support RAID 0/1。
Internal Expansion	1x M.2 2242/3052 B key(with SIM slot，support 4G/5G/LTE)； 1x Full Size Mini-PCIe (with SIM slot，support 4G/5G/LTE/WIFI)； 1x M.2 Key E Type 2230 (For BT/GPS/WIFI)。
AI BOX	Support TYPE A : 82 x 70 mm MXM GPU Module ✓ M/D/DF Series (TYPE A MXM) up to TGP 65W
Power input	1x 3-pin Power input connector，Support 6~48V DC wide voltage input。
Power protection	Equipped with 200V/1ms surge protection, reverse voltage, over-voltage, under-voltage and overcurrent protection.
SMART power management	Vehicle power supply ignition switch control / remote switch control
Operating Temperature	The working temperature standard is -40°C~70°C (depending on the CPU configuration or CPU + MXM GPU configuration).

NOTE 1 : Please contact the sales unit for the extended temperature (-40°C~85°C) support project.

II. RVS model differentiation I/O specification table (1/2/3)

RVS spec number	SPEC Number : 1	SPEC Number : 2
Display	Dual Display 1x Display Port, 4096*2304@60Hz 1x HDMI , 4096*2160@30Hz	Dual Display 1x Display Port, 4096*2304@60Hz 1x HDMI , 4096*2160@30Hz
LAN	**2x LAN (1x 2.5G, 1x 1G)**	**3x LAN (3x 2.5G)**
COM	2x COM (1x RS-232/422/485 + 1x RS-232)	2x COM (1x RS-232/422/485 + 1x RS-232)
USB	**8x USB** (6x 3.2 Gen1, 2x 2.0)	**6x USB** (4x 3.2 Gen1, 2x 2.0)

IV. Safety regulations and certification instructions

ITEM	Description
Vibration Shock	Vibration test according to MIL–STD–810H, Method 514.8, Category 4 Shock test according to MIL–STD–810H, Method 516.8, Procedure I
EMC	**CE/FCC Class A , according to EN 55032 & EN 55035**
Vehicle / Railway	E–Mark / EN50155 / EN45545–2 by request

NOTE 2 : If there are other test items, please contact the sales unit.

III. Key Function code description

Code	Description of the code
F	CPU with FAN (Support 28W/45W CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	MXM GPU AI BOX , The built-in active heat dissipation scheme
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports

RVS Series -Model correspondence table

Palm Size edge AI computer | 2x/3x LAN

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I. Quick model corresponding reference table

RVS Series	CPU With FAN	CPU TDP Level	AI BOX Ready	AI BOX with FAN	MXM TGP Level	M12 LAN support	SPEC Number : 1	SPEC Number : 2
RVS-T/X	Fanless	15W	✖ Not supported	✖	N/A	"X" M12 LAN Ports	RVS-T1/X1	RVS-T2
RVS-TF/XF	CPU with FAN	15W/28W	✖ Not supported	✖	N/A	"X" M12 LAN Ports	RVS-T1F/X1F	RVS-T2F
RVS-TM/XM	Fanless	15W	✓ TYPE A MXM GPU Module	✓	35W	"X" M12 LAN Ports	RVS-T1M/X1M	RVS-T2M
RVS-TFM/XFM	CPU with FAN	15W/28W	✓ TYPE A MXM GPU Module	✓	35W	"X" M12 LAN Ports	RVS-T1FM/X1FM	RVS-T2FM
RVS-D/DX	Dual Fanless	15W	✓ TYPE A MXM GPU Module	✖	35W	"X" M12 LAN Ports	RVS-D1/DX1	RVS-D2
RVS-DF/DXF	Dual FAN for CPU and GPU	15W/28W	✓ TYPE A MXM GPU Module	✓	65W	"X" M12 LAN Ports	RVS-D1F/DX1F	RVS-D2F

II. Definition of product model name

Example I.

RVS-T1FM-UC626 Core i3-1215UE

Model Series
T : RJ45 , X: M12
Spec Code
CPU with FAN
M : AI BOX
CPU Code

Example II.

RVS-DX1F-UC626 Core i3-1215UE

Model Series
Dual heat dissipation
With AI BOX
M12 LAN
Spec Number
CPU and AI BOX with FAN
CPU Code

RVS Series : Product Selection Decision Flow

Fit Anywhere and Everywhere

Product Selection Decision Flow - RVS Series

STEP 1	STEP 2	STEP 3	STEP 4
Confirm Special Features	**Confirm Product Type**	**Confirm whether it needs to be matched**	**Select from CPU List (1) or (2)**
Select RVS Spec Number(1,2,3)	Select Connector Type / Select Fanless or with FAN	with AI Computing BOX	Chose the CPU Code from CPU list table

⚙ Spec Number

Select required spec symbol from RVS spec table

1 / 2 / 3 correspond to 3 spec number

🖧 Network Port Type

T/D/F Series : RJ45 Standard Connector

X/DX/DXF Series : M12 Industrial Connector

F Series : with FAN Kit

▣ MXM GPU AI BOX

M Model: Wall-mounted ,built-in active heat dissipation.

D Model: Dual cooling fanless

DF Model: Dual fan high performance

▣ CPU Level

Entry Level (TDP): **15W**

Mid Level (TDP): **28W**

High Level (TDP): **45W**

Select cost-effective or embedded CPU

NOTE 1 : **For 28W/45W CPU, need Select F Series**

⚡ MXM GPU Model selection

M/ D Series

STEP 5
Select AI Performance
Based on MXM GPU List

RTX4050	RTX4060	RTX4070	A2000	RTX2000
194 TOPS	**232 TOPS**	**321 TOPS**	**142 TOPS**	**228 TOPS**
35W	60W	65W	38W/50W	56.5W

DF Series

NOTE 2: If you want to use it with a wide temperature environment, please confirm the selection with our technical support unit.

![CEVA logo]

RugCon RVP Series

Ultra-slim, rugged edge AI computer

An ultra-slim, rugged edge AI computer designed for harsh environments and high-performance AI applications. Supporting flexible CPU configurations, it provides rich industrial I/O interfaces and seamless MXM GPU AI BOX integration, making it the ideal choice for deploying your next-generation edge AI, industrial automation, and in-vehicle applications.

Dimension	Temperature range	Wide Input Voltage	2x / 3x LAN	8x USB
203×125×45/54mm	**-40°C ~ 70°C**	**6 ~ 48V**	1x 2.5GbE + 1x GbE **3**x 2.5GbE	6x USB 3.2 + 2x USB 2.0

6x COM	M12 LAN Connector	3x Display	Isolation DIO	
1x RS232/422/485, 5x RS232	**RVP-X Series support**	**1x DP, 2x HDMI**	4x IN , 4x Out	**AI** AI Computing BOX M/D/DF with TYPE A MXM GPU

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Models

RVP Series -Specification

Fit Anywhere and Everywhere

Ultra-thin edge AI computer | 2x/3x LAN

- The RVP series has three specifications corresponding to "1", "2", "3" "4", "5", "6" spec number respectively.
- In the part of the LAN port interface of the RVP-T and RVP-X series, the M12 LAN port with the "X" code and the RJ45 LAN port with the "T" code.
- In the part of the LAN port interface of the RVP-P and RVP-PX series, the M12 LAN port with the "PX" code and the RJ45 LAN port with the "P" code.
- The RVP-T and RVP-X series only can support 15W TDP CPU with fanless.
- The RVP-P series can **support 45W high-performance CPU through fan, and you need to choose the model with the code "F".**
- To support MXM GPU, you need to choose the M, D or DF series with AI BOX installed.

Regarding MXM GPU computing power support:

- RVP models designated with an **"M"** are hosts pre-installed with an AI BOX that features an active cooling MXM GPU solution.
- RVP models designated with a **"D"** are AI BOX-equipped systems with a dual-sided completely fanless design (both CPU and GPU are fanless).
- RVP models designated with a **"DF"** are AI BOX-equipped systems with a dual-sided fan-assisted cooling design (both CPU and GPU are fanless).

