

Webinar

EMPOWERING AI AT THE EDGE: EXPLORING HAILO AND JHC EDGE AI COMPUTING

Nowadays, AI has become a trend of the times. AI can help us achieve intelligence in all walks of life. JHC keeps up with the trend of the times and has powerful AI edge computing system solutions.

Recently, we jointly held a webinar on AI with our GPU partner Hailo, and discussed AI development and AI solutions with everyone at the meeting.



HAILO X JHCTECH

Topics:

- ✓ Introduction of Hailo and how Hailo Empowering AI at the Edge
- ✓ JHCTECH' s AI products and solutions review
- ✓ Q&A



Gary Shu
JHCTECH
Customer Solution Manager



Kev Wang
Hailo
Business Development Manager



31st July, 2024



16 : 00 pm ~ 17 : 00 pm (GMT+8)

JOIN NOW



Empowering AI at the Edge: Exploring Hailo and JHC Edge AI Computing

16:00 ~ 16:05

Opening

Chi Chi Wang, Marketing Manager, Shenzhen Office

16:05 ~ 16:25

Introduction of Hailo and How Hailo Empowering AI at the Edge

Kev Wang, BD Manager, Hailo

16:25 ~ 16:45

JHCTECH's BRAV AI Products and Solutions Review

Gary Shu, Customer Solution Manager, JHCTECH

16:45 ~ 16:55

Q&A

**PART
01**

**《Introduction of Hailo and how
Hailo Empowering AI at the Edge》**

Kev Wang, BD Manager, Hailo



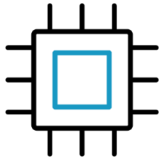
Empowering AI at the Edge

Kev Wang, Greater China BD
07 2024



Hailo in Numbers

AI
Chipmaker



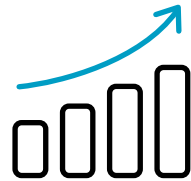
Patented &
field proven
ML architecture

Founded in
2017



2nd Generation
in mass production

> 10x
Revenue Growth
2021-2023



> 300
Customer
Programs

10s
of products
in production



\$340M funding
Including **NEC** & **ABB**



> 250
70% of R&D are software
engineers

A Globally Trusted Brand

Among our Partners



Awards



Certificates



Empowering Edge Applications with AI

Hailo's powerful & scalable AI technology enables new capabilities in various markets



Security



ITS, Perimeter Protection, Access Control



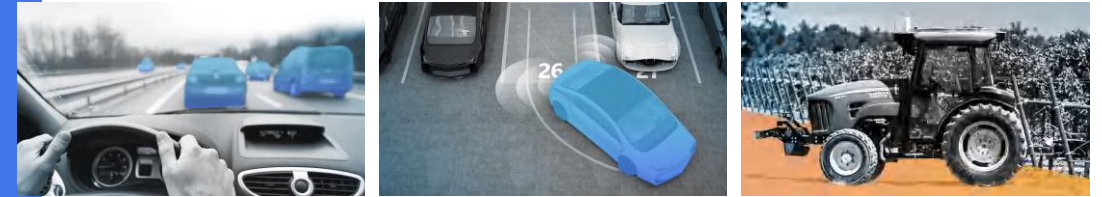
Industrial Automation



AMR/AGV, AOI, Building Management, Robotics, Machinery



Automotive



ADAS, Autonomous Driving, In-Cabin Monitoring



Retail



Point of Sale, Supply Chain Management

Hailo-8™

AI Accelerators

Hailo-8 Highlights

Powerful & Efficient

High Performance

- 13-208 TOPS

Efficient AI architecture

- No external DRAM
- Low power consumption
- Low latency



Versatile

Comprehensive Software Suite

- Mature dataflow compiler
- Efficient RT library
- Rich Model Zoo

Industrial & Automotive Grades

- Industrial: -40°C to 85°C
- Automotive: -40°C to 105°C

Scalable & Flexible

- Multi-streams
- Multi-model
- Multi-chip

Hailo-8 Product Portfolio

Hailo-8L Entry-Level AI Accelerator



CoB –
13 TOPS

M.2 Entry-Level AI
Acceleration Modules
13 TOPS



Key B+M
2 lanes



Key A+E
2 lanes

Hailo-8 AI Accelerator



CoB –
26 TOPS

M.2 AI Acceleration
Module
26 TOPS



Key M
4 lanes



Key B+M
2 lanes

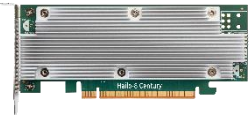


Key A+E
2 lanes

Hailo-8R mPCIe AI
Acceleration Module
13 TOPS



Hailo-8 Century High Performance PCIe Cards



Small Form Factor
52-104 TOPS

0802, 0803, 0804



Wide Host
Compatibility
104-208 TOPS

0804S, 0805S, 0806S, 0807S, 0808S

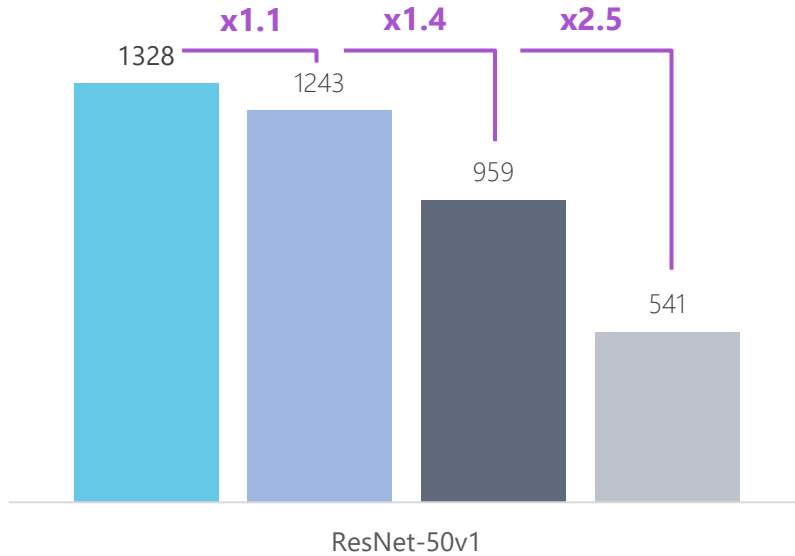
Hailo-8 Competitive Analysis

Unprecedented AI Performance
& Power Efficiency

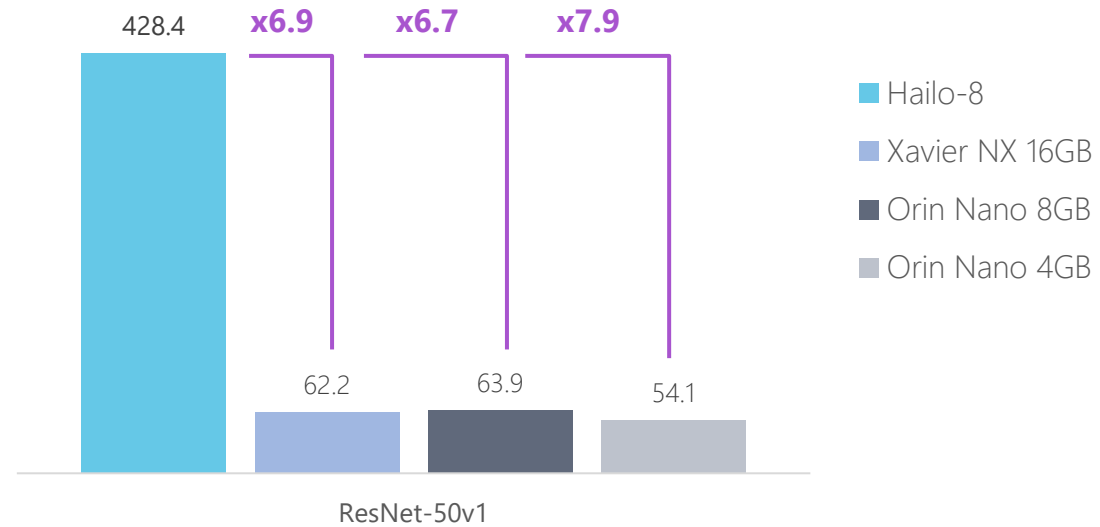
Deep Learning Performance Comparison

Hailo-8 vs. Xavier NX & Orin Nano 4GB/8GB

Performance (FPS)



