

# JHCTECH

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**JHCTECH** IoT Computer  
Connecting the Dots

# BRAY

Edge Computing system

# BRAY

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# JHCTECH

## About JHCTECH

JHCTECH was established in Shenzhen, China, in April 2002, and it has become an intelligent IoT system supplier with strong capabilities in R&D, production, sales and service.

Relying on its rich industry experiences and following the strategy of "Proactive Innovation and Intelligent Manufacturing Based in China", JHCTECH has been focusing on the development and production of industrial computers and system application platforms. Its diversified products and services include the industrial tablet computers, industrial touch monitors, embedded box computers, single-board computers, etc., as well as customized solutions focusing on industry applications and AI-enabled value-added services. Its products have passed the CE, FCC, E-Mark, EN50155 and other safety regulations and industry certifications, and are widely used in many areas including the Industrial Internet of Things (IIoT), Intelligent Transportation System (ITS), Smart Security, Energy and Environmental Protection, and Biological Safety. JHCTECH has built a solid foundation for the businesses of Intelligent IoT and Edge Computing.

Harmony is invaluable, sincerity is the foundation. JHCTECH serves customers with the core values of integrity, gratitude, and responsibility in maximizing values for the society with technological innovation. Adhering to the business philosophy of "focus on the industry, specialize in products, and excel in services", do not lose hope if one's fail, but strive to become a role model of smart ecological commercial civilization that keeps the integrity, emphasizes quality, be courageous, seeks win-win outcome, and dedicated to building a competitive international brand!

**Brand strategy** : IOT Computer Connecting the Dots

**Business philosophy** : Focus on the industry, specialize in products, and excel in services.

**Strategic slogan** : Promote the industry to the world.

**Core values** : Integrity, gratitude, and responsibility.

**Corporate Spirit** : Humility, loyalty, innovation, seriousness, solidarity, learning, perseverance

**Corporate Mission** : Committed to building a smarter earth and a smarter tomorrow.

**Corporate Vision** : Better lose than to lose integrity. Become a model of smart IoT ecological commercial civilization that keeps integrity, emphasizes quality, be courageous, and seeks win-win outcomes.

**Eight corporate values:**

1. **Value:** Create maximum value for users with the help of technological innovation.

2. **Strive:** Adhere to long-termism, hard work, and savor the joy of work.

3. **Spirit:** All methodologies are measured by core values and corporate spirit.

4. **Learning:** Learning is vital as all manifestation are ultimately the reflection of ability.

5. **Team:** The interest of the team is of the highest interest, and the individual must obey the organization.

6. **Action:** The criterion of success is goal pursuit, efficiency and action are the keys

7. **Affection:** Be empathy, not egalitarianism and oppose opportunism

8. **Win-Win:** Connect the symbiosis, achieve more, and brings benefit to the society.

APPLICATION

▶▶▶  
Internet of Vehicles and  
Autonomous Driving



**B1**  
Products Listing

**B4**  
Accelaration Module

High performance and low power consumption

**01**  
**BRAV-7201**  
High performance AI BOX PC

**03**  
**BRAV-7302**  
Edge Computing System

**05**  
**BRAV-7501**  
Workstation-grade Edge Computing System

**07**  
**BRAV-7520**  
Workstation-grade Edge Computing System

**09**  
**BRAV-7521**  
Workstation-grade Edge Computing System

**11**  
**BRAV-7601-S**  
High-performance Edge Computing System

**13**  
**BRAV-7601-T**<sup>New</sup>  
Fanless High-performance Edge Computing System



AI Automation



AI Medical



AI Security



**BRAV-7201**

**BRAV-7302**

**BRAV-7501**

**BRAV-7520**

**BRAV-7521**

**System**

<b>CPU</b>	6th gen Intel Skylake-U Celeron 3855U; Core-U: I3-6100U; I5-6200U; I7-6500U; 7th gen Intel Kabylake-U Celeron 3865U; Core-U: I3-7100U; I5-7200U; I7-7500U	Intel®Skylake-S Intel®Kabylake-S Celeron/Pentium/Core I3/I5/I7 CPU,LGA 1151 socket, TDP35W/54W/65W/91W with active cooling fan	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, up to 8 cores 16 threads	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, up to 8 cores 16 threads	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, up to 8 cores 16 threads
<b>RAM</b>	2* DDR4 2133MHz, max 32GB	2* DDR4 2133/2400MHz, max 32GB	4* DDR4 2666/2400MHz DIMM, max 128GB	4* DDR4 2666/2400MHz SODIMM, max 128GB	4* DDR4 2666/2400MHz SODIMM, max 128GB
<b>Graphics</b>	CPU integrated Intel 9th gen HD Graphics, HEVC/H265 HW HD codec, HDMI: 3940*2160@30Hz, DP: 4096*2160@60Hz	Intel Gen. 9 HD Graphics, HEVC/H265 HW HD codec, Integrated graphics card DP/HDMI/VGA dual 4K, 1* MXM3.1 support high end NVIDIA Gforce GTX/AMD RX series up to 120W pwr consump GPU, 3* DP & 1* HDMI 4K	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 DP: 4096*2304@60Hz, HDMI: 3840*2160@30Hz, 3 independent displays	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1/ PCIe X16 DP: 4096*2304@60Hz, VGA: 1900*1200@60Hz, 3 independent displays	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 /PCIe X16 DP: 4096*2304@60Hz, VGA: 1900*1200@60Hz, 3 independent displays

**I/O Interfaces**

<b>LAN</b>	2* Intel I210AT, 2*Intel I211AT (I210AT) PCIe Gig. Ethernet, 10/100/1000Mbps self-adaptive, 1*Intel I219LM PCIe GbE, Support iVpro tech	2* / 6* Intel I210AT PCIe Gig. Ethernet, 10/100/1000Mbps self-adaptive, 1*Intel I219LM PCIe GbE, Support iVpro tech	2* Intel I210AT PCIe, 10/100/1000Mbps self-adaptive; 1* Intel I219LM PCIe GbE, Support iVpro tech	2* Intel I210AT PCIe, 10/100/1000Mbps self-adaptive; 1* Intel I219LM PCIe GbE, Support iVpro tech	2* Intel I210AT PCIe, 10/100/1000Mbps self-adaptive; 1* Intel I219LM PCIe GbE, Support iVpro tech
<b>USB</b>	4* USB3.0 + 2* USB2.0 + 1* USB2.0 internal	4*/6* USB3.0 + 2* USB2.0 + 1* USB2.0 internal	4*USB3.1 + 6* USB2.0 + 1* USB2.0 internal	6* USB3.1 + 2* USB2.0	6* USB3.1 + 2* USB2.0
<b>Display</b>	1* DP + 1* HDMI	Integrated graphic card 1* DP & HDMI, GPU 3* DP +1* HDMI	2* DP + 1* HDMI	2* DP + 1* VGA	2* DP + 1* VGA
<b>Audio</b>	1* Line out + 1* MIC	1* Line out + 1* MIC	1* Line out + 1* MIC	1* Line out + 1* MIC	1* Line out + 1* MIC
<b>Serial Port</b>	2*RS232/422/485 + 4*RS232	2*RS232/422/485 + 2*RS232	2*RS232/422/485	2*RS232/422/485 + 2*RS232	2*RS232/422/485 + 2*RS232
<b>DIO</b>	8-bit TTL programmable input/output; 8-bit 2.5KV input opto-isolator(H:5-24V, L:0-1.5V), 8-bit 2.5KV output opto-isolator(100mA)	16-bit TTL programmable input/output;	8-bit TTL programmable input/output;	16-bit Iso DIO, 8-bit 2.5KV input opto-isolator(H:5-24V, L:0-1.5V), 8-bit 2.5KV output opto-isolator (200mA)	16-bit Iso DIO, 8-bit 2.5KV input opto-isolator(H:5-24V, L:0-1.5V), 8-bit 2.5KV output opto-isolator(200mA)

**Storage**

<b>Storage</b>	1*2.5" SATA3+ 1*mSATA Full-height card	2*2.5"SATA3 + 1*mSATA Full-height card + 1*M.2	2*3.5"SATA3 + 1*M.2 (S001); 4*2.5"SATA3 + 1*M.2(S002)	2*2.5"SATA3 + 1*M.2 support NVMe storage	4*2.5"SATA3 + 1*M.2 support NVMe storage
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**Expansion**

<b>Expansion Port</b>	1*Mini PCIe with SIM slot	1*Mini PCIe with SIM slot; 1*M.2 with SIM slot, 1* full size mSATA; 1*half size Mini PCIe, 1* JHC-Express-02 EIO Express bus	1*full size Mini PCIeX1+USB with SIM slot, 2*PCIe X16 slot (1*PCIe X16 or 2*PCIe X8) support up to NVIDIA 2080Tireference graphics card 2*PCIe X8 slot (Gen 3, 2*PCIeX4 signal)	1*Mini PCIe with SIM slot; 1*M.2 E-Key 2230 support WiFi6/BT5.0 1*M.2 B-Key , with SIM slot, support 5G; 1*M.2 M-Key; 1*PCIeX16,max support 350W graphics card (length<300mm) 1*PCIe X4 (in X16 slot), max support 75W AI accelerator Module (length<300mm)	1*Mini PCIe with SIM slot; 1*M.2 E-Key 2230 support WiFi6/BT5.0 1*M.2 B-Key , with SIM slot, support 5G; 1*M.2 M-Key; 2*PCIeX8(in X16 slot)max support 2*350Wgraphics card (length<300mm) 2*PCIe X4 (in X16 slot), max support 2*75W AI accelerator Module (length<300mm)
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**Power Supply**