一、Core specifications and architecture
(RVP-1/2/3/4/5/6 common specifications)

SYSTEM SPEC	Description
CPU	Intel® 12/13 Gen Core™ i9/i7/i5/i3 Processor (U_15W, P_28W)。 Only F series with fan supports 45W CPU
Memory	Up to 64GB DDR5，2x SO-DIMM。
Storage	**2x M.2 2242 M key** (SATA III)，Support RAID 0/1。
Internal Expansion	1x M.2 2242/3052 B key(with SIM slot，support 4G/5G/LTE)；1x Full Size Mini-PCIe (with SIM slot，support 4G/5G/LTE/WIFI)；1x M.2 Key E Type 2230 (For BT/GPS/WIFI)。
AI BOX	Support TYPE A : 82 x 70 mm MXM GPU Module ✓ M/D/DF Series (TYPE A MXM) up to TGP 65W
E-BOX	E Series support 1x PCIE x8 slot Expansion BOX (H_series CPU with x8 Signals，U_Series CPU with x4 signals)
Power input	1x 3-pin Power input connector，Support 6~48V DC wide voltage input。
Power protection	Equipped with 200V/1ms surge protection, reverse voltage, over-voltage, under-voltage and overcurrent protection.
SMART power management	Vehicle power supply ignition switch control / remote switch control
Operating Temperature	The working temperature standard is -40°C~70°C (depending on the CPU configuration or CPU + MXM GPU configuration).

NOTE 1 : Please contact the sales unit for the extended temperature (-40°C~85°C) support project.

II. RVP model differentiation I/O specification table (1/2/3/4/5/6)

RVS spec number	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3	SPEC Number : 4	SPEC Number : 5	SPEC Number : 6
Display	**3x Displays** 1x Display Port, 4096*2304@60Hz 2x HDMI , 4096*2160@30Hz	**3x Displays** 1x Display Port, 4096*2304@60Hz 2x HDMI , 4096*2160@30Hz	**3x Displays** 1x Display Port, 4096*2304@60Hz 2x HDMI , 4096*2160@30Hz	**2x Displays** 1x Display Port, 4096*2304@60Hz 1x HDMI , 4096*2160@30Hz	**2x Displays** 1x Display Port, 4096*2304@60Hz 1x HDMI , 4096*2160@30Hz	**2x Displays** 1x Display Port, 4096*2304@60Hz 1x HDMI , 4096*2160@30Hz
LAN	**2x LAN (1x 2.5G, 1x 1G)**	**2x LAN (1x 2.5G, 1x 1G)**	**2x LAN (1x 2.5G, 1x 1G)**	**3x LAN (3x 2.5G)**	**3x LAN (3x 2.5G)**	**2x LAN (1x 2.5G, 1x 1G)**
COM	2x COM (1x RS-232/422/485 + 1x RS-232)	2x COM (1x RS-232/422/485 + 1x RS-232)	3x COM (2x RS-232/422/485 + 1x RS-232)	2x COM (1x RS-232/422/485 + 1x RS-232)	3x COM (2x RS-232/422/485 + 1x RS-232)	6x COM (1x RS-232/422/485 + 5x RS-232)
DIO	N/A	8x GPIO	4x Isolation DI 4x Isolation DO	8x GPIO	4x Isolation DI 4x Isolation DO	N/A
USB	**8x USB** (6x 3.2 Gen1, 2x 2.0)	**8x USB** (6x 3.2 Gen1, 2x 2.0)	**8x USB** (6x 3.2 Gen1, 2x 2.0)	**6x USB** (4x 3.2 Gen1, 2x 2.0)	**6x USB** (4x 3.2 Gen1, 2x 2.0)	**8x USB** (6x 3.2 Gen1, 2x 2.0)

IV. Safety regulations and certification instructions

ITEM	Description
Vibration Shock	Vibration test according to MIL−STD−810H, Method 514.8, Category 4 Shock test according to MIL−STD−810H, Method 516.8, Procedure I
EMC	CE/FCC Class A , according to EN 55032 & EN 55035
Vehicle / Railway	E−Mark / EN50155 / EN45545−2 by request

NOTE 2 : If there are other test items, please contact the sales unit.

III. Key Function code description

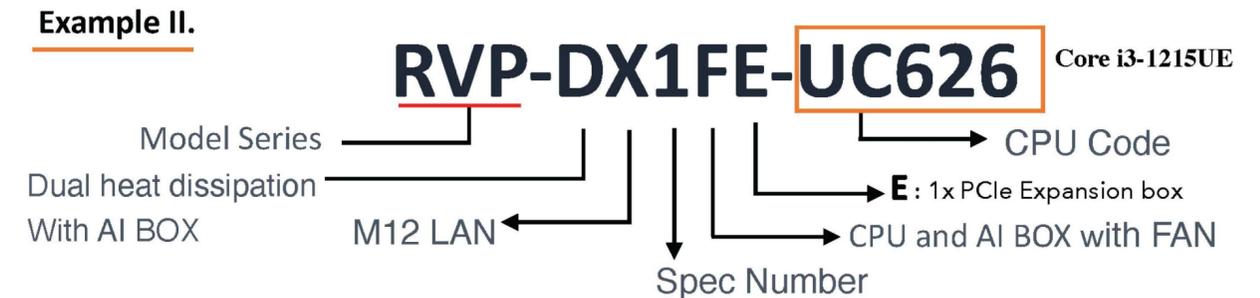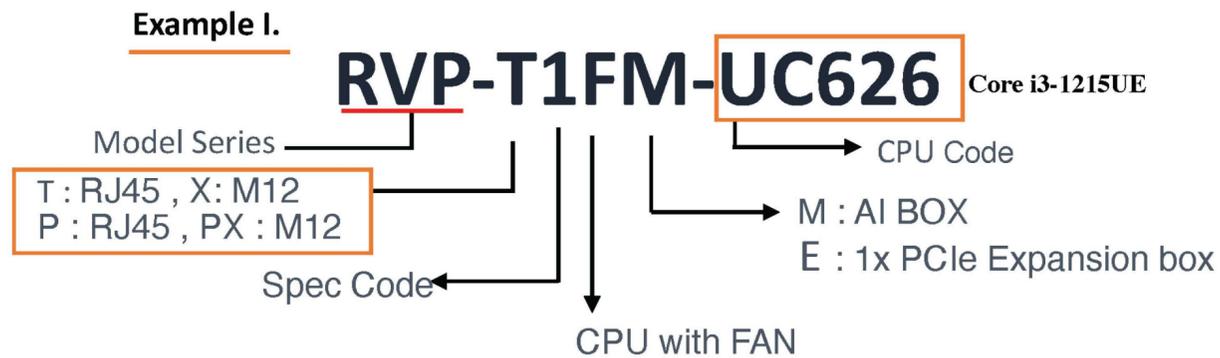| Code	Description of the code
F	CPU with FAN (Support 28W/45W CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	MXM GPU AI BOX , The built-in active heat dissipation scheme
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports
E	EBOX, 1x PCIe slot expansion BOX, (U series CPU support PCIE x4, H series CPU support PCIE x8)