Power Efficiency (FPS/W)



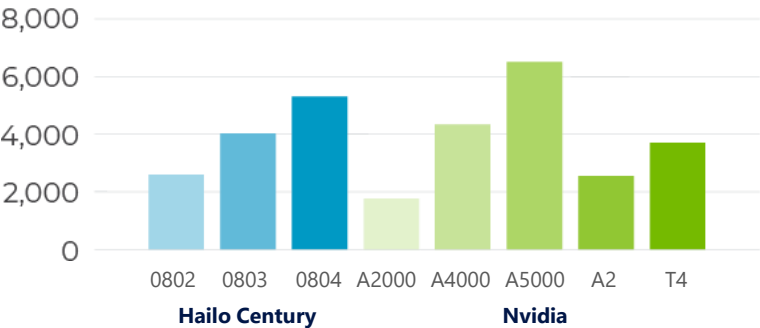
- Hailo-8
- Xavier NX 16GB
- Orin Nano 8GB
- Orin Nano 4GB

High Performance Card Comparison

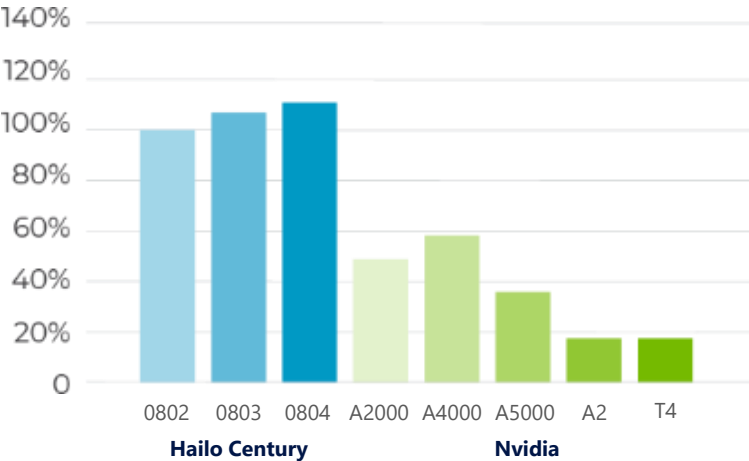
Hailo-8 Century vs. Nvidia

Small Form Factor

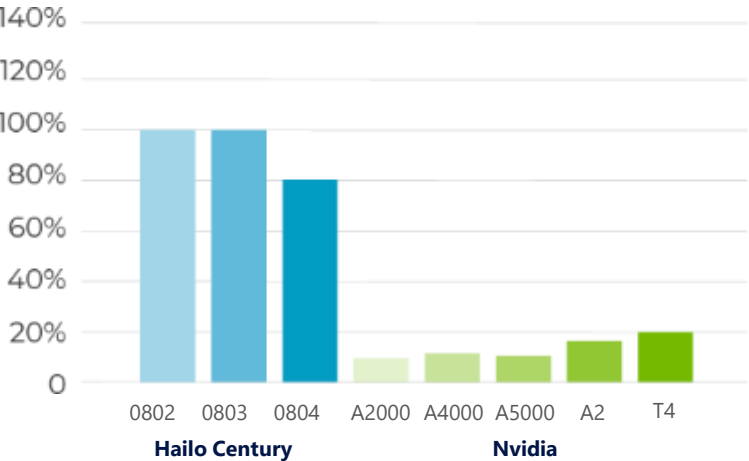
Performance
(ResNet-50 FPS)



Cost Efficiency
(FPS/\$)



Power Efficiency
(FPS/W)

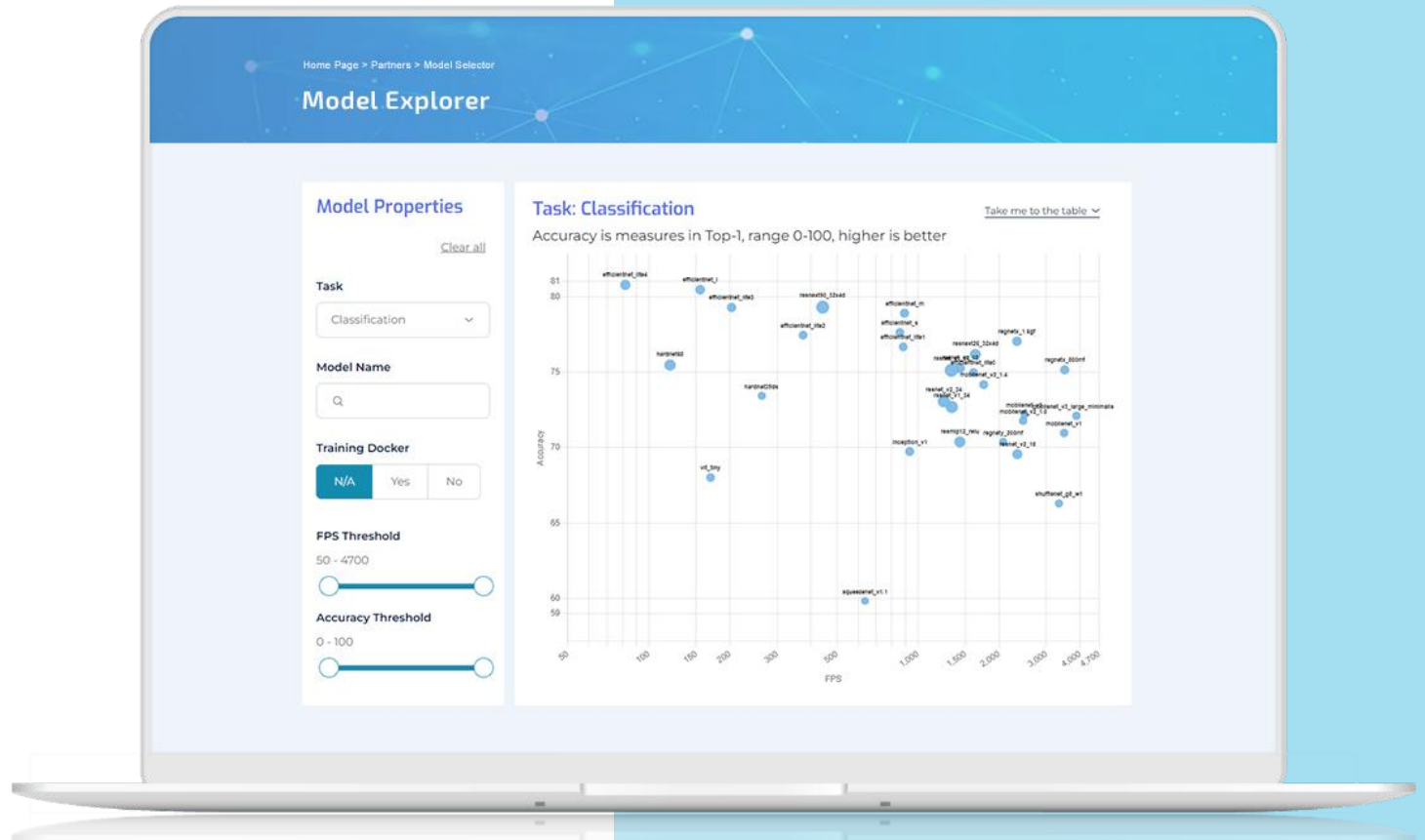


Software Highlights

Model Explorer

Quickly select the right NN model for your AI application

- Filter according to:
 - Task & Model
 - FPS min. & max. threshold
 - Accuracy min. & max. threshold