<b>Input Voltage</b>	DC9-30V;	DC6-48V;	24-pin ATX/8-pin ATX 12V, 600W power supply	DC 12V 5-pin Term;	DC 12V 5-pin Term.
<b>Pwr Consump</b>	24W (I3-6100 CPU 4G DDR4)	144W (35W CPU+78W GPU)		Consumption:12V/27A (I7-8700 CPU 32GB DDR4 single 2080TI GPU)	Consumption: 12V/47A (I7-8700 CPU 32GB DDR4 dual 2080TI GPU)

**Mechanical**

<b>Structure</b>	Aluminum Case, SGCC chassis	Aluminum Case, SGCC chassis	Aluminum-magnesium alloy, SGCC chasis	Aluminum-magnesium alloy, SGCC chasis	Aluminum-magnesium alloy, SGCC chasis
<b>Dimension (W*H*D)</b>	225*144.3*87.5mm	255*222*84.1mm	150*309*375mm	230*350*160mm	230*350*210mm
<b>Net Weight</b>	2.2kg	4.62kg	8.14kg	7.5kg	8.3kg

**Environmental**

<b>Operating Temp</b>	-25°C~60°C,Fanless, SSD, with air flow, -10°C~50°C,Fanless, HDD, with air flow	-25°C~50°C – 65W CPU+78W GPU -25°C ~40°C – 91W CPU+120W GPU	-25~50°C, SSD, with air flow	-25~60°C, SSD, with air flow	-25~60°C, SSD, with air flow
<b>Storage Temp</b>	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C
<b>Storage Humidity</b>	10~90%@40°C, No-condensation	10~90%@40°C, No-condensation	10~90%@40°C, No-condensation	10~90%@40°C, No-condensation	10~90%@40°C, No-condensation
<b>Vibration</b>	5 grms/5~500Hz/random/during operatio(SSD); 1grms/5~500Hz/during operation(HDD)	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)
<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)

**Certification/EMC**

	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
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**OS**

	Linux Fedora Ubuntu	Windows 7, Windows 10, Linux Fedora Ubuntu	Windows10/Windows Server 2016 (Intel® Xeon® E) Ubuntu/SuSe/Redhat Enterprise 1,2 (Kernel 4.14) (CFL-R) Wind River VxWorks 7 (CFL-R)	Windows10/Windows Server 2016 (Intel® Xeon® E) Ubuntu/SuSe/Redhat Enterprise 1,2 (Kernel 4.14) (CFL-R) Wind River VxWorks 7 (CFL-R)	Windows10/Windows Server 2016 (Intel® Xeon® E) Ubuntu/SuSe/Redhat Enterprise 1,2 (Kernel 4.14) (CFL-R) Wind River VxWorks 7 (CFL-R)
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NEW



NEW

**BRAV-7601-S**

**BRAV-7601-T**

**System**

<b>CPU</b>	Intel® Comet lake 10th-Gen Celeron/Pentium/Corei9/i7/i5/i3 CPU, Intel® Q470 PCH	Intel® Comet lake 10th-Gen Celeron/Pentium/Corei9/i7/i5/i3 CPU, Intel® Q470 PCH
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<b>RAM</b>	2*DDR4 SO-DIMM slot, support 2933MHz, up to 64GB	2*DDR4 SO-DIMM slot, support 2933MHz, up to 64GB
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<b>Graphics</b>	Intel® UHD Graphics, support DirectX 12, OpenGL 4.5, 2*HDMI: 4096x2304@24Hz,1*VGA: 1920*1200@60Hz; 1*MXM3.1, up to 190W, support GPU/AI accelerator, 2*DP, 4K display	Intel® UHD Graphics, support DirectX 12, OpenGL 4.5, 2*HDMI 1.4: 4096 x 2304@24Hz, support GPU/AI accelerator, 1*VGA: 1920x1200@60Hz
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**I/O Interfaces**

<b>LAN</b>	2*Intel I225V+1*I225 LM,3*2.5G-LAN, support iAMT 13.0, Core I5/I7 CPU support Intel vPro; 4* Intel I210AT with POE, 10/100/1000Mbps(S002)	2*Intel I225V+1*I225 LM,3*2.5G-LAN,support iAMT 13.0, Core I5/I7 CPU support Intel vPro; 4* Intel I210AT with POE, 10/100/1000Mbps(T002)
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<b>USB</b>	4* USB3.2 Gen2; 2*USB3.2 Gen1(S002), 2* USB2.0, 2*USB2.0(built-in)	4* USB3.2 Gen2; 2*USB3.2 Gen1(T002), 2* USB2.0, 2*USB2.0(built-in)
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<b>Display</b>	HD graphics 2* HDMI + 1* VGA; Discrete graphics 2*DP	HD graphics 2* HDMI + 1* VGA
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<b>Audio</b>	1* Line out + 1* MIC,optional audio	1* Line out + 1* MIC,optional audio
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<b>Serial Port/ Others</b>	2*RS232/422/485 + 2*RS232	2*RS232/422/485 + 2*RS232
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<b>DIO</b>	8 bit TTL signal, programmable input and output 8+16 bit TTL signal, programmable input and output(S002)	8 bit TTL signal, programmable input and output 8+16 bit TTL signal, programmable input and output(T002)
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**Storage**

<b>Storage</b>	2*2.5"SATA3 HDD(support RAID0,1), max support dual 15mm HDD, 1*M.2 2280 M-Key(PCIeX4 signal), support NVME, 1*mSATA(optional)	2*2.5"SATA3 HDD(support RAID0,1), max support dual 15mm HDD, 1*M.2 2280 M-Key(PCIeX4 signal), support NVME, 1*mSATA(optional)
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**Expansion**

<b>Expansion Port</b>	1*Mini-PCIe,USB2.0+SIM, support mSATA/4G LTE, 1*M.2 2230 E-key, PCIeX1,USB2.0 &CNVio, support WiFi6/BT5.0, 1*M.2 Type 3052 B-key, PCIeX1, USB2.0+SIM, support 5G/4G, 1*M.2 Type 2280 M-Key(PCIeX4), support NVME or PCIe expansion module. 1*MXM3.1, PCIeX16,up to 190W, JHCTECH-02 E/IO, 2*PCIeX4, 2*USB3.2, 2*USB2.0	1*Mini-PCIe,USB2.0+SIM, support mSATA/4G LTE, 1*M.2 2230 E-key, PCIeX1,USB2.0 &CNVio, support WiFi6/BT5.0, 1*M.2 Type 3052 B-key, PCIeX1, USB2.0+SIM, support 5G/4G LTE, 1*M.2 Type 2280 M-Key(PCIeX4), support NVME or PCIe expansion module, 1*MXM3.1, support Cambricon MLU220-MXM AI accelerator, JHCTECH-02 E/IO: 2*PCIeX4, 2*USB3.2, 2*USB2.0
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**Power Supply**

<b>Input Voltage</b>	DC 9-36V 3-pin, with short circuit protection, over voltage& over current protection	DC 9-36V 3-pin, with short circuit protection, over voltage& over current protection
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**Mechanical**

<b>Structure</b>	Temperature controlled fan, SGCC	Aluminum chassis, SGCC
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<b>Dimension (L*W*H)</b>	284*222*82mm	284*222*80.5mm
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<b>Net Weight</b>	6.70kg	6.40kg
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**Environmental**

<b>Operating Temp</b>	-20~60°C, SSD, airflow	-20~60°C, SSD, airflow
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<b>Storage Temp</b>	- 40°C~85°C	- 40°C~85°C
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<b>Storage Humidity</b>	10~90%@40°C, No condensation	10~90%@40°C, No condensation
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<b>Vibration</b>	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)
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<b>Shock</b>	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)
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<b>Certificates/ EMC</b>	CE/FCC Class B	CE/FCC Class B
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<b>OS</b>	Windows 10 IoT Enterprise (64-bit), Windows Server 2019, Ubuntu, SUSE, Redhat Enterprise, Wind River Linux, Yocto Project (64-bit), Wind River VxWorks 7	Windows 10 IoT Enterprise (64-bit), Windows Server 2019, Ubuntu, SUSE, Redhat Enterprise, Wind River Linux, Yocto Project (64-bit), Wind River VxWorks 7
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**Parts Selection**

**MLU220-MXM**



Port Type	MXM 3.1 (PCIe3.0 X2)
RAM	8GB, LPDDR4x 64bit, 3200Mhz
AI Comp Pwr	16TOP(INT8)
Pwr Cosumption	16.5W
Operating temp	-20~70 °C
Heat dissipation	Passive cooling
Dimension	length 82mm, width 70mm (without cooler)

**MLU220-M.2**



Port Type	M.2 2280, B+M key (PCIe3.0 X2)
RAM	LPDDR4x 64bit, 4GB
AI Comp Pwr	8TOPS(INT8)
Pwr Cosumption	8.25W
Surface temp	-20~80 °C
Heat dissipation	Passive cooling
Dimension	length 80mm, width 22mm, height 7.3mm(no cooler)/21.3mm (with cooler)