RVP Series-Model correspondence table

Ultra-thin edge AI computer | 2x/3x LAN

Fit Anywhere and Everywhere

I. Quick model corresponding reference table

RVP Series	CPU With FAN	CPU TDP Level	AI BOX Ready	AI BOX with FAN	MXM TGP Level	E-BOX with 1x PCIE slot	M12 LAN support	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3	SPEC Number : 4	SPEC Number : 5	SPEC Number : 6
RVP-T/X	Fanless	15W	✗ Not supported	✗	N/A	✗	"X" M12 LAN Ports	RVP-T1/X1	RVP-T2				
RVP-P/PX	Fanless	15W/28W	✗ Not supported	✗	N/A	✗	"X" M12 LAN Ports	RVP-P1/PX1	RVP-P2/PX2	RVP-P3/PX3	RVP-P4	RVP-P5	RVP-P6/PX6
RVP-PF/PXF	CPU with FAN	15W/28W/45W	✗ Not supported	✗	N/A	✗	"X" M12 LAN Ports	RVP-P1F/PX1F	RVP-P2F/PX2F	RVP-P3F/PX3F	RVP-P4F	RVP-P5F	RVP-P6F/PX6F
RVP-TM/XM	Fanless	15W	✓ TYPE A MXM GPU Module	✓	35W	✗	"X" M12 LAN Ports	RVP-T1M/X1M	RVP-T2M				
RVP-PM/PXM	Fanless	15W/28W	✓ TYPE A MXM GPU Module	✓	35W	✗	"X" M12 LAN Ports	RVP-P1M/PX1M	RVP-P2M/PX2M	RVP-P3M/PX3M	RVP-P4M	RVP-P5M	RVP-P6M/PX6M
RVP-PFM/PXFM	CPU with FAN	15W/28W/45W	✓ TYPE A MXM GPU Module	✓	65W	✗	"X" M12 LAN Ports	RVP-P1FM/PX1FM	RVP-P2FM/PX2FM	RVP-P3FM/PX3FM	RVP-P4FM	RVP-P5FM	RVP-P6FM/PX6FM
RVP-D/DX	Dual Fanless	15W/28W	✓ TYPE A MXM GPU Module	✗	65W	✗	"X" M12 LAN Ports	RVP-D1/DX1	RVP-D2/DX2	RVP-D3/DX3	RVP-D4	RVP-D5	
RVP-DF/DXF	Dual FAN for CPU and GPU	15W/28W/45W	✓ TYPE A MXM GPU Module	✓	65W	✗	"X" M12 LAN Ports	RVP-D1F/DX1F	RVP-D2F/DX2F	RVP-D3F/DX3F	RVP-D4F	RVP-D5F	
RVP-PE/PXE	Fanless	15W/28W	✗ Not supported	✗	N/A	✓	"X" M12 LAN Ports	RVP-P1E/PX1E	RVP-P2E/PX2E	RVP-P3E/PX3E	RVP-P4E	RVP-P5E	RVP-P6E/PX6E
RVP-PFE/PXFE	CPU with FAN	15W/28W/45W	✗ Not supported	✗	N/A	✓	"X" M12 LAN Ports	RVP-P1FE/PX1FE	RVP-P2FE/PX2FE	RVP-P3FE/PX3FE	RVP-P4FE	RVP-P5FE	RVP-P6FE/PX6FE
RVP-DE/DXE	Dual Fanless	15W/28W	✗ Not supported	✗	N/A	✓	"X" M12 LAN Ports	RVP-D1E/DX1E	RVP-D2E/DX2E	RVP-D3E/DX3E	RVP-D4E	RVP-D5E	
RVP-DFE/DXFE	Dual FAN	28W/45W	✓ TYPE A MXM GPU Module	✓	65W	✓	"X" M12 LAN Ports	RVP-D1FE/DX1FE	RVP-D2FE/DX2FE	RVP-D3FE/DX3FE	RVP-D4FE	RVP-D5FE	

II. Definition of product model name

Example I.

RVP-T1FM-UC626 — Core i3-1215UE

- Model Series
- T : RJ45 , X: M12
- P : RJ45 , PX : M12
- Spec Code
- CPU with FAN
- M : AI BOX
- E : 1x PCIe Expansion box
- CPU Code

Example II.

RVP-DX1FE-UC626 — Core i3-1215UE

- Model Series
- Dual heat dissipation
- With AI BOX
- M12 LAN
- Spec Number
- CPU and AI BOX with FAN
- E : 1x PCIe Expansion box
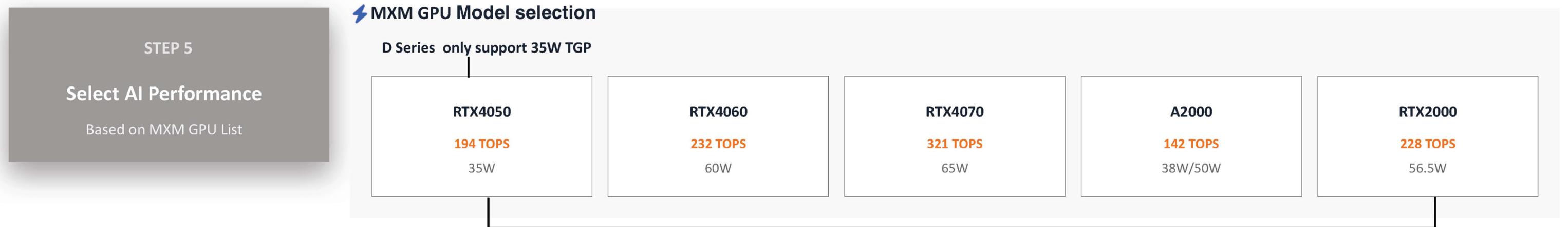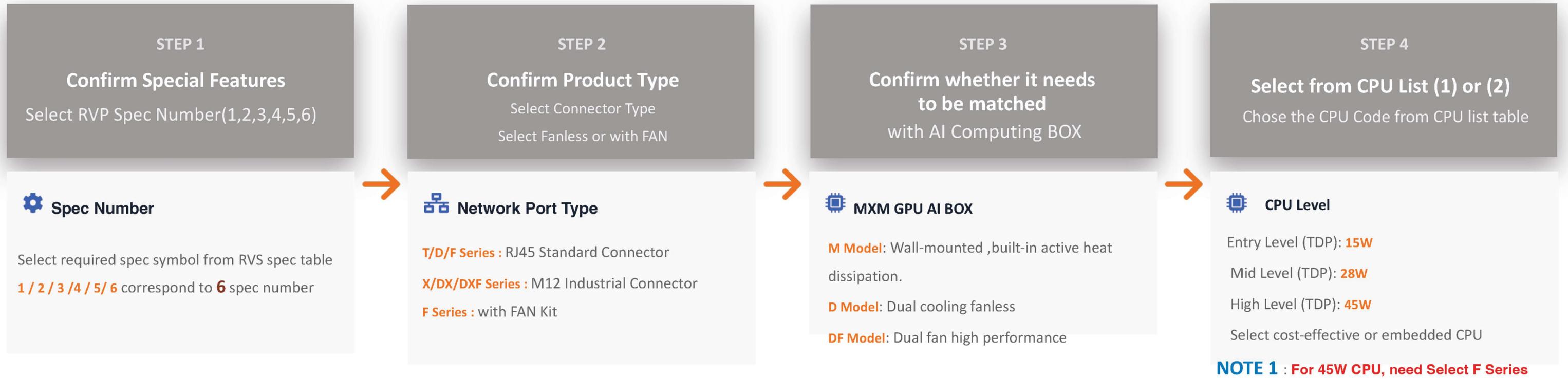- CPU Code

RVP Series : Product Selection Decision Flow

Fit Anywhere and Everywhere

Product Selection Decision Flow - RVS Series

STEP 1
Confirm Special Features

Select RVP Spec Number(1,2,3,4,5,6)

⚙ **Spec Number**

Select required spec symbol from RVS spec table

1 / 2 / 3 / 4 / 5 / 6 correspond to **6** spec number

STEP 2
Confirm Product Type

Select Connector Type

Select Fanless or with FAN

⊟ **Network Port Type**

T/D/F Series : RJ45 Standard Connector

X/DX/DXF Series : M12 Industrial Connector

F Series : with FAN Kit

STEP 3
Confirm whether it needs to be matched

with AI Computing BOX

▣ **MXM GPU AI BOX**

M Model: Wall-mounted ,built-in active heat dissipation.

D Model: Dual cooling fanless

DF Model: Dual fan high performance

STEP 4
Select from CPU List (1) or (2)

Chose the CPU Code from CPU list table

▣ **CPU Level**

Entry Level (TDP): **15W**

Mid Level (TDP): **28W**

High Level (TDP): **45W**

Select cost-effective or embedded CPU

NOTE 1 : **For 45W CPU, need Select F Series**

STEP 5
Select AI Performance

Based on MXM GPU List

⚡ **MXM GPU Model selection**

D Series only support 35W TGP

RTX4050	RTX4060	RTX4070	A2000	RTX2000
194 TOPS	**232 TOPS**	**321 TOPS**	**142 TOPS**	**228 TOPS**
35W	60W	65W	38W/50W	56.5W

M / DF Series can support these

NOTE 2: If you want to use it with a wide temperature environment, please confirm the selection with our technical support unit.