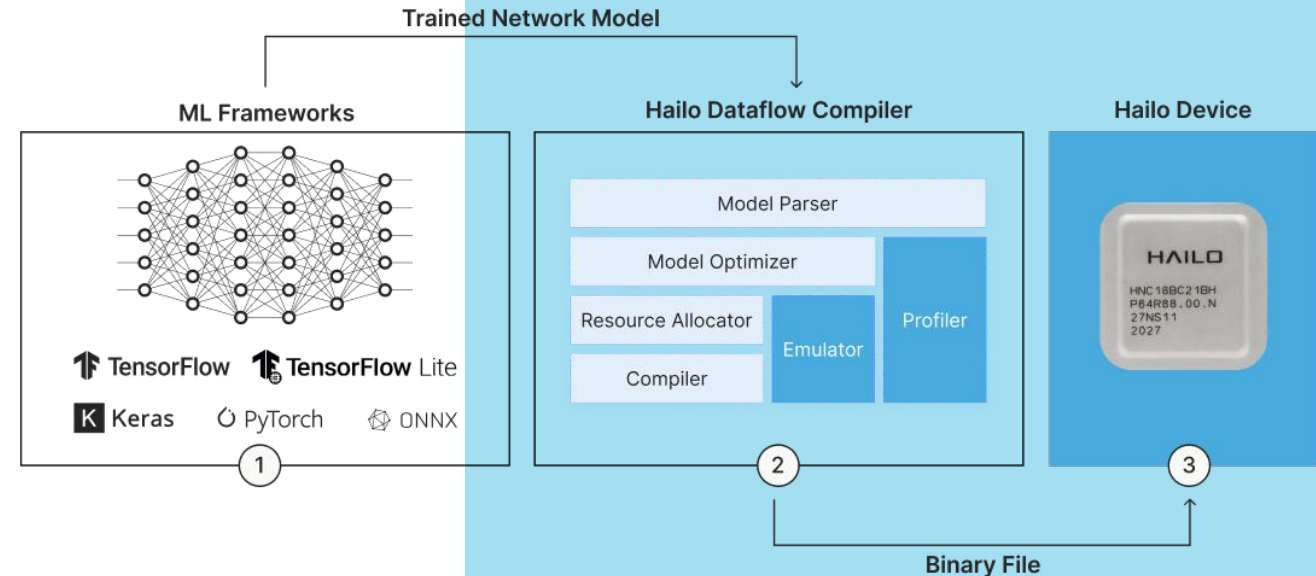
www.hailo.ai/developer-zone/model-explorer/

Hailo Dataflow Compiler



Automated software toolset compiling and optimizing trained models to Hailo's executable format

- Efficient quantization scheme allowing flexibility between performance and accuracy
- Automated resource allocation for meeting user's requirements in FPS, latency and power consumption
- Accurate profiling (FPS, power, latency) and bit-exact emulation of expected accuracy
- Supporting multiple Hailo devices and forward compatible



Customer Stories

AI-Automated Parking Enforcement

- Enables highly accurate identification of all non-compliant vehicles in real-time
- Enables operation in a wider range of poor visual conditions where classic solutions would fail
- Enables easy adoption to different locales (different license plate formats and character sets)



Lower cost – a single Hailo-8 processor replace the Jetson class GPUs, with a similar number of streams and a 75% cost saving



Low power consumption – Hailo-8 consumes 1/8 of the power needed for the Jetson GPU



Easy to use – Seamless integration through comprehensive documentation and open communication



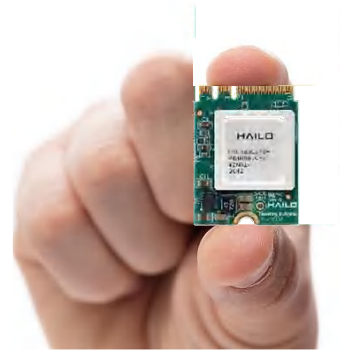
"...as soon as we gave Hailo-8 a try, we quickly realized that there was no turning back. The chip surpassed our expectations in all measured parameters, outperforming even with complex NN models and real-life conditions"

Shalom Dimant, Head of AI Engineering,
WiseSight Technologies



Hailo-8 AI Processor

- AI accelerator module for edge AI applications
 - Multiple form factors with Hailo-8™ AI accelerator processor
 - Compatible with X86, Arm platform with Windows or Linux OS
 - Best-in-class real-time performance utilizing the Hailo- 26 TOPS compute power
 - Industry-leading power efficiency with a typical power consumption of 2.5W
- Robust software toolchain supports state-of-the-art DL models and applications out-of-the-box





THANK YOU

 hailo.ai  contact@hailo.ai

**PART
02**

《JHCTECH's BRAV AI Products and Solutions Review》

Gary Shu, Customer Solution Manager, JHCTECH



- 01 JHCTECH MEC BRAV Series Solutions**
- 02 BRAV Series Roadmap**
- 03 Introduction of BRAV-7601**
- 04 Introduction of BRAV-7220**
- 05 Introduction of BRAV-7720/7720WP/7721/7721WP**
- 06 Introduction of BRAV-7131**
- 07 BRAV Series Product Highlights**
- 08 Market Direction of BRAV Series Products**

CONTENTS

JHCTECH Edge AI GPU Computers

*Driving the Future of Intelligent Transportation and
Empowering Industrial AI Applications Innovation*



Fanless Box Computer

KMDA
39/59/69/79



GPU In-Vehicle Computer

KMDA 3602



MEC System

BRAV Series

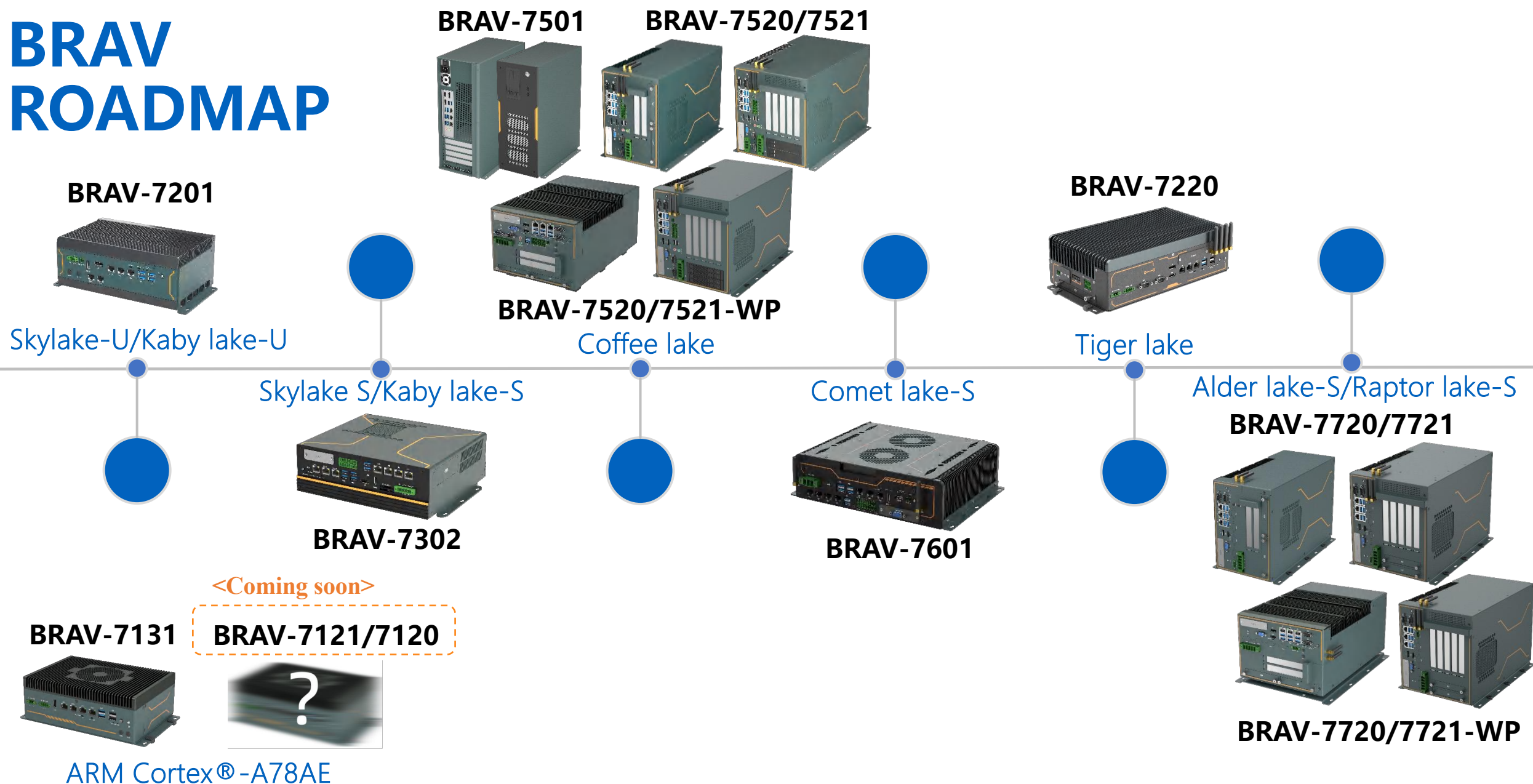
All of the above machines are expandable with GPU/AI acceleration cards