**MLU270-S4**



Port Type	PCIeX16 Gen3
RAM	16GB DDR4 (ECC) 102GB/s
AI Comp Pwr	128TOPS(INT8)
Pwr Cosumption	70W
Operating temp	-20~60 °C
Shape	Half height and half length, single slot
Heat dissipation	Active cooling, External cooling
Dimension	167.5mm x 68.9mm

**MLU270-F4**



Port Type	PCIeX16 Gen3
RAM	16GB GDDR6 (ECC) 102GB/s
AI Comp Pwr	128TOPS(INT8)
Pwr Cosumption	150W
Operating temp	-20~60 °C
Shape	Full height and full length, double slot
Heat dissipation	Active cooling
Dimension	267mm x 111.15mm

**MXM GTX1060M**



Port Type	MXM3 .1 / up to PCI Express 3.0
RAM	6G 192bit GDDR5, 8Gbps NVIDIA CUDA Core 1280
Pwr Cosumption	78W
Surface temp	0~55 °C
Heat dissipation	Active cooling, External cooling
Dimension	length 105mm, width 82mm

**MXM GTX1070M**



Port Type	MXM3 .1 / up to PCI Express 3.0
RAM	8G 256bit GDDR5, 8Gbps NVIDIA CUDA Core 2048
Pwr Cosumption	115W
Surface temp	0~55 °C
Heat dissipation	Active cooling, External cooling
Dimension	length 105mm, width 82mm

# BRAV-7201

Intel Skylake-U/Kabylake-U CPU, 5\*LAN, 6\*USB, 6\*COM, support dual 4K display, 8+16-bit Iso DIO, iVpro tech, DC 9~30V, CPU LED Temp Display.

## Key Specification

- Aluminium case, fanless box air cooling design
- Intel Skylake-U/Kabylake-U CPU
- 2\*DDR4 2133MHz SODIMM RAM, max 32GB
- 1\*HDMI and 1\*DP, support dual 4K display port
- 5\*Gig LAN, 4\*USB3.0, 3\*USB2.0(1 internal)
- 6\*COM, 16-bit Iso DIO, Audio out & Mic
- 1\*Mini PCIe(PCie+USB)full size
- 1\*mSATA, 1\*2.5" SATA Shock Absorber drive bay
- Support iVpro and optional support TPM 2.0 encryption
- DC 9~30Vwide range power supply input, overcurrent, overvoltage, short circuit and reverse connection protection



## Product Overview

BRAV-7201 is a new industrial computer design that comes with aluminum profile case and fanless box. Equipped with Intel Skylake-U / Kabylake-U processor, BRAV-7201 supports iVpro technology and optional support on TPM2.0 hardware encryption technology, with high reliability of 9-30V wide range voltage power supply, which are widely used in the artificial intelligence, machine vision and robotics industries.

## Product Parameters

### System

CPU	6th gen Intel Skylake-U Celeron 3855U; Core-U: I3-6100U ; I5-6200U; I7-6500U 7th gen Intel Kabylake-U Celeron 3865U; Core-U: I3-7100U ; I5-7200U; I7-7500U
RAM	2*260-Pin SODIMM, dual DDR4 2133MHz, max 32GB
Expansion	1* full size Mini PCIe with PCIe X1+USB signal SIM slot;
Graphics	CPU integrated Intel Gen. 9th HD Graphics, HEVC/H265 HW HD codec, HDMI max res. 3940*2160@30Hz, DP max res. 4096*2160@60Hz
Audio	Optional support Realtek ALC662VD HD audio, support 5.1 soundtrack
LAN	2*Intel I210AT, 2*Intel I211AT(optional I210AT)Gig. Ethernet, 10/100/1000Mbps self-adaptive; 1*Intel I219LM support vPro tech
Storage	1*2.5" shock absorber drive bay, SATA3 6.0Gbps HDD/SDD; 1*mSATA full size, support AHCI mode
DIO	8-bit TTL programmable input/output, 8-bit 2.5KV input opto-isolater (H:5-24V, L:0-1.5V), 8-bit 2.5KV output opto-isolater(100mA)
I/O port	1*HDMI and 1*DP, 5*RJ45 Gig-LAN , 4*USB3.0 ,2*USB2.0 ,1*USB2.0 internal, 2*5Pin Phoenix terminal (8-bit DIO), 1*10pin Phoenix terminal (8-bit Iso DIO), 1*10pin Phoenix terminal (8-bit Iso DO), 2*RS232/422/485 DB9 male connector, 4*RS232 DB9 male connector, 1*Audio-out and 1*MIC
LED	1*Power LED indicator, 1*HDD LED indicator, 3*CPU TEMP grade LED indicator (Red as warning, Yellow as high temp, Green as norm temp)
Control Switch	1*Power button, 1*2pin terminal switch signal, 1*AT/ATX switch
Pwr Supply	DC IN 9~30V, 3pin terminal, with reverse connection, short circuit, over voltage and over current protection Consumption: 24W (I3-6100U CPU 4G DDR4)
OS	Linux Fedora Ubuntu
Watchdog Timer(WDT)	Programmable timeout interruption period or system reset from , 1 to 255 secs

### Cambricon AI module (optional)

Model	MLU220-M.2
RAM	4GB, LPDDR4x 64bit, 3200Mhz
AI computing	8TOPS (INT8) Support H.264 , HEVC (H.265) , VP8, VP9 Coding performance:support 16X 1080P @30fps Decoding performance: support 8X 1080P@30fps
Codec capability	JPEG, max res. 8192 x 8192, Decoding performance: 820 fps@FHD, Coding performance: 800 fps@FHD
Picture decoding	JPEG, max res. 8192 x 8192, Decoding performance: 820 fps@FHD, Coding performance: 800 fps@FHD
Port	M.2 2280, B+M key (PCIe3.0 X2)
Pwr supply & heat dissipation	8.25W / Passive cooling

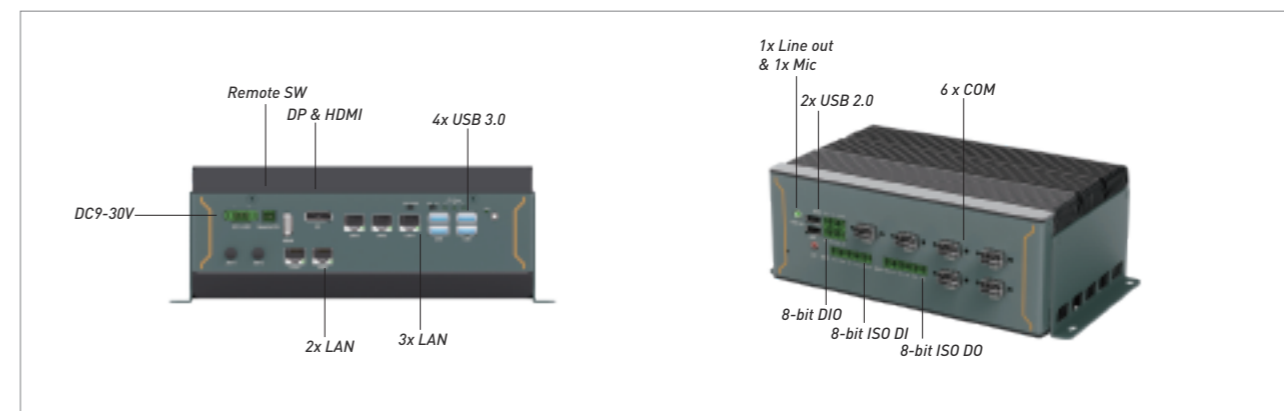
### Mechanical

Structure	Aluminum, heat dissipation case, SGCC coated on panel surface
Color	Graphite black + granite gray
Installation	Desktop Installation
Dimension	(W*H*D): 225*144.3*87.5mm
Net weight	2.2kg

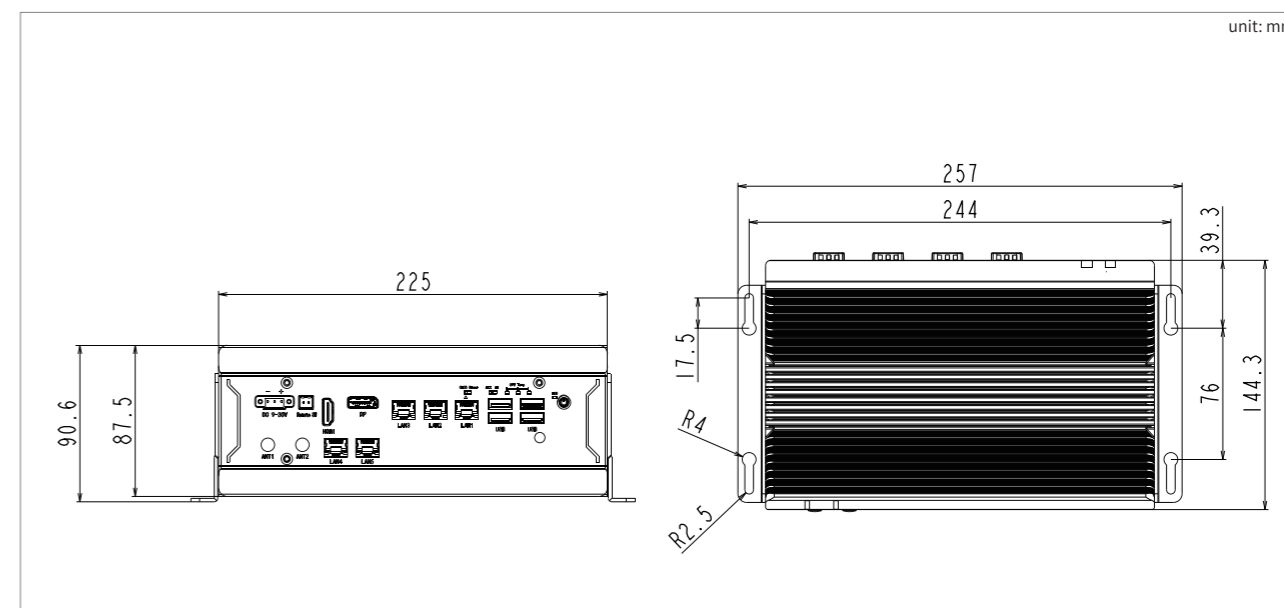
### Environmental

Operating Temp	-25°C~60°C – fanless, with wide temp SSD, with air flow -10°C~50°C – fanless, with norm temp HDD, with air flow
Storage Temp	-40°C~85°C
Storage Humidity	10~90%@40°C, No-condensation
Vibration	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)
Shock	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration; 11ms)(HDD)
Certification /EMC	CE/FCC Class B