CEVA

RugCon RV1 Series

Ultra-small Rugged edge AI computer

An ultra-compact, supremely rugged edge AI computer designed for harsh environments and high-performance AI applications. Supporting flexible CPU configurations, it provides rich industrial I/O interfaces and seamless MXM GPU AI BOX integration, making it the ideal choice for deploying your next-generation edge AI, industrial automation, and in-vehicle applications.

Dimension	Temperature range	Wide Input Voltage	4x LAN	CAN BUS
176.6×129×77mm	**-40°C ~ 75°C**	**6 ~ 48V**	1x 2.5GbE + 3x GbE (4x PoE)	2x CAN B.0

Isolation DIO	5x COM	M12 LAN Connector	AI	AI Computing BOX
4x IN , 4x Out	3x RS232/422/485, 2x RS232	**RV1-X Series support**		M/D/DF with TYPE A MXM GPU

36 Models

RV1 series product types

Product Type - RV1 Series

Code	Description of the code
F	CPU with FAN kit (support 28W/45W TDP CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	fanless , CPU on one side, MXM GPU on the other side
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports

RV1 T/ X Series

Fanless

X

T

Rugged Fanless Edge Computer

RV1 TF / XF Series

CPU with FAN

XF

TF

High Performance Rugged Edge Computer

RV1 D / DX Series

MXM GPU AI BOX

Dual Heat Sink , Fanless
CPU + MXM GPU

D

DX

CPU + MXM GPU , Edge AI Computer

RV1 TM / XM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU Fanless
Internal MXM GPU active heat dissipation solution

XM

TM

CPU + MXM GPU , Edge AI Computer

RV1 TFM / XFM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU with FAN
Internal MXM GPU active heat dissipation solution

XFM

TFM

CPU + MXM GPU , Edge AI Computer

RV1 DF / DXF Series

MXM GPU AI BOX

Dual Heat Sink with FAN
CPU + MXM GPU

DF

DXF

CPU + MXM GPU , High Performance Edge AI Computer

RV1 Series -Specification

Small and rugged edge AI computer | Full series 4x LAN | Full series optional 4x PoE

- The RV1 series has three specifications corresponding to "1", "2" and "3" spec number respectively.
- In the part of the LAN port interface of the RV1 series, the M12 LAN port with the "X" code and the RJ45 LAN port with the "T" code.
- The RV1 series can **support 28W/45W high-performance CPU through fan, and you need to choose the model with the code "F".**
- To support MXM GPU, you need to choose the M, D or DF series with AI BOX installed.

Regarding MXM GPU computing power support:

- RV1 models designated with an **"M"** are hosts pre-installed with an AI BOX that features an active cooling MXM GPU solution.
- RV1 models designated with a **"D"** are AI BOX-equipped systems with a dual-sided completely fanless design (both CPU and GPU are fanless).
- RV1 models designated with a **"DF"** are AI BOX-equipped systems with a dual-sided fan-assisted cooling design (both CPU and GPU are fanless).

I. Core specifications and architecture (RV1-1/2/3 common specifications)

SYSTEM SPEC	Detailed explanation
CPU	Intel® 12/13 Gen Core™ i9/i7/i5/i3 Processor (U_15W, P_28W, H_45W)。 Only F series with fan supports 28W/45W CPU
Memory	**Up to 64GB DDR5**，2x SO-DIMM。
Display	2x Display Port (4096*2304@60Hz)；1x DVI (1920*12000@60Hz)。
Storage	**1x M.2 2242 M key** (SATA III)。
Internal Expansion	1x M.2 2242/3052 B key (with SIM slot，support 4G/5G/LTE)；1x Full Size Mini-PCIe (ith SIM slot，support 4G/5G/LTE/WIFI)；1x M.2 Key E Type 2230 (For BT/GPS/WIFI)。
AI BOX	Support TYPE A : 82 x 70 mm MXM GPU Module ✓ M/D/DF Series (TYPE A MXM) up to TGP 65W
M.2 PCIE x4	Optional 1x M.2 Key M Type 2280 (PCIe x4 GEN4)，for AI Acceleration card or NVME SSD；H series CPU can support 2x M.2 Key M Type 2280 (PCIe x4 GEN4)。
Power input	1x 3-pin Power input connector，Support 6~48V DC wide voltage input。
Power protection	Equipped with 200V/1ms surge protection, reverse voltage, over-voltage, under-voltage and overcurrent protection.
SMART power management	Vehicle power supply ignition switch control / remote switch control
Operating Temperature	The working temperature standard is -40°C~70°C (depending on the CPU configuration or CPU + MXM GPU configuration).

NOTE 1 : Please contact the sales unit for the extended temperature (-40°C~85°C) support project.

II. RV1 model differentiation I/O specification table (1/2/3)

RV1 spec number	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3
LAN	4x LAN (1x 2.5G + 3x 1G)	4x LAN (1x 2.5G + 3x 1G)	4x LAN (1x 2.5G + 3x 1G)
PoE+	Optional 4x PoE+	Optional 4x PoE+	Optional 4x PoE+
CAN Bus	N/A	N/A	2x CAN 2.0 (Isolation)
COM	4x COM (2x RS-232/422/485 + 2x RS-232)	5x COM (3x RS-232/422/485 + 2x RS-232)	5x COM (3x RS-232/422/485 + 2x RS-232)
Isolation DIO	N/A	4x DI, 4x DO Isolation	4x DI, 4x DO Isolation
USB	4x USB (2x 3.2 Gen2, 2x 2.0)	6x USB (2x 3.2 Gen2, 1x 3.0, 3x 2.0)	6x USB (2x 3.2 Gen2, 1x 3.0, 3x 2.0)

III. Key Function code description

Code	Description of the code
F	CPU with FAN (Support 28W/45W CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	MXM GPU AI BOX , The built-in active heat dissipation scheme
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports

IV. Safety regulations and certification instructions

ITEM	Description
Vibration Shock	Vibration test according to MIL–STD–810H, Method 514.8, Category 4 Shock test according to MIL–STD–810H, Method 516.8, Procedure I
EMC	**CE/FCC Class A , according to EN 55032 & EN 55035**
Vehicle / Railway	E–Mark / EN50155 / EN45545–2 by request

NOTE 2 : **If there are other test items, please contact the sales unit.**

RV1 Series-Model correspondence table

Small and rugged edge AI computer | Full series 4x LAN | Full series optional 4x PoE

36 Models

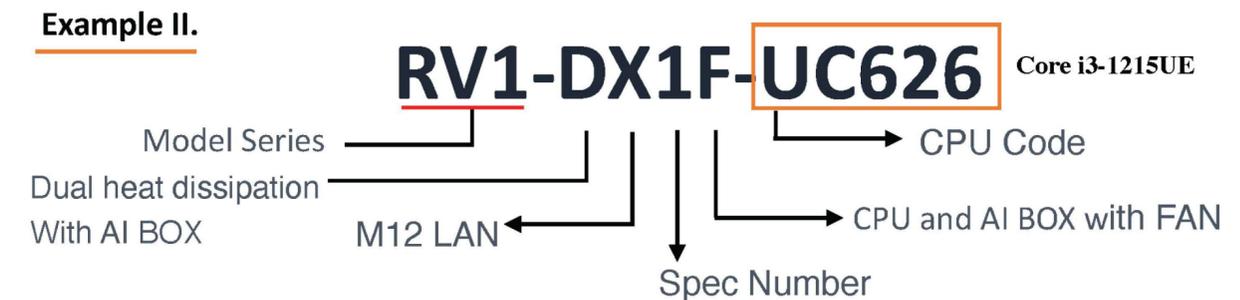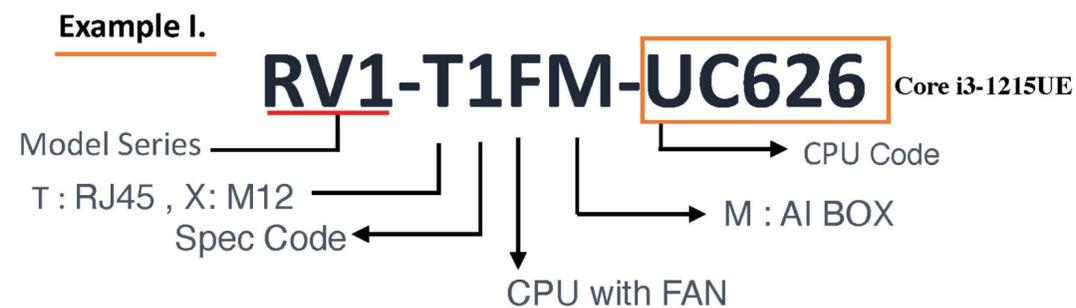V. Quick model corresponding reference table