JHCTECH MEC BRAV Solutions

No	Model No.	CPU	AI Accelerator	AI hashrate	Power dissipation	IO function	Heat dissipation method
Solution 1	KMDA-3602	Sky lake/Kaby lake-S series 4 Cores	1*MXM Accelerator	16TOPS	65W	7*Gig LAN + 4G	fanless box PC
	BRAV-7302		1*MXM Accelerator	128TOPS	175W	7*Gig LAN + 4G	Air cooling heat dissipation Box
Solution 2	BRAV-7201	Sky lake/Kaby lake-U series ULT Dual Cores	Hailo-8 VPU-M.2 1*MLU220-M.2	8TOPS	25W	5*Gig LAN + 4G	fanless box PC
Solution 3	BRAV-7501	Coffee lake-S series 8 Cores	2*PCIeX16 Accelerator	264TOPS	225W	3*Gig LAN + 4*10G LAN+ 4G	Air cooling heat dissipation Box
Solution 4	BRAV-7520	Coffee lake-S series 8 Cores	1*PCIe/M.2 Accelerator	128TOPS	110W	3*Gig LAN + 4*10G LAN+ 4G+5G	Active and Passive heat dissipation BOX
	BRAV-7521		2*PCIe/M.2 Accelerator	264TOPS	195W	3*Gig LAN + 4*10G LAN+ 4G+5G	Active and Passive heat dissipation BOX
Solution 5	BRAV-7601	Comet lake series 10 Cores	MXM3.1 Accelerator	128TOPS	145W	3*Gig LAN + 4*10G LAN+ 4G+5G	Active and Passive heat dissipation BOX
Solution 6	BRAV-7220	Tiger lake-U 4 Cores	Hailo-8 VPU-M.2 1*MLU220-M.2	26TOPS		3*Gig LAN + 4G+5G	fanless box PC
Solution 7	BRAV-7720	Alder lake-S 16 Cores	1*PCIe/M.2 Accelerator	128TOPS	110W	3*Gig LAN + 4*10G LAN+ 4G+5G	Active and Passive heat dissipation BOX
	BRAV-7721		2*PCIe/M.2 Accelerator	264TOPS	195W	3*Gig LAN + 4*10G LAN+ 4G+5G	Active and Passive heat dissipation BOX
Solution 8	BRAV-7131	NVIDIA Jetson Orin 8 Cores					



BRAV ROADMAP



Intel X86 Alderlake-S/ Raptor lake-S					 MP BRAV-7720/7721 BRAV-7720/7721-WP	
Intel X86 Tiger lake		 MP BRAV-7220				
Intel X86 Comet lake-S		 MP BRAV-7601				
Intel X86 Coffee lake	 MP BRAV-7501	 MP BRAV-7520/7521 BRAV-7520/7521-WP				
Intel X86 Skylake S/ Kaby lake-S	 MP BRAV-7302					
Intel X86 Skylake-U/ Kaby lake-U		 MP BRAV-7201				
ARM Cortex®A78AE					 MP BRAV-7131	 Developing BRAV-7121/7120

Before 2020

2020~2022

2023 Q1

2023 Q2

2023 Q3

2023 Q4

Planning

Developing

MP

BRAV Series-GPU/AI Accelerator card support list

1

NVIDIA Geforce
GTX-16/30 Series

2

NVIDIA Geforce
RTX-40 Series

3

NVIDIA Quadro
Pro Graphics Cards
A Series

4

NVIDA MXM
RTX-16/30/Pro

5

Cambricon Full Series
AI Accelerator Cards
MLU370/270/220 Series
HuaweiAtlas 300I Series

6

Goldwasser-
MXM/UL/L/XL Series
Iluvatar
MR50/100 Seires

7

Sophgo SC5H & SC5+
Enflame I20 & I10

8

Intel ARC A770/A750
HAILO-8

Heterogeneous AI Computing Architecture

BRAV-7601 Product Feature



Key Features

- Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU
- Two temperature control fan , aluminum chassis
- 3*2.5G-LAN+4*Gig-LAN with POE function
- 3*M.2 support Gig+WiFi6, 4G LTE, 5G NR module
- 1*MXM3.1, supports MXM GPU modules and AI acceleration cards which power consumption lower than 190W
- DC9~36V wide power input

02 BRAV-7601 Features



2*2.5" HDD SATA3(support RAID0,1), max support dual15mm highly HDD, max 6Gbps transport speed, max capacity to reach 6TB



1*M.2 Type 2280 M-Key(PCIex4), support NVMe



1*mSATA, SATA3 6.0Gbps

1

CPU & Chipset

Intel® 10th **Comet Lake-S**
Core i9/i7/i5/i3/Pentium/Celeron
Intel® Q470 PCH

2

Heat Dissipation

Aluminum chassis, active and passive heat dissipation, dual temperature control fan

3

Isolated DIO

Isolated DIO 8-channel 2.5KV optically isolated PNP or NPN DI; 8-channel 2.5KV optically isolated DO

4

LAN

3*2.5G LAN
+4*POE+(25.4W/48V)

5

Display

VGA+2 *HDMI, 3 Independent display, 2*DP, GPU Display

6

Wireless

3*M.2 support **Gig+WiFi6**, **4G LTE**, **5G NR** wireless module

7

AI Acceleration Performance

1*MXM3.1 (PCIex16 signal)
Supports **MXM GPU modules** and **AI accelerator cards** with power consumption less than 190W