## I/O View



## Dimensions



## Ordering Information

Model	Processor	RAM	Display	I/O Port	DIO	Audio	Expansion	Storage	Power Supply
BRAV-7201/S001	Intel I3-6100U/I3-7100U	2x DDR4 MAX 32GB	1x HDMI 1x DP	5x LAN 4x USB3.0 3x USB2.0 6x COM	8-bit TTL signal 16-bit Iso DIO	1x LINE OUT 1x MIC	1x Mini PCIe	1x mSATA 1x "2.5" driver bay	DC 9~30V
BRAV-7201/S002	Intel I5-6200U/I5-7200U								
BRAV-7201/S003	Intel I7-6500U/I7-7500U								
BRAV-7201/S004	Intel 3855U/3865U								
MLU220-M.2	Cambricon AI Accelerator module, M.2 2280 M+B key(PCIeX2), LPDDR4 4GB, 8TOPS(INT8)								
PA-60DC12	AC/DC power adaptor, DC12V@5A 60W								

# BRAV-7302

Intel® Skylake-S/Kabylake-S Core I3/I5/I7 CPU, 3/7\*LAN, 4/6\*USB3.0, MXM3.1 GPU, 6\*4K display, iVpro support, DC 6~48V wide power input.

## Key Specification

- CPU and GPU cooling fan, independent air duct design.
- Intel® Kabylake-S/Skylake-S Core I3/I5/I7 CPU
- 2\*DDR4 2400/2133MHz SODIMM RAM, max 32GB
- MXM3.1 NVIDIA/AMD GPU module
- Intel 1\*DP+1\*HDMI+1\*VGA, GPU 3\*DP+1\*HDMI
- 3/7\*LAN, 4/6\*USB3.0, 3\*USB2.0, 4\*COM,16\*DIO, Audio
- 2\*Mini PCIe(PCle+USB),1\*M.2 2242 B-Key
- 1\*mSATA, 1/2\*2.5" SATA3 drive bay, support RAID0,
- Support Intel iVpro and optional support TPM2.0 secure encryption
- DC 6~48V wide power input, short-circuit, overvoltage, overcurrent and undervoltage protection



## Product Overview

BRAV-7302 is a high-performance GPU box computer with dual independent air duct heat dissipation design for CPU and GPU. It is equipped with Intel®Skylake-S/Kabylake-S full series range power processors, CPU+GPU dual processors, high performance, multiple network ports, multiple displays and multiple IO functions, suitable for applications in video security, machine vision, intelligent AI and other industries.

## Product Parameters

### System

**CPU** Intel®Skylake-S / Intel®Kabylake-S Celeron/Pentium/Core I3/I5/I7 CPU, LGA 1151 socket, TDP35W/54W/65W/91W with active cooling fan

**RAM** 2\*260-Pin SODIMM, dual port DDR4 2400/2133MHz, max 32GB

**Expansion** 1\*full size Mini PCIeX1+USB with SIM slot, 1\*M.2 B-key with SATA3+USB with SIM slot, 1\*full size mSATA (SATA3+USB), 1\* half size Mini PCIe with PCIeX1 and USB, 1\*JHC-Express-02 EIO Express bus (PCIe,USB,LPC,SMBus,PS2)

**Graphics** Intel Gen. 9 HD Graphics, HEVC/H265 HW HD codec, Integrated graphics card DP/HDMI/VGA dual 4K, 1x MXM3.1 support NVIDIA Gforce GTX/AMD RX Series 120W pwr consumption GPU, 3\* DP & 1\* HDMI 4K

**Audio** Optional Support Realtek ALC662VD, Audio out and MIC

**LAN** 2/6\*Intel I210AT PCIe Gig. Ethernet, 10/100/1000Mbps self-adaptive, 1\*Intel I219LM support vPro tech

**Storage** 2\*2.5"HDD SATA3 shock absorber drive bay, support RAID0,1; 1\*mSATA full size; 1\*M.2 B-key

**DIO** 16-bit TTL programmable input/output;

3/7\*RJ45 Gig-LAN  
4/6\*USB3.0; 2\*USB2.0, 1\*USB2.0 internal  
16-bit DIO 2\*10-pin terminal;

**I/O Port** 2\*RS232/422/485 DB9 male connector, 2\*RS232 DB9 male connector  
1\*Audio-out and 1\*MIC 3.5 audio port  
Discrete GPU 3\*DP+1\*HDMI;  
CPU Integrated graphic card 1\*HDMI +1\*DP+1\*VGA;

**LED** 1\*Power LED indicator, 1\*HDD LED indicator, 3\*CPU TEMP grade LED indicator (Red as warning, Yellow as high temp, Green as norm temp)

**Control Switch** 1\*power button, 1\*reset switch; 1\*2pin socket terminal signal, 1\*AT/ATX switch

**Power Requirement** DC 6~48V input, 5-pin socket(front panel), Consumption: 144W (35W CPU+78W GPU)

**OS** Windows 7, Windows 10, Linux Fedora Ubuntu

**Watchdog Timer** Programmable timeout interruption period or system reset from 1 to 255 secs

### Mechanical

**Structure** Aluminum profile panel, SGCC chassis, Aluminum plate, on upper & rear panel

**Color** Black + Granite Grey

**Installation Method** Desktop Installation

**Dimension** (W\*H\*D):255\*222\*84.1mm

**Net weight** 4.62kg

### Environmental

**Operating temp** -25°C~50°C – 65W CPU+78W GPU  
-25°C ~40°C – 91W CPU+120W GPU

**Storage temp** -40°C~85°C

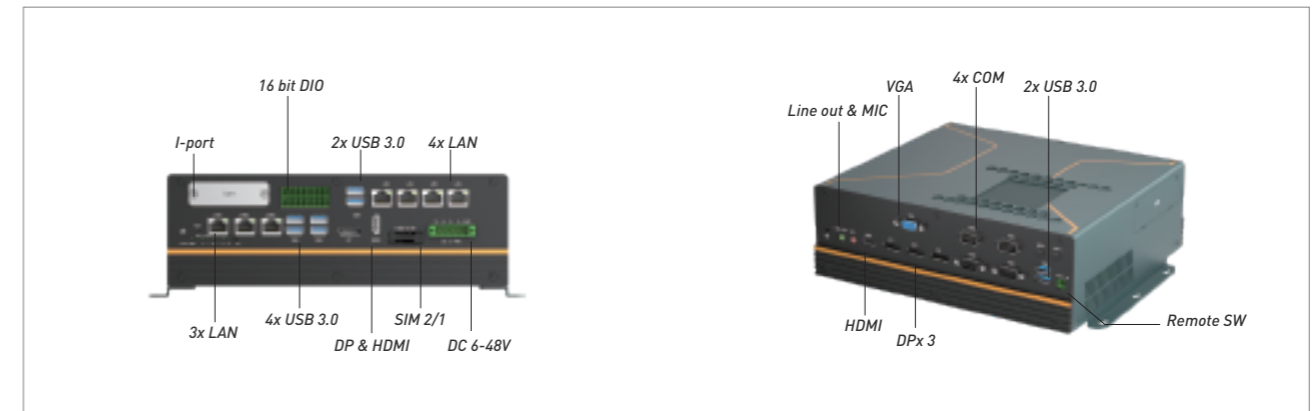
**Storage humidity** 10~90%@40°C, No-condensation