RV1 Series	CPU With FAN	CPU TDP Level	AI BOX Ready	AI BOX with FAN	MXM TGP Level	M12 LAN support	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3
RV1-T/X	Fanless	15W	✗ Not supported	✓	N/A	"X" M12 LAN Ports	RV1-T1/X1	RV1-T2/X2	RV1-T3/X3
RV1-TF/XF	CPU with FAN	15W/28W/45W	✗ Not supported	✓	N/A	"X" M12 LAN Ports	RV1-T1F/X1F	RV1-T2F/X2F	RV1-T3F/X3F
RV1-TM/XM	Fanless	15W	✓ TYPE A MXM GPU Module	✓	35W	"X" M12 LAN Ports	RV1-T1M/X1M	RV1-T2M/X2M	RV1-T3M/X3M
RV1-TFM/XFM	CPU with FAN	15W/28W/45W	✓ TYPE A MXM GPU Module	✓	35W	"X" M12 LAN Ports	RV1-T1FM/X1FM	RV1-T2FM/X2FM	RV1-T3FM/X3FM
RV1-D/DX	Dual Fanless	15W	✓ TYPE A MXM GPU Module	✗	35W	"X" M12 LAN Ports	RV1-D1/DX1	RV1-D2/DX2	RV1-D3/DX3
RV1-DF/DXF	Dual FAN for CPU and GPU	15W/28W/45W	✓ TYPE A MXM GPU Module	✓	65W	"X" M12 LAN Ports	RV1-D1F/DX1F	RV1-D2F/DX2F	RV1-D3F/DX3F

II. Definition of product model name

Example I.

RV1-T1FM-UC626 Core i3-1215UE

- Model Series
- T : RJ45 , X: M12
- Spec Code
- CPU with FAN
- M : AI BOX
- CPU Code

Example II.

RV1-DX1F-UC626 Core i3-1215UE

- Model Series
- Dual heat dissipation With AI BOX
- M12 LAN
- Spec Number
- CPU and AI BOX with FAN
- CPU Code

RV1 Series : Product Selection Decision Flow

Fit Anywhere and Everywhere

RV1 Series Configuration Guide

STEP 1
Confirm Special Features
Select RV1 Spec Number(1,2,3)

⚙ **Spec Number**

Select required spec symbol from RV1 spec table

1 / 2 / 3 correspond to 3 spec number

STEP 2
Confirm Product Type
Select Connector Type
Select Fanless or with FAN

🔲 **Network Port Type**

T/D/F Series : RJ45 Standard Connector

X/DX/DXF Series : M12 Industrial Connector

F Series : with FAN Kit

STEP 3
Confirm whether it needs to be matched
with AI Computing BOX

▦ **MXM GPU AI BOX**

M Model: Wall-mounted ,built-in active heat dissipation.

D Model: Dual cooling fanless

DF Model: Dual fan high performance

STEP 4
Select from CPU List
CPU Code Model

▦ **CPU Level**

Entry Level (TDP): **15W**

Mid Level (TDP): **28W**

High Level (TDP): **45W**

Select cost-effective or embedded CPU

NOTE 1 : **For 28W/45W CPU, need Select F Series**

STEP 5
Select AI Performance
Based on MXM GPU List

⚡ **MXM GPU Model Selection**

Only for M and D Series

RTX4050	RTX4060	RTX4070	A2000	RTX2000
194 TOPS	**232 TOPS**	**321 TOPS**	**142 TOPS**	**228 TOPS**
35W	60W	65W	38W/50W	56.5W

DF Series can support these

NOTE 2: If you want to use it with a wide temperature environment, please confirm the selection with our technical support unit.

RugCon RV2 Series

High Performance Rugged Edge AI Computer

A high-performance, rugged, fanless edge AI computer designed for harsh environments and demanding AI applications. Supporting flexible CPU configurations, it provides rich industrial I/O interfaces and seamless MXM GPU AI BOX integration, making it the ideal choice for deploying your next-generation edge AI, industrial automation, and in-vehicle applications.

Dimension	Temperature range	Wide Input Voltage	5x LAN	CAN BUS
210.6×176.1×82mm	**-40°C ~ 75°C**	**6 ~ 48V**	5x 2.5GbE (4x PoE)	2x CAN B.0

Isolation DIO	6x COM	M12 LAN Connector	AI Computing BOX
4x IN , 4x Out	4x RS232/422/485, 2x RS232	**RV2-X Series support**	M/D/DF with TYPE A MXM GPU Optional with 2x SFP+ 10G LAN

60 Models

RV2 series product types

Product Type - RV2 Series

Code	Description of the code
F	CPU with FAN kit (support 28W/45W TDP CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	fanless , CPU on one side, MXM GPU on the other side
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports
E	1x PCIE slot Expansion BOX (E-BOX)

RV2 T/ X Series

Fanless

X

T

Rugged Fanless Edge AI Computer

RV2 TF / XF Series

CPU with FAN

XF

TF

High Performance Rugged Edge AI Computer

RV2 D / DX Series

MXM GPU AI BOX

Dual Heat Sink , Fanless

CPU + MXM GPU

DX

D

CPU + MXM GPU , Edge AI Computer

RV2 TM / XM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU FANLESS

Internal MXM GPU active heat dissipation solution

CPU + MXM GPU , Edge AI Computer

RV2 TFM / XFM Series

MXM GPU AI BOX

CPU + MXM GPU

CPU with FAN

Internal MXM GPU active heat dissipation solution

XFM

TFM

CPU + MXM GPU , Edge AI Computer

RV2 DF / DXF Series

MXM GPU AI BOX

Dual Heat Sink with FAN

CPU + MXM GPU

DF

DXF

CPU + MXM GPU , High Performance Edge AI Computer

RV2 Series -Specification

High Performance Rugged Edge AI Computer | 3x/5x LAN | 4x PoE

- The RV2 series has three specifications corresponding to "1", "2" and "3" spec number respectively.
- In the part of the LAN port interface of the RV1 series, the M12 LAN port with the "X" code and the RJ45 LAN port with the "T" code.
- The RV2 series can support CPU through fan, and you need to choose the model with the code "F".
- To support MXM GPU, you need to choose the M, D or DF series with AI BOX installed.

Regarding MXM GPU computing power support:

- RV2 models designated with an **"M"** are hosts pre-installed with an AI BOX that features an active cooling MXM GPU solution.
- RV2 models designated with a **"D"** are AI BOX-equipped systems with a dual-sided completely fanless design (both CPU and GPU are fanless).
- RV2 models designated with a **"DF"** are AI BOX-equipped systems with a dual-sided fan-assisted cooling design (both CPU and GPU are fanless).

I. Core specifications and architecture (RV2-1/2/3 common specifications)

SYSTEM SPEC	Detailed explanation
CPU	Intel® 12/13 Gen Core™ i9/i7/i5/i3 Processor (U_15W, P_28W, H_45W)。 Only F series with fan supports 28W/45W CPU
Memory	**Up to 64GB DDR5**，2x SO-DIMM。
Display	2x Display Port (4096*2304@60Hz)；1x DVI (1920*12000@60Hz)。
Storage	**2x M.2 2280 M key** (SATA III)，Support RAID 0/1。
Internal Expansion	1x M.2 2242/3052 B key (With SIM slot，support 4G/5G/LTE)；1x Full Size Mini-PCIe (With SIM slot，support 4G/5G/LTE/WIFI)；3x M.2 Key E Type 2230 (For BT/GPS/WIFI)。
AI BOX	Support TYPE A/B : 82 x 70/105 mm MXM GPU Module ✓ M/D/DF Series (TYPE A/B MXM) up to TGP 150W
E-BOX	E Series support 1x PCIE x8 slot Expansion BOX (H_series CPU with x8 Signals，U_Series CPU with x4 signals)
M.2 PCIE x4	Optional 1x M.2 Key M Type 2280 (PCIe x4 GEN4)，for AI Acceleration card or NVME SSD；H series CPU can support 2x M.2 Key M Type 2280 (PCIe x4 GEN4)。
Power input	1x 3-pin Power input connector，Support 6~48V DC wide voltage input。
Power protection	Equipped with 200V/1ms surge protection, reverse voltage, over-voltage, under-voltage and overcurrent protection.
SMART power management	Vehicle power supply ignition switch control / remote switch control
Operating Temperature	The working temperature standard is -40°C~70°C (depending on the CPU configuration or CPU + MXM GPU configuration).