8

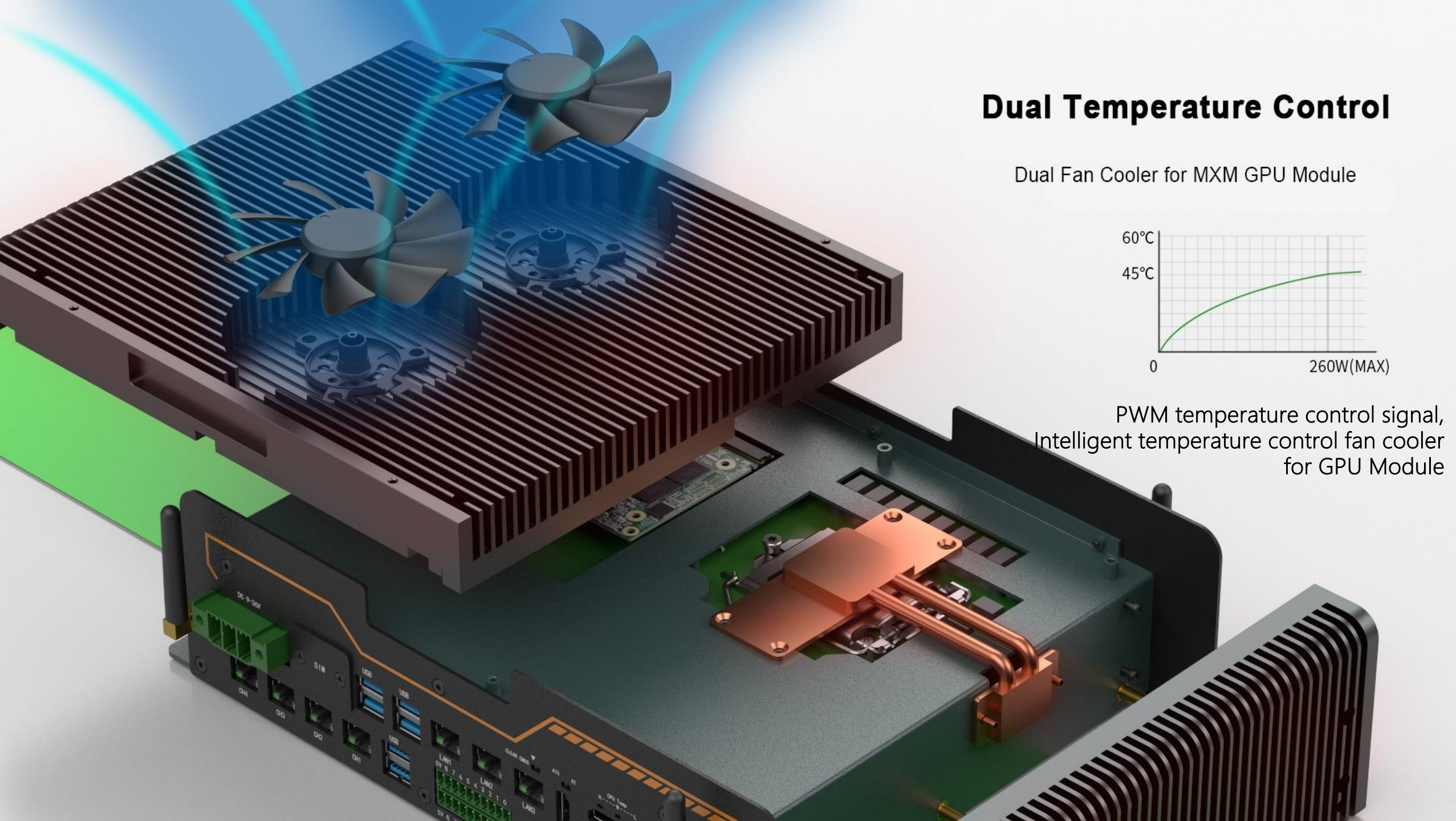
Power Supply

DC **9~36V wide** voltage power supply, with reverse polarity protection, over-current and over voltage protection

9

Storage

1*mSATA, 1*M.2 NVME, 2*2.5" SATA3 easy-to-swap, supports RAID 0/1 Protects data security, supports drives up to 15mm thick, dual drives with a maximum capacity of up to 12TB.



Dual Temperature Control

Dual Fan Cooler for MXM GPU Module



PWM temperature control signal,
Intelligent temperature control fan cooler
for GPU Module



Modular Design

Easy Assembly and Maintenance

Easy to Assemble CPU And MXM Module

BRAV-7220

Product Feature



can be empowered by **HAILO**

Model	BRAV-7220
CPU	Tiger lake-U Core I3/I5/I7 /Pentium/Celeron
RAM	Dual Channel DDR4 SODIMM
LAN	3*2.5G LAN
Display	1*DP, 1*HDMI
USB	2*USB3.2, 3*USB2.0
Serial Port	2*RS232/422/485
Expansion	1*M.2 3042 B-Key with SIM slot 1*M.2 3052 B-Key with SIM slot 1*M.2 2280 M-Key PCIe4.0 signal 1*M.2 2280 M-Key PCIe3.0 signal
Storage	1*2.5" HDD/SSD SATA3, 1*mSATA, 2*M.2 Type 2280 M-Key
Power Supply	DC 9-36V Universal Wide Voltage Input DC 12V/3A Radar Power Supply

Product Highlight

1 <i>Tiger lake CPU</i>	2 <i>High-Performance Graphics</i>	3 <i>Dual M.2 AI acceleration computing module</i>	4 <i>Intel TCC and TSN</i>	5 <i>Support 5G/4G</i>
6 <i>2.5G network port</i>	7 <i>PCIe×2 Gen4.0 high-speed Storage</i>	8 <i>According to the Intel IEN Type-F standard</i>	9 <i>Flexible installation (Horizontal and DIN rail mounting)</i>	10 <i>Vibration Reduction Design</i>
11 <i>vPro Remote management</i>	12 <i>Efficient Heat Dissipation</i>	13 <i>DC-OUT Power Supply</i>		

Dual M.2 2280 M-Key Expansion Slot

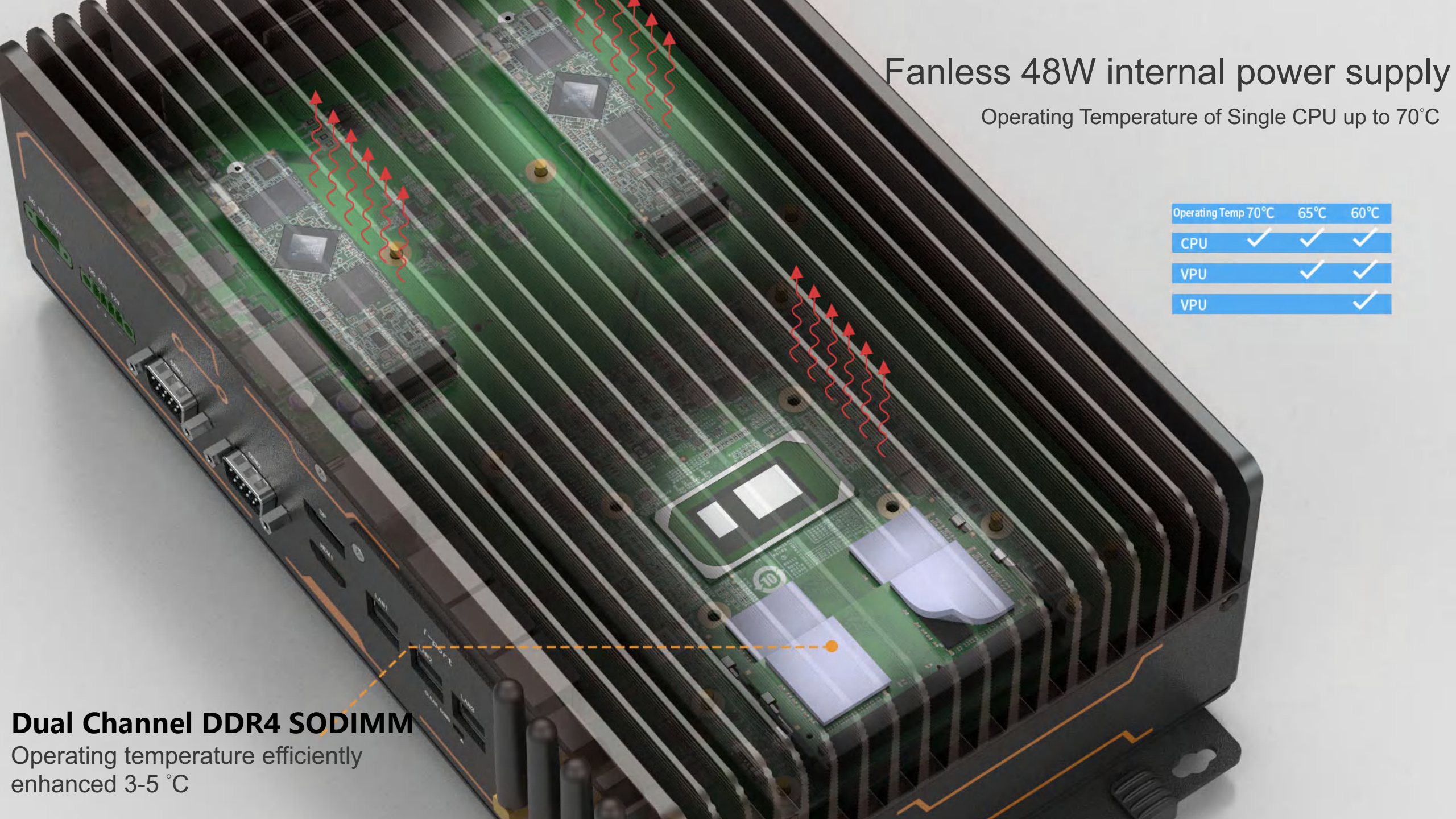
PCIe4 Signal Support AI Accelerator with 8.25W Power