**Vibration** 5 grms/5~500Hz/random/during operation(SSD);  
1 grms/5~500Hz/random/during operation(HDD)

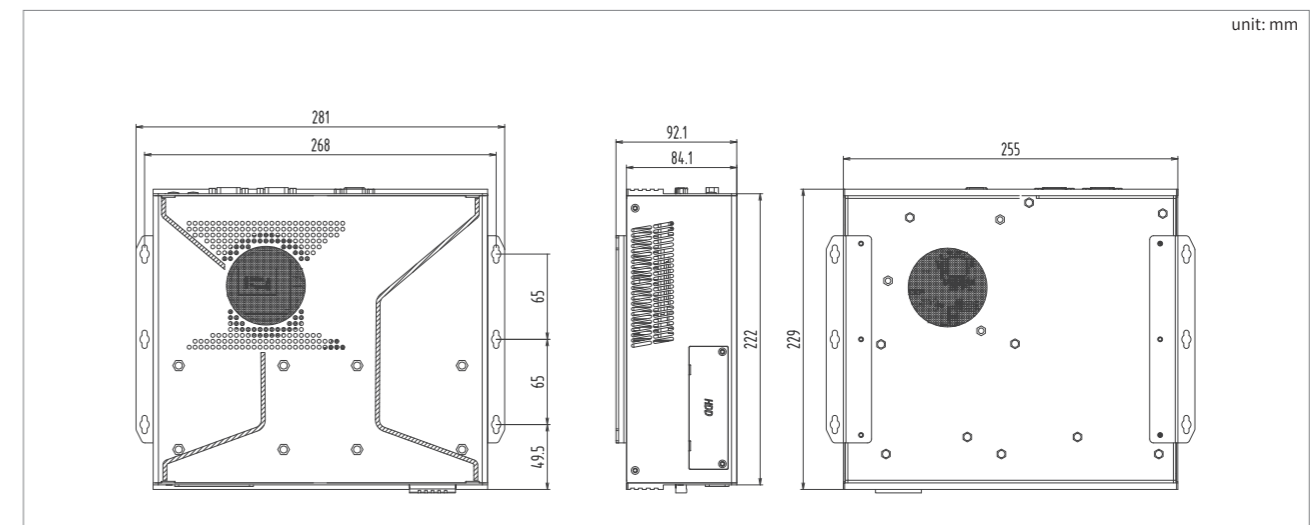
**Shock** 50g peak acceleration(duration;11ms)(SSD);  
20g peak acceleration(duration;11ms)(HDD)

**Certification /EMC** CE/FCC Class B

## I/O View



## Dimensions View



## Ordering Information

Model	Processor	RAM	Discrete graphics card	Integrated graphics card	I/O Port	DIO	Audio	Expansion	Storage	Power Supply
BRAV-7302/S001	Intel® Skylake-S/Kabylake-S LGA1151 CPU	2x DDR4 MAX 32GB	MXM 3.1 3x DP 1x HDMI	1x HDMI 1x DP 1x VGA	3x LAN/4x COM 4x USB3.0 3x USB2.0	16-bit TTL signal DIO	1x LINE OUT 1x MIC	2x Mini PCIe 1x M.2 B-Key	1x mSATA 2x"2.5"drive bay	DC 6~48V
BRAV-7302/S002	Intel® Skylake-S/Kabylake-S LGA1151 CPU				7x LAN/4x COM 6x USB3.0 3x USB2.0			1x Mini PCIe 1x M.2 B-Key	1x mSATA 1x"2.5"drive bay	
NVIDIA GT 1030-2G	MXM3.1 Type A, NVIDIA GT 1030,GDDR5 2GB,64bit,384 CUDA Cores, with cooler									
NVIDIA GTX 1050	MXM3.1 Type A, NVIDIA GTX 1050,GDDR5 2GB,128bit, 768 CUDA Cores, with cooler									
NVIDIA GTX 1050TI	MXM3.1 Type A, NVIDIA GTX 1050TI, GDDR5 4GB,128bit, 768 CUDA Cores, with cooler									
NVIDIA GTX 1060M	MXM3.1 Type B, NVIDIA GTX 1060M, GDDR5 6GB,192bit,1280 CUDA Cores, with cooler									
NVIDIA GTX 1070M	MXM3.1 Type B, NVIDIA GTX 1070M, GDDR5 8GB,256bit,2048 CUDA Cores, with cooler									
NVIDIA GTX 1650	MXM3.1 Type A, NVIDIA GTX 1650, GDDR5 4GB,128bit, 896 CUDA Cores, with cooler									
NVIDIA GTX 1660S	MXM3.1 Type B, NVIDIA GTX 1660S, GDDR6 6GB,192bit,1408 CUDA Cores, with cooler									
MLU220-MXM	MXM3.1 Type A, Cambricon MLU-220, LPDDR4 8GB, 64bit,16TOPS(INT8), with cooler									
PA-120DC19	AC/DC power adapter, DC19V/6.32A,120W									
PA-220DC24	AC/DC power adapter, DC24V@9.17A ,220W									
PA-300DC24	AC/DC power adapter, DC24V@12.5A ,300W									
NDR-480DC24	AC/DC power adapter, DC24V@20A ,90-264ACV/127-370DCV input, DC 24V output, 480W									

# BRAV-7501

Intel® Coffee Lake LGA1151 CPU, 3\*LAN, 4\*USB3.1, 1\*HDMI, 2\*DP, 3\*4K Displays, 4\*PCIe slots, 2/4\*SATA3, ATX 600W Power Supply.

## Key Specification

- Intel® Xeon®/ 8th/9th Gen Core™ i7/i5/i3 processor
- Intel® Q370/C246 Chipset
- 4\*DDR4 2400/2666MHz DIMM RAM, max 128GB
- support 2\*DP, 1\*HDMI, 3 independent displays
- 3\*LAN, 4\*USB3.1, 7\*USB2.0, 2\*COM, 8-bit DIO
- 1\*PCIeX16 or 2\*PCIeX8+2\*PCIeX4 expansions
- 1\*Mini PCIe, with SIM slot, support 4G/WIFI/GPS/GSM/BT
- 2/4\*SATA3, 1\*M.2 2280 M-Key, support NVMe
- Optional support TPM2.0 secure encryption, AMT12.0, Intel® iVpro tech
- ATX 600W Power supply



## Product Overview

BRAV-7501 is a high-performance Embedded Box Computer with expansions. It is equipped with Intel® Coffee Lake series processor, C246/Q370 chipset, workstation level performance. It is a complete equipment with rich expansion flexibility and industrial standard product design suitable for industrial automation, AI edge computing system, small intelligent workstations, multimedia service systems, visual control and so on

## Product Parameters

### System

<b>CPU</b>	Intel® C246/Intel® Q370 Chipset, Intel Xeon E-2124G/E-2176G, Core i3/i5/i7 CPU; Pentium G4930 / G5400
<b>RAM</b>	4*288-Pin DIMM, dual port DDR4 2666/2400MHz, max 128GB
<b>Expansion</b>	1*full size Mini PCIeX1+USB with SIM slot, 2*PCIe X16 slot (1*PCIe X16 or 2*PCIe X8) support up to NVIDIA 2080Ti series reference graphic card 2*PCIe X8 slot (Gen 3, 2*PCIeX4 signal)
<b>Graphics</b>	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 DP max res. 4096*2304@60Hz, HDMI max res. 3840*2160@30Hz, support 3 independent display
<b>Audio</b>	Optional Support Realtek ALC662VD audio, Audio out and MIC, support 5.1 audio track
<b>LAN</b>	2*Intel I210AT PCIe GbE, 10/100/1000Mbps self-adaptive; 1*Intel I219LM PCIe GbE, support iVpro tech
<b>Storage</b>	2*3.5" SATA3 (S001) / 4*2.5" SATA3 swappable hard disk bay, support Raid 0/1/5/10 (S002) 1*M.2 2280 M-key (PCIe X4), support NVMe storage
<b>DIO</b>	8-bit DIO, TTL signal, programmable input and output
<b>I/O Port</b>	3*RJ45 Gig-LAN; 2*DP+1*HDMI 4*USB3.1; 6*USB2.0; 1*USB2.0 (internal); 1*8-bit DIO (DB9), 2*RS232/422/485 (DB9); 1*Audio-out and 1*MIC (3.5 audio port);
<b>LED</b>	1*Power indicator, 4* HDD status indicator
<b>Control Switch</b>	1*Power SW

<b>Power Requirement</b>	24-pin ATX/8-pin ATX 12V, 600W power
<b>OS</b>	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)
<b>Watchdog Timer</b>	Programmable timeout interruption period or system reset from 1 to 255 secs

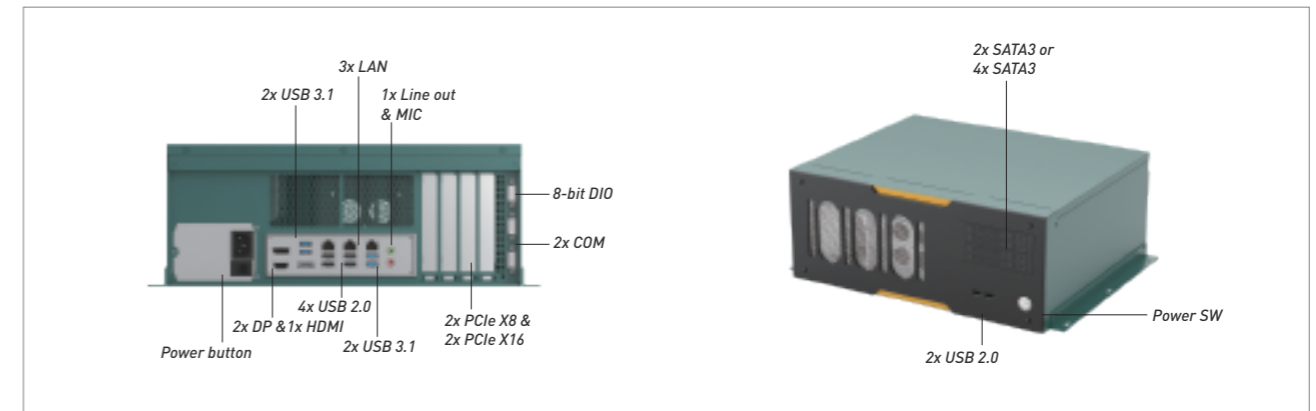
### Mechanical

<b>Structure</b>	Aluminum-magnesium alloy, SGCC coated box
<b>Color</b>	Black + Granite Grey
<b>Installation Method</b>	Desktop installation / wall mount installation
<b>Dimension</b>	(W*H*D): 150*309*375mm
<b>Net weight</b>	8.14kg