NOTE 1 : The AI BOX of RV2 Series can option with 2x SFP+ 10G LAN
NOTE 2 : Please contact the sales unit for the extended temperature (-40°C~85°C) support project.

II. RV2 model differentiation I/O specification table (1/2/3)

RV2 spec number	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3
LAN	3x LAN (3x 2.5G)	5x LAN (5x 2.5G)	5x LAN (5x 2.5G)
PoE+	Optional **2x PoE+**	Optional **4x PoE+**	Optional **4x PoE+**
CAN Bus	N/A	**2x CAN 2.0 (Isolation)**	N/A
COM	6x COM (1x RS-232/422/485 (Isolation) + 3x RS-232/422/485 + 2x RS-232)	6x COM (1x RS-232/422/485 (Isolation) + 3x RS-232/422/485 + 2x RS-232)	1x COM (1x RS-232/422/485)
Isolation DIO	4x DI, 4x DO	4x DI, 4x DO	4x DI, 4x DO
USB	6x USB (2x 3.2 Gen2, 1x 3.0, 3x 2.0)	6x USB (2x 3.2 Gen2, 1x 3.0, 3x 2.0)	4x USB (1x 3.2 Gen2, 3x 2.0)

IV. Safety regulations and certification instructions

ITEM	Description
Vibration Shock	Vibration test according to MIL–STD–810H, Method 514.8, Category 4 Shock test according to MIL–STD–810H, Method 516.8, Procedure I
EMC	CE/FCC Class A , according to EN 55032 & EN 55035
Vehicle / Railway	E–Mark / EN50155 / EN45545–2 by request

NOTE 2 : If there are other test items, please contact the sales unit.

III. Key Function code description

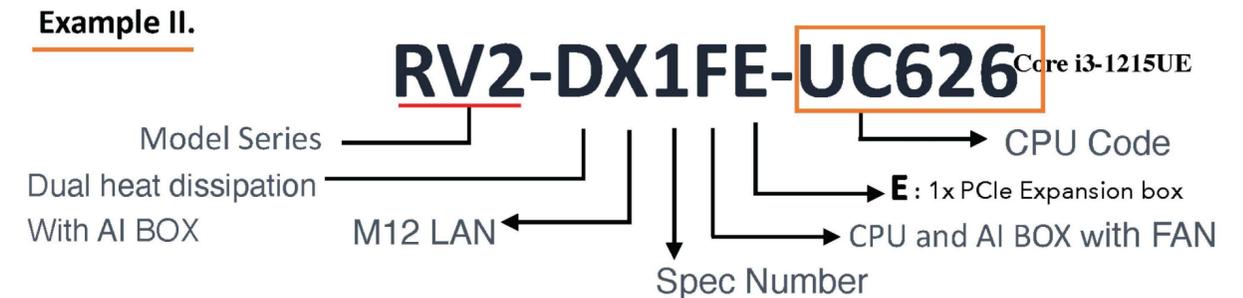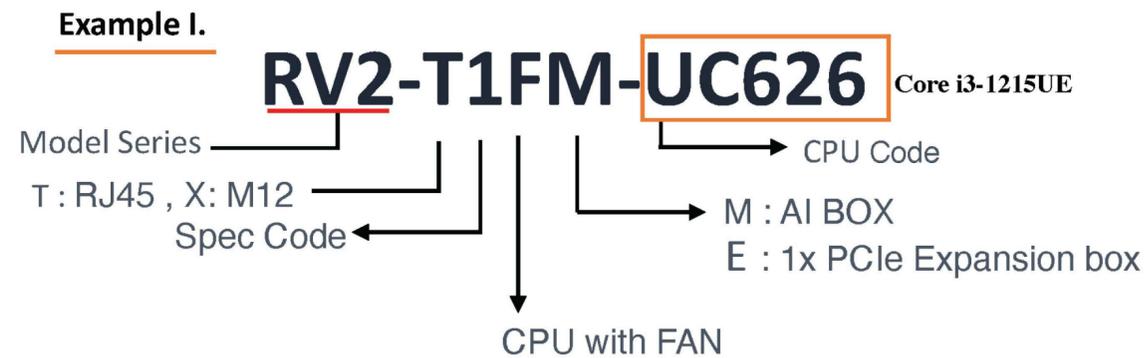| Code	Description of the code
F	CPU with FAN (Support 28W/45W CPU)
M	MXM GPU AI BOX , The built-in active heat dissipation scheme
D	MXM GPU AI BOX , The built-in active heat dissipation scheme
DF	Dual Fan , one for CPU , MXM GPU on the other side
T	RJ45 LAN Ports
X	M12 LAN Ports
E	EBOX, 1x PCIe slot expansion BOX, (U series CPU support PCIE x4, H series CPU support PCIE x8)

RV2 Series-Model correspondence table

High Performance Rugged Edge AI Computer | 3x/5x LAN | 4x PoE

I. Core specifications and architecture (RV1-1/2/3 common specifications)

RV2 Series	CPU With FAN	CPU TDP Level	AI BOX Ready	AI BOX with FAN	MXM TGP Level	E-BOX with 1x PCIE slot	M12 LAN support	SPEC Number : 1	SPEC Number : 2	SPEC Number : 3
RV2-T/X	Fanless	15W/28W/45W	✖ Not supported	✖	N/A	✖	"X" M12 LAN Ports	RV2-T1/X1	RV2-T2/X2	RV2-T3/X3
RV2-TF/XF	CPU with FAN	15W/28W/45W	✖ Not supported	✖	N/A	✖	"X" M12 LAN Ports	RV2-T1F/X1F	RV2-T2F/X2F	RV2-T3F/X3F
RV2-TM/XM	Fanless	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✓	65W	✖	"X" M12 LAN Ports	RV2-T1M/X1M	RV2-T2M/X2M	RV2-T3M/X3M
RV2-TFM/XFM	CPU with FAN	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✓	65W	✖	"X" M12 LAN Ports	RV2-T1FM/X1FM	RV2-T2FM/X2FM	RV2-T3FM/X3FM
RV2-D/DX	Dual Fanless	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✖	65W	✖	"X" M12 LAN Ports	RV2-D1/DX1	RV2-D2/DX2	RV2-D3/DX3
RV2-DF/DXF	Dual FAN for CPU and GPU	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✓	150W	✖	"X" M12 LAN Ports	RV2-D1F/DX1F	RV2-D2F/DX2F	RV2-D3F/DX3F
RV2-TE/XE	Fanless	15W/28W/45W	✖ Not supported	✖	N/A	✓	"X" M12 LAN Ports	RV2-T1E/X1E	RV2-T2E/X2E	RV2-T3E/X3E
RV2-TFE/XFE	CPU with FAN	15W/28W/45W	✖ Not supported	✖	N/A	✓	"X" M12 LAN Ports	RV2-T1FE/X1FE	RV2-T2FE/X2FE	RV2-T3FE/X3FE
RV2-DE/DXE	Dual Fanless	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✖	65W	✓	"X" M12 LAN Ports	RV2-D1E/DX1E	RV2-D2E/DX2E	RV2-D3E/DX3E
RV2-DFE/DXFE	Dual FAN	15W/28W/45W	✓ TYPE A/B MXM GPU Module	✓	150W	✓	"X" M12 LAN Ports	RV2-D1FE/DX1FE	RV2-D2FE/DX2FE	RV2-D3FE/DX3FE

II. Definition of product model name

Example I.