PCIe 4.0 X2

INTEL Gen3.0 Movidius VPU **8TOPS**
Cambricon MLU220-M.2 Accelerator

PCIe 3.0 X2

INTEL Gen3.0 Movidius VPU **8TOPS**
Cambricon MLU220-M.2 Accelerator



Fanless 48W internal power supply

Operating Temperature of Single CPU up to 70°C

Operating Temp	70°C	65°C	60°C
CPU	✓	✓	✓
VPU		✓	✓
VPU			✓

Dual Channel DDR4 SODIMM

Operating temperature efficiently enhanced 3-5 °C



★ ***DC 12V/3A***
External Power Supply Interface

BRAV-7720

Product Feature



Model	BRAV-7720
CPU+PCH	Intel®12/13th-Gen Alder lake-S/Raptor lake-S Core™ i9/i7/i5/i3/Pentium/Celeron + Q670 PCH
Memory	2DDR5 SODIMM dual-channel memory, up to 96GB
LAN	2*Intel I226V + 1*Intel I219LM
Graphics	1*DP, 1*HDMI, 1*VGA
USB	6*USB3.2
Serial Port	2*RS232/422/485
Expansion	1*Full size Mini PCIe with SIM card slot, 1*mSATA 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 1*PCIe X16 Gen5.0 X16 signal 1*PCIe X16 Gen4.0 X4 signal
Storage	2*2.5" HDD/SSD SATA3, 1*Mini PCIe, 1*M.2 2280 M-Key
Power Supply	DC IN 12V power supply DC 12V/6A Power output for radar

BRAV-7720-WP

Product Feature



Model	BRAV-7720-WP
CPU+PCH	Intel® Alder lake-S 12th-Gen Core™ i9/i7/i5/i3/Pentium/Celeron + Q670 PCH
Memory	2*DDR5 SODIMM dual-channel memory, up to 96GB
LAN	2*Intel I226V + 1*Intel I219LM
Graphics	1*DP, 1*HDMI, 1*VGA
USB	6*USB3.2
Serial Port	2*RS232/422/485
Expansion	1*Full size Mini PCIe with SIM card slot, 1*mSATA 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 1*PCIe X16 Gen5.0 X16 signal 1*PCIe X16 Gen4.0 X4 signal
Storage	2*2.5" HDD/SSD SATA3, 1*Mini PCIe, 1*M.2 2280 M-Key
Power Supply	DC IN 9-55V Wide voltage power supply DC 12V/6A Power output for radar

BRAV-7721

Product Feature



Model	BRAV-7720
CPU+PCH	Intel®12/13th-Gen Alder lake-S/Raptor lake-S Core™ i9/i7/i5/i3/Pentium/Celeron + Q670 PCH
Memory	2*DDR5 SODIMM dual-channel memory
LAN	2*Intel I226V + 1*Intel I219LM
Graphics	1*DP, 1*HDMI, 1*VGA
USB	6*USB3.2
Serial Port	2*RS232/422/485
Expansion	1*Full size Mini PCIe with SIM card slot, 1*mSATA 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 2*PCIe X16 Gen5.0 X8 signal 2*PCIe X16 Gen4.0+Gen3.0 X4 signal
Storage	2*2.5" HDD/SSD SATA3, 1*Mini PCIe, 1*M.2 2280 M-Key
Power Supply	DC IN 12V power supply DC 12V/6A Power output for radar

BRAV-7721-WP

Product Features



Model	BRAV-7720
CPU+PCH	Intel®12/13th-Gen Alder lake-S/Raptor lake-S Core™ i9/i7/i5/i3/Pentium/Celeron + Q670 PCH
Memory	2*DDR5 SODIMM dual-channel memory
LAN	2*Intel I226V + 1*Intel I219LM
Graphics	1*DP, 1*HDMI, 1*VGA
USB	6*USB3.2
Serial Port	2*RS232/422/485
Expansion	1*Full size Mini PCIe with with SIM card slot, 1*mSATA 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 2*PCIe X16 Gen5.0 X8 signal 2*PCIe X16 Gen4.0+Gen3.0 X4 signal
Storage	2*2.5" HDD/SSD SATA3, 1*Mini PCIe, 1*M.2 2280 M-Key
Power Supply	DC IN 9-55V Wide voltage power supply DC 12V/6A Power output for radar

Comparison of BRAV-7720/7721 and BRAV-7520/7521 specs

	BRAV-7720	BRAV-7721	BRAV-7520	BRAV-7521
CPU	Intel® 12/13th-Gen Alder lake-S/Raptor lake-S Core™ i9/i7/i5/i3/Pentium/Celeron		Intel® Xeon® E or Intel® Coffeelake-R 9th/8th-Gen Core™ i7/i5/i3	
PCH	Q670		Q370 or C246	
Memory	2*DDR5, up to 98GB		4*DDR4, up to 128GB	
Graphics	DP+HDMI+VGA		DP+DP+VGA	
LAN	2*I226V+1*I219LM		2*I210AT+1*I219LM	
Expansion	1*Full-size Mini PCIe with SIM card slot 1*Full-size Mini PCIe, SATA signal, and PCIe signal auto-detection feature 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 1*PCIe X16 Gen5.0 X16 signal 1*PCIe X16 Gen4.0 X4 signal	1*Full-size Mini PCIe with SIM card slot 1*Full-size Mini PCIe, SATA signal, and PCIe signal auto-detection feature 1*M.2 3052 B-Key with SIM card slot 1*M.2 2280 M-Key Gen4.0 PCIeX4 signal 2*PCIeX16 Gen5.0 X8 signal 2*PCIeX16 Gen4.0+Gen3.0X4 signal	1*Full-size Mini PCIe with SIM card slot, can be set to mSATA through BIOS 1*M.2 2230 E-Key with SIM card slot 1*M.2 3052 B-Key 1*M.2 2280 M-Key Gen3.0 PCIeX4 signal 1*PCIe X16 X16 signal 1*PCIe X16 X4 signal	1*Full-size Mini PCIe with SIM card slot, can be set to mSATA through BIOS 1*M.2 2230 E-Key with SIM card slot 1*M.2 3052 B-Key 1*M.2 2280 M-Key Gen3.0 PCIeX4 signal 2*PCIe X16 X8 signal 2*PCIe X16 X4 signal

Comparison of BRAV-7720/7721 and BRAV-7520/7521 specs

	BRAV-7720	BRAV-7721	BRAV-7520	BRAV-7521
Storage	2*2.5" HDD/SSD SATA3, 1*Mini PCIe (auto-detection) , 1*M.2 2280 M-Key		2*2.5" HDD/SSD SATA3, 1*Mini PCIe (BIOS setting) , 1*M.2 2280 M-Key	4*2.5" HDD/SSD SATA3 , 1*Mini PCIe (BIOS setting) , 1*M.2 2280 M-Key
Audio	Audio out + Mic		Audio out + Mic	
DIO	Optional 16bit DIO, TTL signal, programmable input/output		16-bit isolated DIO	
USB	6*USB3.2		6*USB3.1 + 2*USB2.0	
COM	2*RS232/422/485		2*RS232/422/485 + 2*RS232	
OS	Windows 11, Windows 10 IoT Enterprise 2021 LTSC, Ubuntu, SuSe, Red Hat Enterprise, Wind River Linux, Wind River VxWorks 7		Windows7、Windows* 10 Enterprise & IOT Enterprise (64 bit)(CFL-R)、Windows* Server 2016 (Intel® Xeon® E) Ubuntu*、SuSe*、Redhat Enterprise* 1,2 (Kernel 4.14) (CFL-R) Wind River* VxWorks* 7 (CFL-R)	