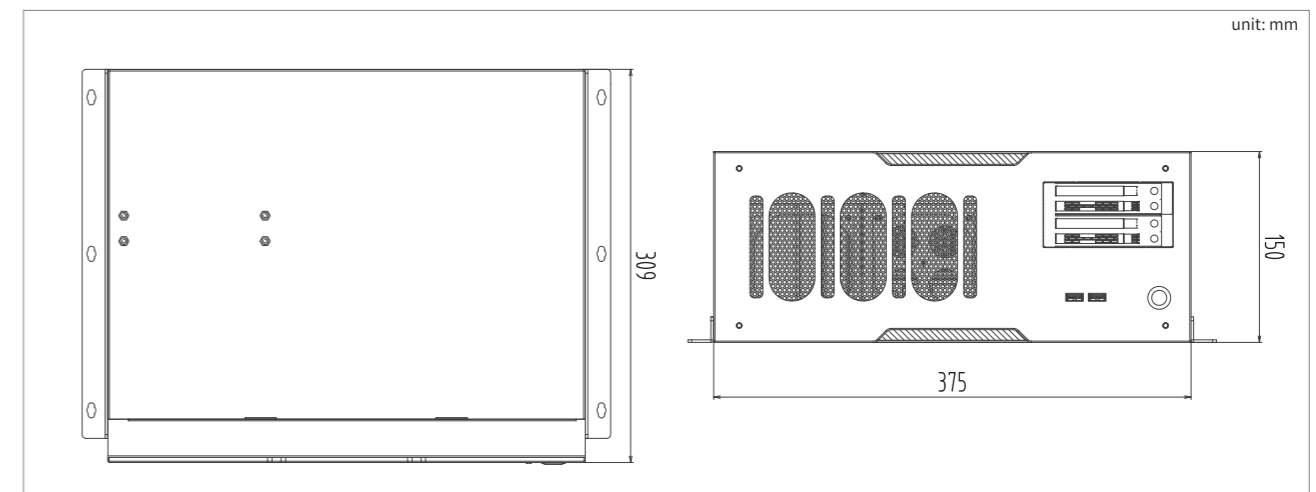
### Environmental

<b>Operating Temp</b>	-25°C~50°C, SSD, with air flow
<b>Storage Temp</b>	-40°C~85°C
<b>Storage Humidity</b>	10~90%@40°C, No-condensation
<b>Vibration</b>	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)
<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)
<b>Certification /EMC</b>	CE/FCC Class B

## I/O View



## Dimensions



## Ordering Information

Model	Processor	RAM	Display	I/O Port	DIO	Audio	Expansion	Storage	Power Supply
BRAV-7501/S001	Intel® Coffeelake LGA1151 CPU Q370 PCH	4x DDR4 MAX 128GB	1x HDMI 2x DP	3x LAN/2x COM 4x USB3.1 7x USB2.0	8-bit DIO	1x LINE OUT 1x MIC	1x Mini PCIe 1x PCIeX16 (or 2x PCIeX8) 2x PCIeX4	2x "3.5" SATA 1x M.2 2280 4x "2.5" SATA 1x M.2 2280	ATX 600W Power
BRAV-7501/S002	Intel® Coffeelake LGA1151 CPU C246 PCH								
Recommendedn Graphics card	Support up to NVIDIA 2080Ti reference graphics card series (for non reference graphics card, card length need to be less than 245mm)								

## CPU Support

Series	Intel® Xeon®		Intel® Core™			Intel® Pentium®		Intel® Celeron®		
	E-2278G	8C16T	I7-9700	8C8T	I7-9700T	8C8T	G5500	2C4T	G4950	2C2T
9th Gen	E-2224G	8C16T	I5-9500	6C6T	I5-9500T	6C6T				
			I3-9100	4C4T	I3-9100T	4C4T				
8th Gen	E-2176G	6C12T	I7-8700	6C12T	I7-8700T	6C12T	G5400	2C4T	G4930	2C2T
	E-2124G	4C4T	I5-8500	6C6T	I5-8500T	6C6T				

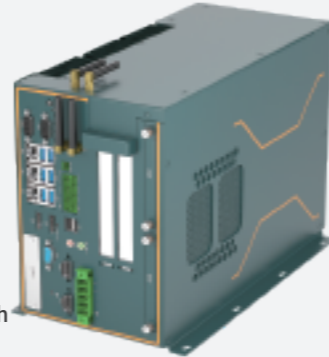


# BRAV-7520

Intel® Coffee Lake-R LGA1151 CPU, 3\*LAN,6\*USB3.1,1\*VGA,2\*DP,2\*4K Displays,2\*PCIe slots,2\* swappable SATA3, max support 350W GPU.

## Key Specification

- Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 processor
- Intel® Q370/C246 Chipset
- Large RAM volume 4\*DDR4 up to 128G ECC/non-ECC
- UHD Dual 4K, 3 independent displays 2\*DP, 1\*VGA
- 3\*Gig-LAN(support iATM) , optional multi channel 10 Gig-SFP
- Multi PCIe standard slots, support multiple high-speed extension modules
- Super storage capacity, 2\*SATA3.0, 1\*M.2 2280 M-Key, support NVMe
- Optional Support TPM2.0 secure encryption,support iAMT12.0, Intel® iVpro tech
- Fanless CPU, AI/GPU modules with efficient air cooling heat dissipation design
- Powerful deep learning ability, support 350W GPU /75W PGPU/AI accelerator card



## Product Overview

BRAV-7520 is a workstation-level edge computing system, equipped with Intel® Coffee Lake-R series processors, C246/Q370 chipset, powerful system performance, complete features, and rich expansion flexibility, industrial control grade product design, a best fit for industrial automation, AI edge computing, small smart workstations, multimedia service systems, high-precision machine vision and other industries.

## Product Parameters

### System

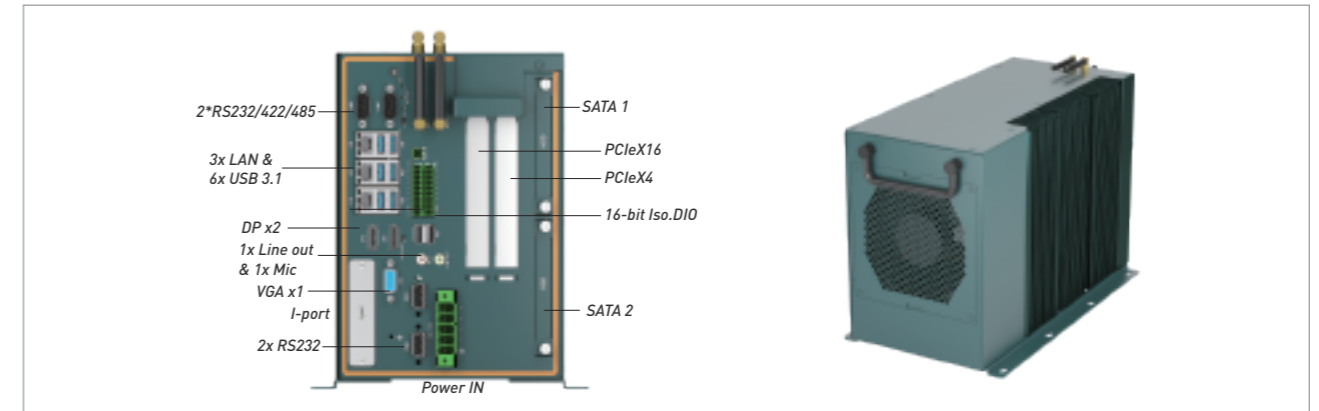
<b>CPU</b>	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, chipset Intel® Q370(7520-S001)/ Intel® C246(7520-S002) max 8C16T
<b>RAM</b>	4*260-Pin SODIMM, dual channel DDR4 2666/2400MHz, max support 128GB 1*Mini PCIe with SIM slot; 1*M.2 E-Key support WiFi6/BT5.0
<b>Expansion</b>	1*M.2 B-Key, with SIM slot support 5G; 1*M.2 M-Key(PCIe3.0X4); 1*PCIeX16,max support 350W graphics card (length<300mm); 1*PCIe X4 (in X16 slot), max support 75W AI accelerator card (length<300mm)
<b>Graphics</b>	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 / 2.1 or PCIe X16, DP max res. 4096*2304@60Hz, VGA max res.1900*1200@60Hz, support 3 independent displays
<b>Audio</b>	optional support Realtek ALC662VD audio, Audio out& MIC, support 5.1 audio track
<b>LAN</b>	2*Intel I210AT PCIe GbE, 10/100/1000Mbps self adaptive; 1*Intel I219LM PCIe GbE, support iVpro tech
<b>Storage</b>	2*2.5" SATA3 swappable hard disk bay, support RAID0/1 1*M.2 2280 M-key(PCIe X4), support NVMe storage
<b>DIO</b>	16-bit Iso DIO,8-bit 2.5KV input (H:5-24V, L:0-1.5V), 8-bit 2.5KV output(200mA)
<b>I/O Port</b>	3*RJ45 Gig-LAN; 6*USB3.1; 2*USB2.0 16-bit Iso DIO, 2*RS232/422/485 , 2*RS232 1*Audio-out & 1*MIC; 1*VGA+2*DP
<b>LED</b>	1*Power indicator , 1* HDD status indicator
<b>Control Switch</b>	1*Power SW, 1*AT/ATX SW, 1*Clear CMOS SW