RV2-T1FM-UC626 Core i3-1215UE

- Model Series
- T : RJ45 , X: M12
- Spec Code
- CPU with FAN
- CPU Code
- M : AI BOX
- E : 1x PCIe Expansion box

Example II.

RV2-DX1FE-UC626 Core i3-1215UE

- Model Series
- Dual heat dissipation With AI BOX
- M12 LAN
- Spec Number
- CPU Code
- E : 1x PCIe Expansion box
- CPU and AI BOX with FAN

RV2 Series : Product Selection Decision Flow

Fit Anywhere and Everywhere

Product Selection Decision Flow - RV2 Series

STEP 1

Confirm Special Features
Select RV1 Spec Number(1,2,3)

⚙ **Spec Number**

Select required spec symbol from RV1 spec table

1 / 2 / 3 correspond to 3 spec number

STEP 2

Confirm Product Type
Select Connector Type
Select Fanless or with FAN

⊟ **Network Port Type**

T/D/F Series : RJ45 Standard Connector

X/DX/DXF Series : M12 Industrial Connector

F Series : with FAN Kit

STEP 3

Confirm whether it needs to be matched
with AI Computing BOX

▣ **MXM GPU AI BOX**

M Model: Wall-mounted ,built-in active heat dissipation.

D Model: Dual cooling fanless

DF Model: Dual fan high performance

E Model : 1x PCIE slot E-BOX

DE 型號: 1x PCIE slot E-BOX + AI BOX

DFE 型號: 1x PCIE slot E-BOX + AI BOX

NOTE 1 : Select the E series model only with the H series CPU.

STEP 4

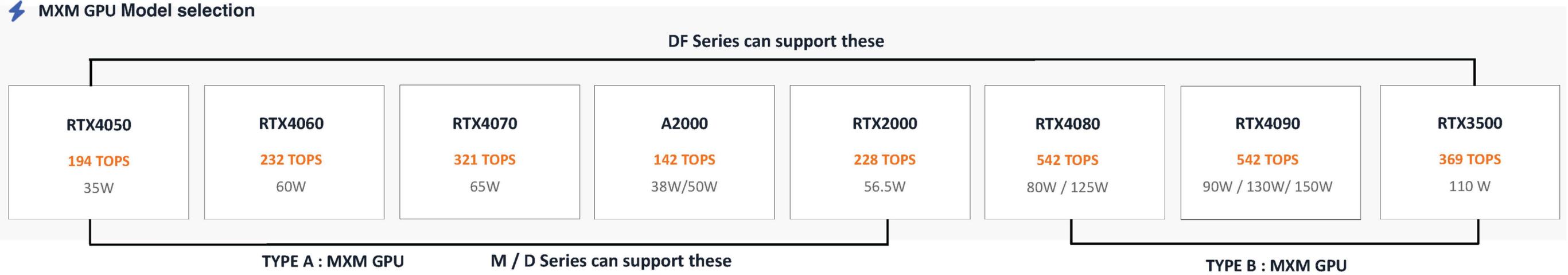## Select from CPU List (1) or (2)
Chose the CPU Code

▣ **CPU Level**

Entry Level (TDP): **15W**

Mid Level (TDP): **28W**

High Level (TDP): **45W**

Select cost-effective or embedded CPU

STEP 5

Select AI Performance
Based on MXM GPU List

⚡ **MXM GPU Model selection**

DF Series can support these

RTX4050	RTX4060	RTX4070	A2000	RTX2000	RTX4080	RTX4090	RTX3500
194 TOPS	**232 TOPS**	**321 TOPS**	**142 TOPS**	**228 TOPS**	**542 TOPS**	**542 TOPS**	**369 TOPS**
35W	60W	65W	38W/50W	56.5W	80W / 125W	90W / 130W/ 150W	110 W

TYPE A : MXM GPU   **M / D Series can support these**   **TYPE B : MXM GPU**

NOTE 2 : If you want to use it with a wide temperature environment, please confirm the selection with our technical support unit.

RV2 : 1x PCIE slot Expansion

Product Type - **RV2** series with E-BOX

NEW
2026-Q1
Release

RV2 TE/XE Series
CPU FANLESS

PCIE slot

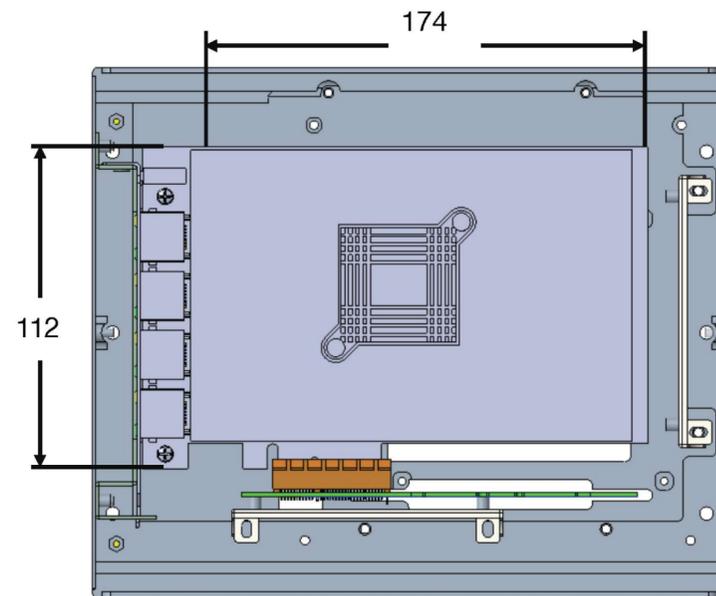Fanless Edge AI Computer + 1x PCIe slot

RV2 TFE/XFE Series
CPU With FAN

PCIE slot

High Performance Edge AI Computer + 1x PCIe slot

RV2 DE/DXE Series
CPU & GPU FANLESS
MXM GPU AI BOX

CPU + GPU , Fanless Rugged Edge AI Computer + 1x PCIe slot

RV2 DFE/DXFE Series
DUAL FAN
MXM GPU AI BOX

CPU + GPU , High Performance Rugged Edge AI Computer + 1x PCIe slot

174

112

RV2 E-BOX
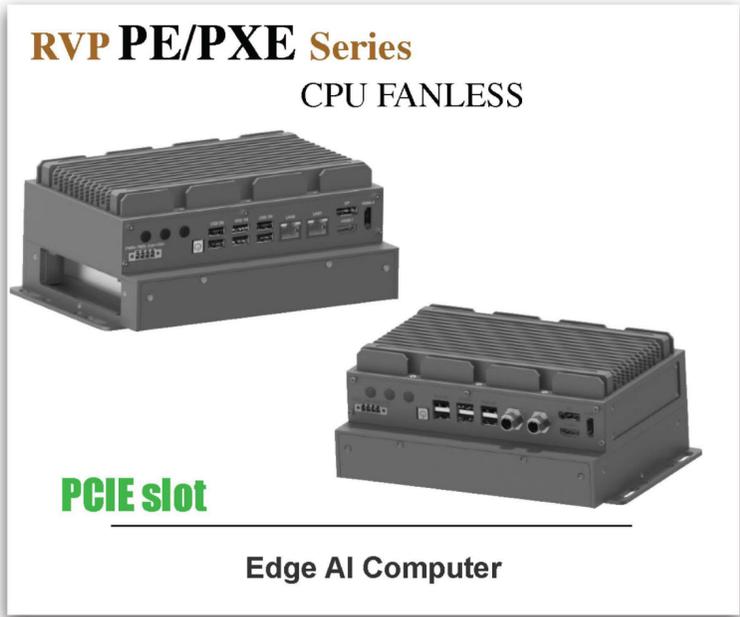## PCIE slot Expansion slot

– Support 1x PCIE x8 slot (H_series CPU with x8 Signals , U_Series CPU with x4 signals)