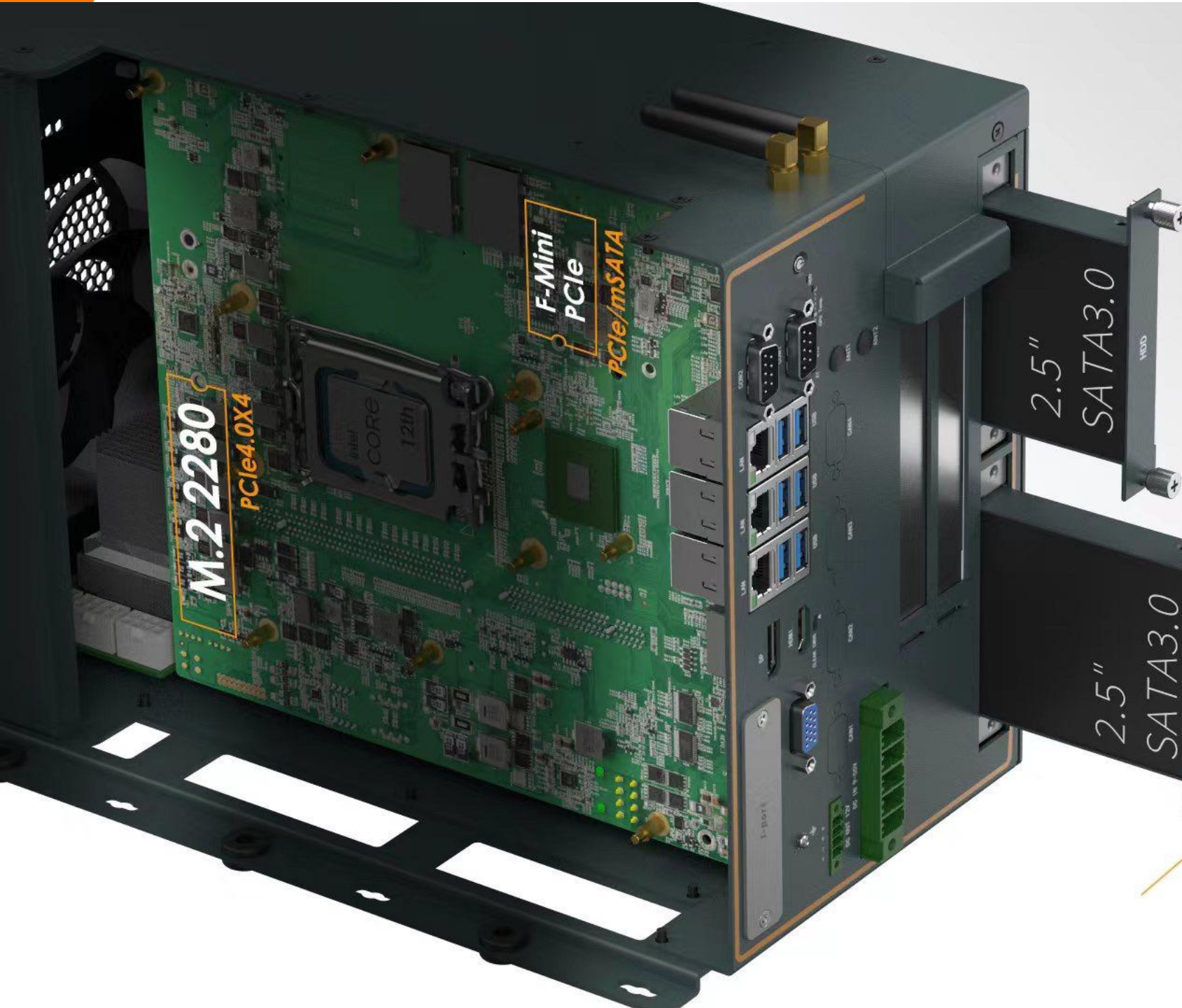
Supporting NVIDIA GPU cards or AI accelerator cards with different computing power

- Deep chassis body length: 362.5mm length can accommodate the GPU card with length **up to 300-320mm**;
- High Power supply up to **1000W**: ensure the power supply requirements of dual GPU cards (450W+350W or 350W+350W etc).
- The unique power supply design of the expansion card ensures the power supply stability of 75W and 150W acceleration cards and GPU cards of different power levels.

Video card series	Model number
NVIDIA GTX 16 series GeForce GPU card	GeForce GTX 1660 Ti、 GeForce GTX 1660 Super、 GeForce GTX 1660、 GeForce GTX 1650 Super、 GeForce GTX 1650 (G5)、 GeForce GTX 1650 (G6)、 GeForce GTX 1630
NVIDIA RTX 30 series GeForce GPU card	GeForce RTX 3090 Ti、 GeForce RTX 3090、 GeForce RTX 3080 Ti、 GeForce RTX 3080、 GeForce RTX 3070 Ti、 GeForce RTX 3070、 GeForce RTX 3060 Ti、 GeForce RTX 3060、 GeForce RTX 3050
NVIDIA Professional	NVIDIA A10 GPU、 NVIDIA A16 GPU、 NVIDIA T4 GPU、 NVIDIA RTX A6000、 NVIDIA RTX A5000、 NVIDIA RTX A4000、 NVIDIA RTX A2000
China Domestic AI accelerator card	DENGLIN Goldwasser-L128、 DENGLINGoldwasser-L256、 DENGLINGoldwasser-UL32、 DENGLIN Goldwasser-UL64、 Iluvatar MR-50、 Iluvatar MR-100、 Cambricon MLU370-S4、 Cambricon MLU370-X4

7720/7721 Product design highlights

1 <i>12/13 gen CPU</i>	2 <i>High - performance GPU</i>	3 <i>DDR5 high-frequency memory support</i>	4 <i>(1+1+2) Quad Storage</i>	5 <i>Gen5.0 PCIe Expansion</i>
6 <i>Comprehensive networking solutions</i>	7 <i>vPro remote management</i>	8 <i>Diverse PCIe/PCI expansion options</i>	9 <i>Support gradient computing AI acceleration cards</i>	10 <i>Practical power design</i>
11 <i>Efficient cooling design</i>	12 <i>Overall shock absorption</i>	13 <i>DC-OUT Power supply output</i>		



(1+1+2) Quad Storage

- 1x M.2 2280 M-Key (Gen4, PCIeX4 signal), supports NVME high-speed solid-state drives
- 1x F-Mini PCIe (PCIeX1 or SATA signal), auto-detects and supports mSATA
- 2x 2.5" SATA3 hot-swappable drive bays, accommodates up to 15mm thick high-capacity HDDs and supports Raid0/1

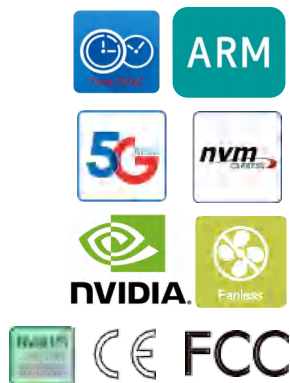


Overall Shock Absorption

- Wide-voltage WP models use a **shock-absorbing chassis** as a mounting bracket to ensure anti-vibration performance in mobile environments
- Non-wide-voltage models come with six **shock-absorbing rubber feet** for installation.



BRAV-7131 Product Features



Key Features

- NVIDIA Jetson AGX Orin 32/64G, 200/275TOPS
- 8/12*Cores ARM Cortex-A78AE CPU, 2.2GHz(maximum frequency)
- NVIDIA Ampere GPU with Tensor Cores
- Onboard 32/64G 256bit LPDDR5 RAM and 64GB eMMC,
- 1*M.2 M-Key NVME and optional 1*2.5 "SATA bay
- 1*HDMI, 1*Audio Line-out, 5*LAN, 2*USB3.2, 2*USB2.0, 4*COM, 2*CAN, 16-bit DIO,1*SYNC IO
- 1*F-Mini PCIe and 1*M.2 B-Key support 4G LTE or 5G NR, 1*M.2 E-Key support Wifi & BT wireless routes
- DC9~36V wide power input, with OVP, OCP, and SCP
- Aluminum-magnesium alloy chassis, Fan cooling design