<b>Power Requirement</b>	DC 12V 5-pin Term. Consumption: 324W (I7-8700 CPU 32GB DDR4 single 2080TI)
<b>OS</b>	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)
<b>Watchdog Timer</b>	Programmable timeout interruption or system reset from 1 to 255 secs
<b>Mechanical</b>	
<b>Structure</b>	Aluminum heat dissipation case, SGCC box
<b>Color</b>	Black + Granite Grey
<b>Installation Method</b>	Desktop Installation
<b>Dimension</b>	(W*H*D) :230*350*160mm
<b>Net weight</b>	7.5kg

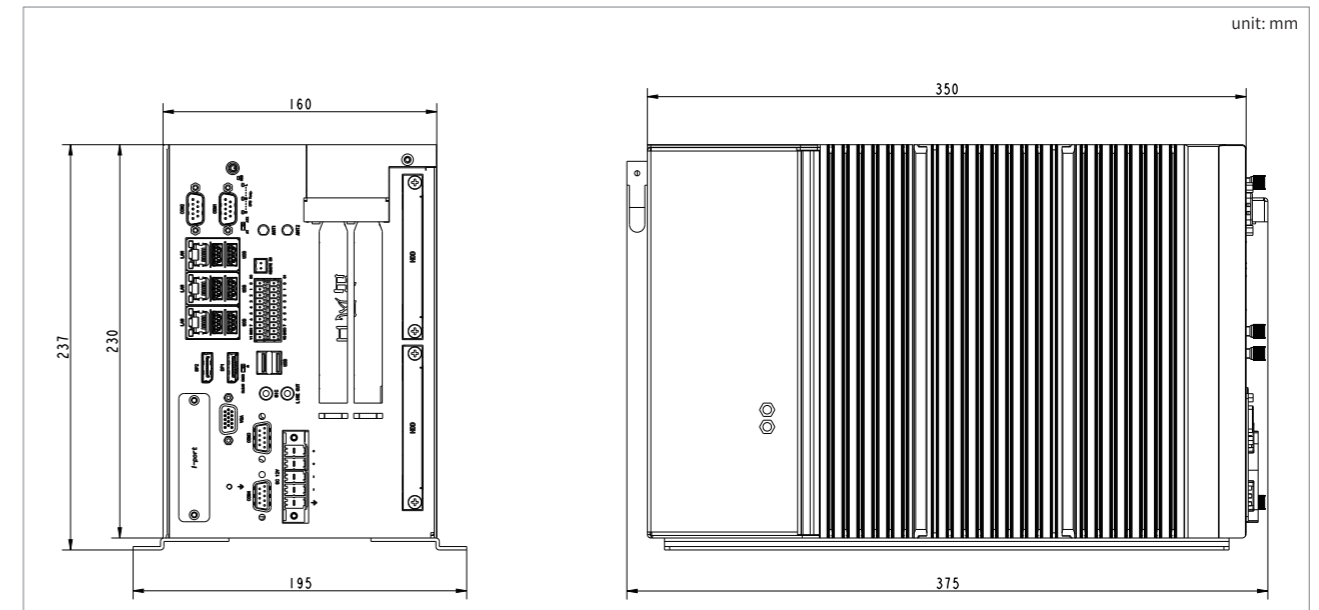
### Environmental

<b>Operating temp</b>	-25°C~60°C , with air flow
<b>Storage temp</b>	-40°C~85°C
<b>Storage humidity</b>	10~90%@40°C, No-condensation
<b>Vibration</b>	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)
<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)
<b>Certification /EMC</b>	CE/FCC Class B

## I/O View



## Dimension



## Ordering Information

Model	Processor	RAM	Display	I/O Port	DIO	Audio	Expansion	Storage	Power Supply
BRAV-7520/S001	Intel® Coffeelake-R LGA1151 CPU Q370 PCH	4x DDR4	1x VGA	3x LAN/4x COM 6x USB3.1 2x USB2.0	16-bit Iso DIO	1x LINE OUT 1x MIC	1x Mini PCIe 1x M.2 E-Key 1x M.2 B-Key 1x PCIeX16; 1x PCIeX4	2x "2.5" SATA 1x M.2 2280 M-Key	DC12V
BRAV-7520/S002	Intel® Coffeelake-R LGA1151 CPU C246 PCH	MAX 128GB	2x DP						
Recomd graphics card /AI accelerator card	max support 350W GPU or 75W AI accelerator card (card length < 300mm)								
UHP-500DC12	AC/DC power switch, DC12V@41.7A ,90-264V AC input, DC 12V output, fanless, wide temp, 500W								
SE-600DC12	AC/DC power switch, DC12V@50A ,180-264V AC input, DC 12V output, 600W								

## CPU Support

Series	Intel® Xeon®		Intel® Core™			Intel® Pentium®		Intel® Celeron®		
9th Gen	E-2278G	8C16T	I7-9700	8C8T	I7-9700T	8C8T	G5500	2C4T	G4950	2C2T
	E-2224G	8C16T	I5-9500	6C6T	I5-9500T	6C6T				
			I3-9100	4C4T	I3-9100T	4C4T				
8th Gen	E-2176G	6C12T	I7-8700	6C12T	I7-8700T	6C12T	G5400	2C4T	G4930	2C2T
	E-2124G	4C4T	I5-8500	6C6T	I5-8500T	6C6T				
			I3-8100	4C4T	I3-8100T	4C4T				

# BRAV-7521

Intel® Coffee Lake-R LGA1151 CPU, 3\*LAN, 6\*USB3.1, 1\*VGA, 2\*DP, 2\*4K Displays, 4\*PCIe slots, 4\*SATA3, max support 2\*350W GPU.

## Key Specification

- Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 processor
- Intel® Q370/C246 Chipset
- Large memory volume 4\*DDR4 up to 128G ECC/non-ECC
- UHD dual 4K, 3 independent displays, 2\*DP, 1\*VGA
- 3\*Gig-LAN(support iATM) , optional multi channel 10 Gig-SFP
- multi PCIe Standard slot, supports multiple high - speed extension modules
- Super storage capacity 4\*SATA3.0, 1\*M.2 2280 M-Key, support NVMe
- Optional support TPM2.0 secure encryption,support iAMT12.0, Intel® iVpro tech
- Fanless CPU, AI/GPU modules efficient air cooling heat dissipation design
- Powerful deep learning ability, support 350W GPU /75W PGPU/AI accelerator card



## Product Overview

BRAV-7521 is a workstation-level edge computing system, equipped with Intel® Coffee Lake-R series processors and C246/Q370 chipset. It has a very powerful system performance with complete features including rich expansion flexibility, is an industrial grade product design which is the best fit for industrial automation, AI edge computing, small smart workstations, multimedia service systems, high-precision machine vision and other industries.

## Product Parameters

### System

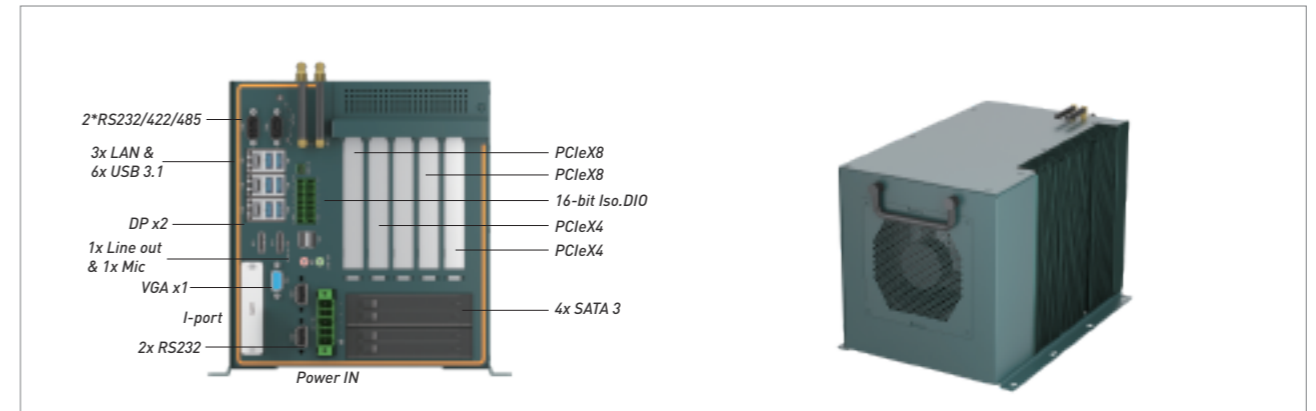
<b>Processor</b>	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, Chipset: Intel® Q370(7521-S001) /Intel® C246(7521-S002) max 8C16T
<b>RAM</b>	4*260-Pin SODIMM, dual port DDR4 2666/2400MHz,max support 128GB
<b>Expansion</b>	1*Mini PCIe with SIM slot; 1*M.2 E-Key support WiFi6/BT5.0 1*M.2 B-Key , with SIM slot, support 5G; 1*M.2 M-Key(PCIe3.0X4); 2*PCIeX8(in X16 slot)max support 2*350W graphics card(length <300mm) 2*PCIe X4 (in X16 slot), max support 2*75W AI accelerator card (card length <300mm)
<b>Graphics</b>	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 / 2.1 or PCIe X16, DP: 4096*2304@60Hz, VGA: 1900*1200@60Hz, support 3 independent displays
<b>Audio</b>	optional support Realtek ALC662VD audio, Audio out & MIC, support5.1audio
<b>LAN</b>	2*Intel I210AT PCIe GbE, 10/100/1000Mbps self-adaptive; 1*Intel I219LM PCIe GbE, support iVpro tech
<b>Storage</b>	4*2.5" SATA3 swappable hard disk bay, support RAID0/1/5/10 1*M.2 2280 M-key(PCIe X4), support NVMe storage
<b>DIO</b>	16-bit Iso DIO,8位2.5KV input (H:5-24V, L:0-1.5V), 8-bit 2.5KV output(200mA)
<b>I/O Port</b>	3*RJ45 Gig-LAN; 6*USB3.1; 2*USB2.0; 2*DP+1*VGA 16-bit Iso DIO; 2*RS232/422/485; 2*RS232; 1*Audio-out & 1*MIC
<b>LED</b>	1*Power indicator, 5*HDD status indicator
<b>Control Switch</b>	1*Power SW, 1*AT/ATX SW, 1*Clear CMOS SW