– Support M.2 2280 PCIE x4 according to CPU

– PCIE Card Size support : 174 mm x 112 mm x 25mm

RVP : 1x PCIE slot Expansion

Product Type - **RVP** series with E-BOX

NEW
2026-Q1
Release

RVP PE/PXE Series
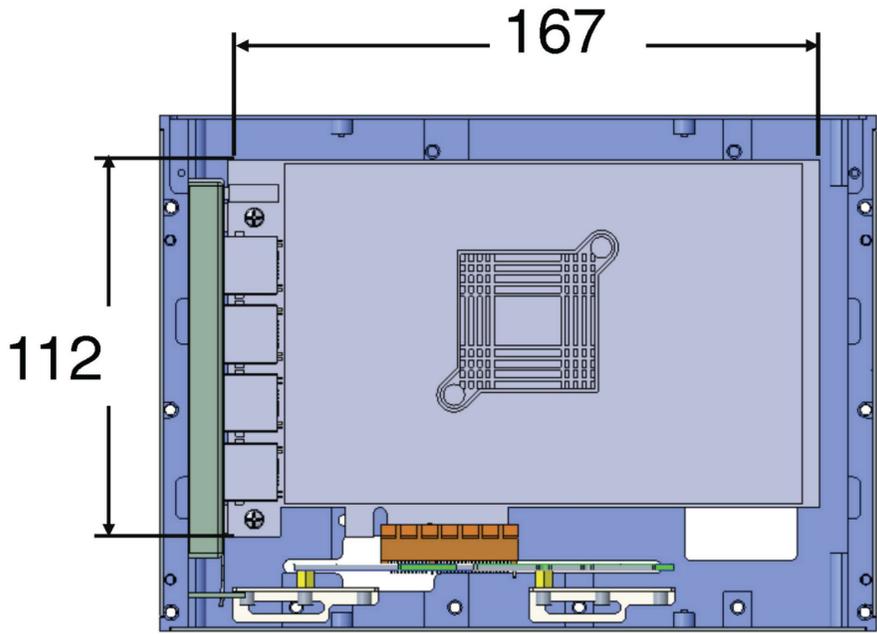CPU FANLESS

PCIE slot

Edge AI Computer

RVP PFE/PXFE Series
CPU With FAN

PCIE slot

High Performance Edge AI Computer

167

112

RVP E-BOX
PCIE slot Expansion slot

- Support 1x PCIE x16 slot (H_series CPU with x8 Signals , U_Series CPU with x4 signals)
- PCIE Card Size support : 167 mm x 112 mm x 25mm
- H_CPU (PCe x8 signals , M.2 2280 (PCIE x4))
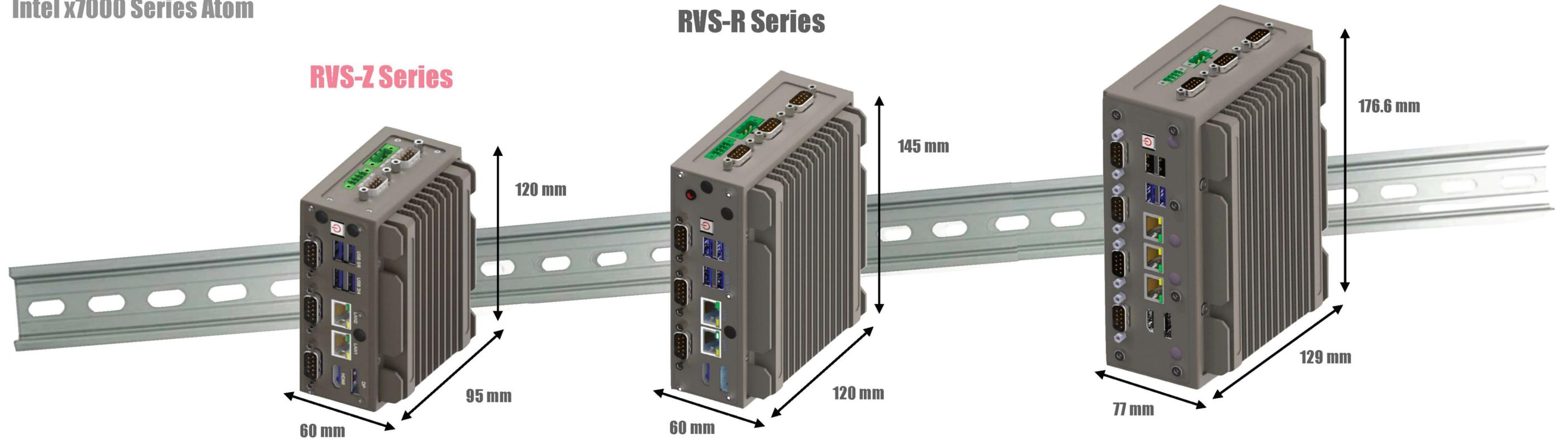
RugCon The world's smallest MXM GPU edge AI Computer

Product Type - The world's smallest MXM GPU edge AI Computer

NEW
2026-Q1
Release

I'm AI

The world's smallest MXM GPU edge AI Computer

125× 90 × 85 mm

From pre-sale to after-sale · All-round technical support

Let technology no longer be a problem · CEVA walks with you

Technical integration support

- System integration assistance
- OEM / ODM services
- Firmware tuning and optimization
- Interface expansion design

Professional consulting services

- 24-hour quick response
- Chinese/English Technical Support
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- Solution evaluation consultation

Warranty repair service

- 3-year product warranty
- Quick repair processing
- Supply of spare parts
- Product life cycle support

Complete technical documents

- Detailed technical manual
- System Integration Guide
- Refer to the design materials
- Software driver

Do you need technical support?
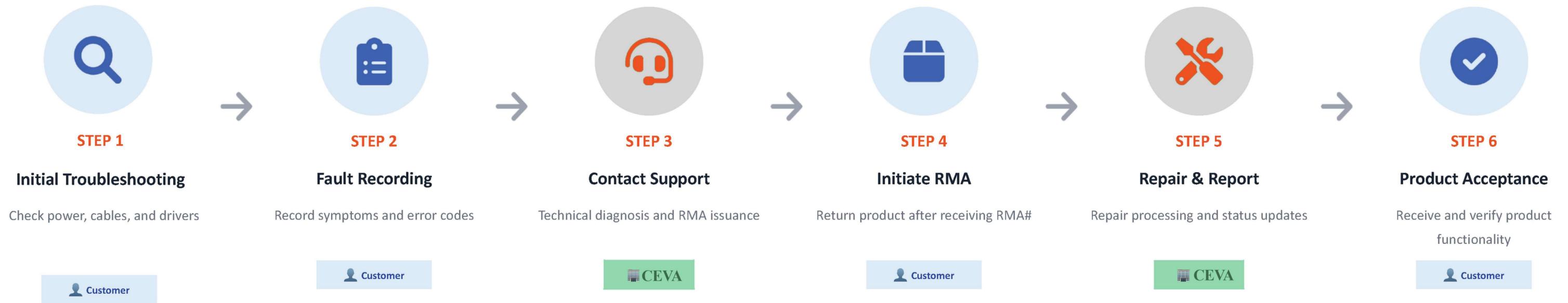Our professional team is at your service at any time.

Website: www.cenval.es

Email
informatica@cenval.es

RMA Service Process

Fast, Transparent, Reliable · 6-Step Complete Service Guarantee

STEP 1

Initial Troubleshooting

Check power, cables, and drivers

👤 Customer

STEP 2

Fault Recording

Record symptoms and error codes

👤 Customer

STEP 3

Contact Support

Technical diagnosis and RMA issuance

CEVA

STEP 4

Initiate RMA

Return product after receiving RMA#

👤 Customer

STEP 5

Repair & Report

Repair processing and status updates

CEVA

STEP 6

Product Acceptance

Receive and verify product functionality

👤 Customer

📞 Technical Support Contact

✉ Email: informatica@cenval.es

📞 Phone: Contact your sales

🕐 Hours: Mon-Fri 9:00-18:00

⏱ Service Level Agreement (SLA)

✓ Support Response: Within 24 hours

✓ Repair Completion: 7-10 business days

✓ Product Return: 3-5 business days

CEVA

Let intelligence begin at the edge.

"With ultra-compact design and ultra-intelligent computing at the core, powerful AI computation is no longer limited by distance or size."

Contact us

Cenvalsa Industrial SL.

Industrial-grade edge AI computing solution expert

🌐 **Website:** www.cenval.es

📧 **Email:** informatica@cenval.es

We will provide you with professional technical support and service at any time.

Welcome to contact us to discuss your project needs.