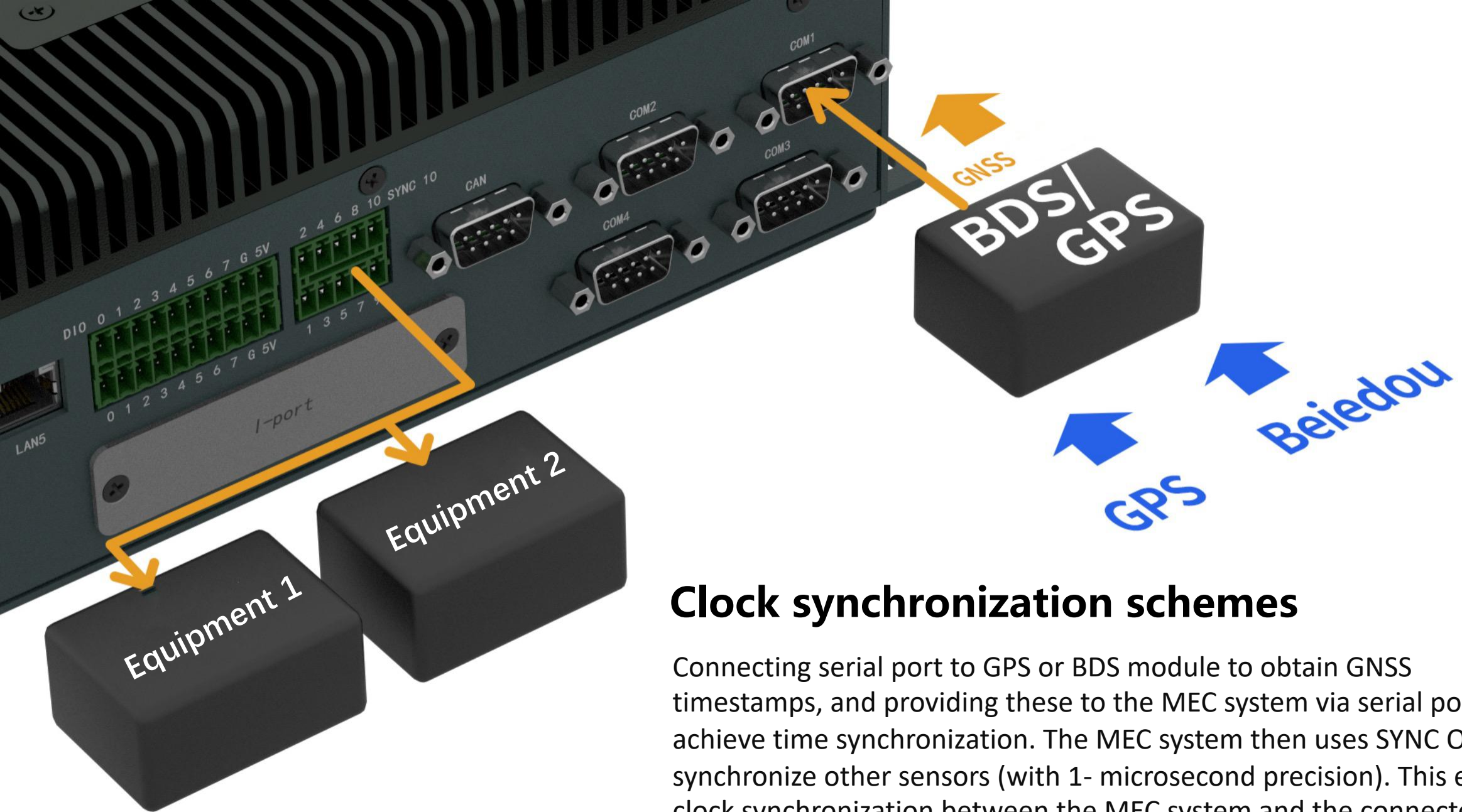
BRAV-7131 Product Design Highlights

1 <i>NVIDIA Jetson AGX Orin module</i>	2 <i>200/275TOPS computing power options available</i>	3 <i>1+3 quad storage</i>	4 <i>Support 4G/5G wireless communication modules</i>
5 <i>Clock synchronization scheme</i>	6 <i>Multiple isolated I/O interfaces</i>	7 <i>Efficient heat dissipation design</i>	8 <i>Overall shock absorption design</i>
9 <i>Flexible installation options</i>	10 <i>DC 12V/3A external power interface</i>		



***(1+1+2)
Quad Storage***

Onboard 1x eMMC
64GB storage



Clock synchronization schemes

Connecting serial port to GPS or BDS module to obtain GNSS timestamps, and providing these to the MEC system via serial port to achieve time synchronization. The MEC system then uses SYNC OUT to synchronize other sensors (with 1- microsecond precision). This ensures clock synchronization between the MEC system and the connected sensors, minimizing the time difference between different devices.

BRAV Series Product Highlights

- ◆ A multi-core heterogeneous distributed computing platform for AIoT, utilizing a universal CPU architecture such as X86 or ARM alongside heterogeneous AI computing architecture.
(Solving the pain point of architectural standardization)
- ◆ CPU options ranging from dual-core to 16-core with varying performance levels, and AI accelerator card options ranging from 8TOPS to 630TOPS.
(Solving the pain point of fixed inference computing power.)
- ◆ CPU and AI computing chips achieve integration through application algorithms
CPU handles data access, parsing, communication management, data exchange, data storage and forwarding, remote device management, etc.; AI chips manage decoding, deep learning, and inference.
(Solving the pain point of low efficiency)
- ◆ Network communication includes wireless 4G LTE and 5G, along with 3-7 Gigabit Ethernet ports and optional 2-4 10 Gigabit Ethernet ports.
(Solving the pain point of low efficiency)
- ◆ Supports 12V DC power output to supply sensors, ensuring synchronized power timing between sensor devices and MEC.

- ◆ NTP network time synchronization and satellite time synchronization ensure clock synchronization.
- ◆ Utilizing SSD as the system disk and RAID disk arrays for storage disks ensures independence between the system disk and data disks, guaranteeing system reliability and data security.
(Solving the pain point of low data storage security.)
- ◆ Optional support for HSM (Hardware Security Module) ensures data output security, addressing the pain point of data storage security.
(Supporting resolves the pain point of data transmission security.)
- ◆ Supporting vPro remote management technology and OTA (Over-The-Air) online upgrade functionality for remote hardware management and software maintenance.
(Solving the pain point of low maintainability.)
- ◆ Features a professional and efficient thermal design solution (passive cooling → combined active and passive cooling → active cooling) suitable for outdoor wide temperature operation: Operating temperature ranges from -20 to +60°C, with some products capable of -30 to +70°C.
(Solving the pain point of low applicability.)
- ◆ PCBs utilize a three-proof (anti-mold, anti-humidity, anti-salt spray) coating process and fanless IP51 grade protection (dustproof).
(Solving the pain point of low reliability.)

Market Direction of BRAV Series Products

High-end AGV

Multi-tasking heavy-duty unmanned container AGV in ports, unmanned delivery AGV, intelligent forklifts for cargo transport, and electric or firefighting intelligent inspection AGV, utilizing video and laser radar combination navigation.

Autonomous Driving / Intelligent Driving:

Intelligent autonomous buses, intelligent unmanned reconnaissance vehicles, smart patrol vehicles for islands, and high-speed rail unmanned driving systems.

Edge Computing in Traffic Roadside

Vehicle-to-Everything (C-V2X) edge computing for roadside, intelligent edge computing for railway freight columns.

Machine Vision and Robotics

Intelligent video inspection machines, 3D visual guidance positioning, mobile explosive ordnance disposal / mine-clearing robots.

Intelligent Video Security

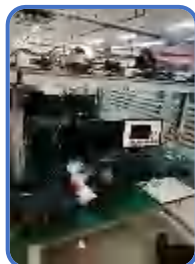
Bright projects including park facial recognition, mobile portable facial recognition analyzers, customs and border self-service clearance, and facial passage self-security checks.

AI + Healthcare Medical Imaging

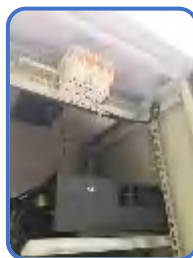
Lesion identification and adaptive therapy targeting, disease prediction such as gene sequencing testing and leukemia prediction, etc.



Smart Sentry System



Facial Recognition Application



Roadside MEC



Intelligent Video Inspection Machine



DWS Intelligent Sorting System

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03

Q&A

Q1: Can BRAV-7601 support CAN module?

A1: Yes, it can support CAN module, but need to remove VGA display cable.

Q2: What's the voltage power supply of BRAV-75xx or BRAV-77xx?

A2: The standard model is DC 12V input, but you can choose WP model can support 9-55V.

Stay in Touch



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