<b>Power Requirement</b>	DC 12V 5-pin Term. Consumption: 564W (I7-8700 CPU 32GB DDR4, dual 2080TI)
<b>OS</b>	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)
<b>Watchdog timer</b>	Programmable timeout interruption or system reset from 1 to 255 secs
<b>Mechanical</b>	
<b>Structure</b>	Aluminum-magnesium alloy, SGCC box
<b>Color</b>	Black + Granite Grey
<b>Installation Method</b>	Desktop Installation
<b>Dimension</b>	(W*H*D):230*350*210mm
<b>Net weight</b>	8.3kg

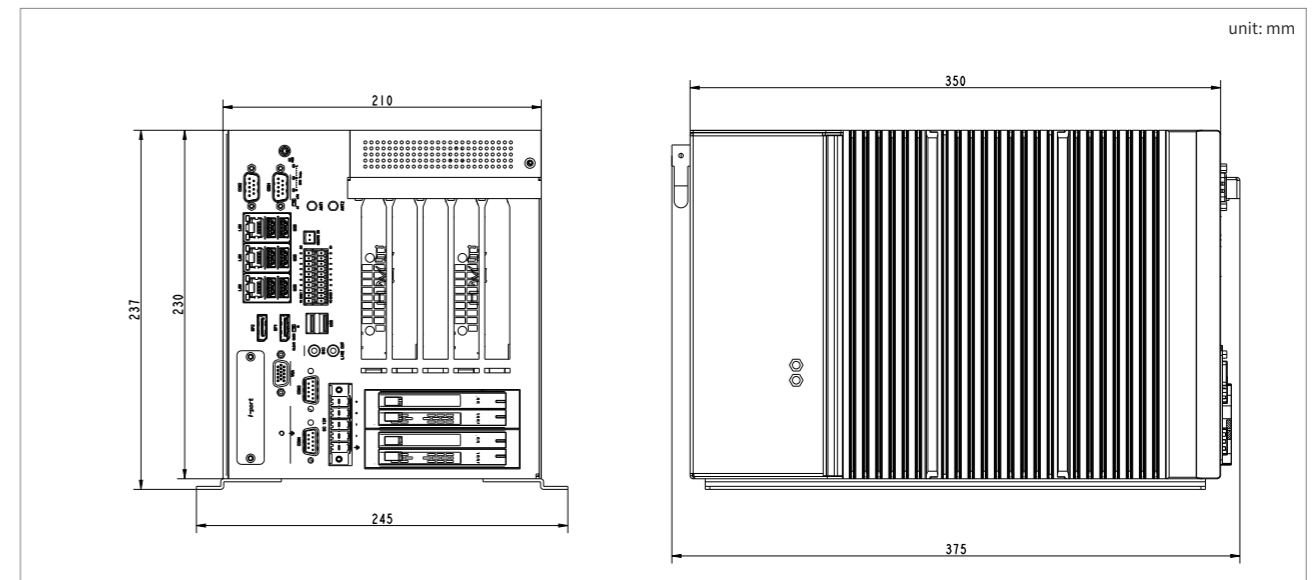
### Environmental

<b>Operating temp</b>	-25°C~60°C , with air flow
<b>Storage temp</b>	-40°C~85°C
<b>Storage Humidity</b>	10~90%@40°C, No-condensation
<b>Vibration</b>	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz//random/during operation(HDD)
<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)
<b>Certification /EMC</b>	CE/FCC Class B

## I/O view



## Dimensions



## Ordering Information

Model	Processor	RAM	Display	I/O Port	DIO	Audio	Expansion	Storage	Power Supply
BRAV-7521/S001	Intel® Coffeelake-R LGA1151 CPU Q370 PCH	4x DDR4	1x VGA	3x LAN/4x COM 6x USB3.1	16-bit Iso DIO	1x LINE OUT 1x MIC	1x Mini PCIe 1x M.2 E-Key 1x M.2 B-Key 2x PCIeX8; 2x PCIeX4	4x "2.5" SATA 1x M.2 2280 M Key	DC12V
BRAV-7521/S002	Intel® Coffeelake-R LGA1151 CPU C246 PCH	MAX 128GB	2x DP	2x USB2.0					
Suggested graphics card / AI accelerator card	max support 2*350W GPU 2*75W AI accelerator card (graphics card/AI accelerator card length <300mm)								
SE-1000DC12	AC/DC power switch , DC12V@83.3A ,180-264V AC input, DC 12V output, 1000W								

## CPU Support

Series	Intel® Xeon®		Intel® Core™			Intel® Pentium®		Intel® Celeron®		
	E-2278G	8C16T	I7-9700	8C8T	I7-9700T	8C8T	G5500	2C4T	G4950	2C2T
9th Gen	E-2224G	8C16T	I5-9500	6C6T	I5-9500T	6C6T				
			I3-9100	4C4T	I3-9100T	4C4T				
	E-2176G	6C12T	I7-8700	6C12T	I7-8700T	6C12T	G5400	2C4T	G4930	2C2T
8th Gen	E-2124G	4C4T	I5-8500	6C6T	I5-8500T	6C6T				

# BRAV-7601-S

Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU, 7\*LAN, 8\*USB, 2\*COM, 3\*M.2, 8+16 bit DIO

## Key Specification

- Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU
- Aluminum chassis, two temperature controlled fan
- 3\*2.5G-LAN+4\*Gig-LAN with POE function
- VGA+2\*HDMI, 3 independent display, 2\*DP GPU display
- 3\*M.2 support Gig+WiFi6, 4G LTE, 5G NR module
- 1\*MXM3.1 (PCIeX16 signal), support MXM GPU modules and AI accelerators with power consumption lower than 190W
- DC9~36V wide power input



## Product Overview

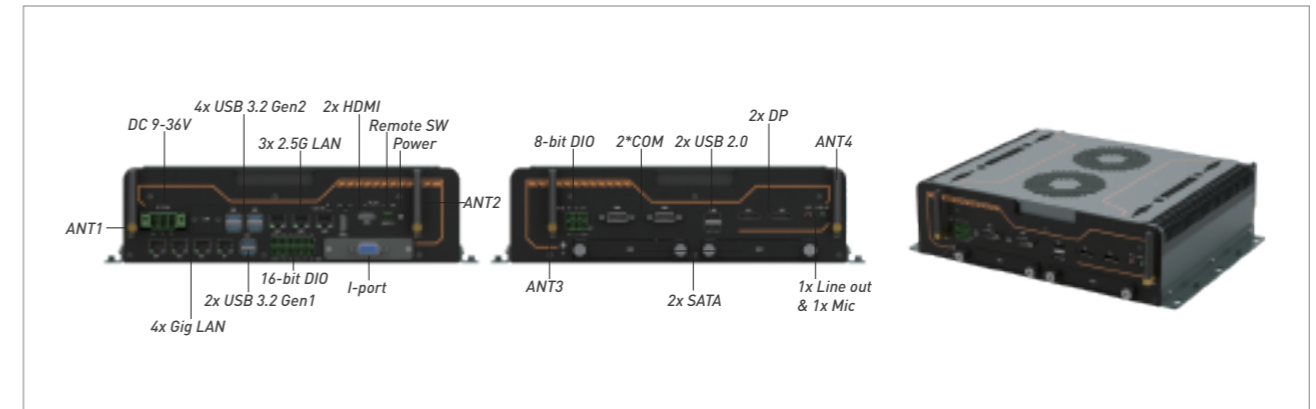
BRAV-7601-S is a high-performance Edge AI computing system, powered by Intel® Comet lake 10th-Gen CPU. CPU+GPU, multiple LAN & display, rich IO function, DC9-36V wide voltage power supply. It is suitable for C-V2X, special vehicle, smart security, high-precision machine vision, medical imaging and other fields.

## Product Parameters

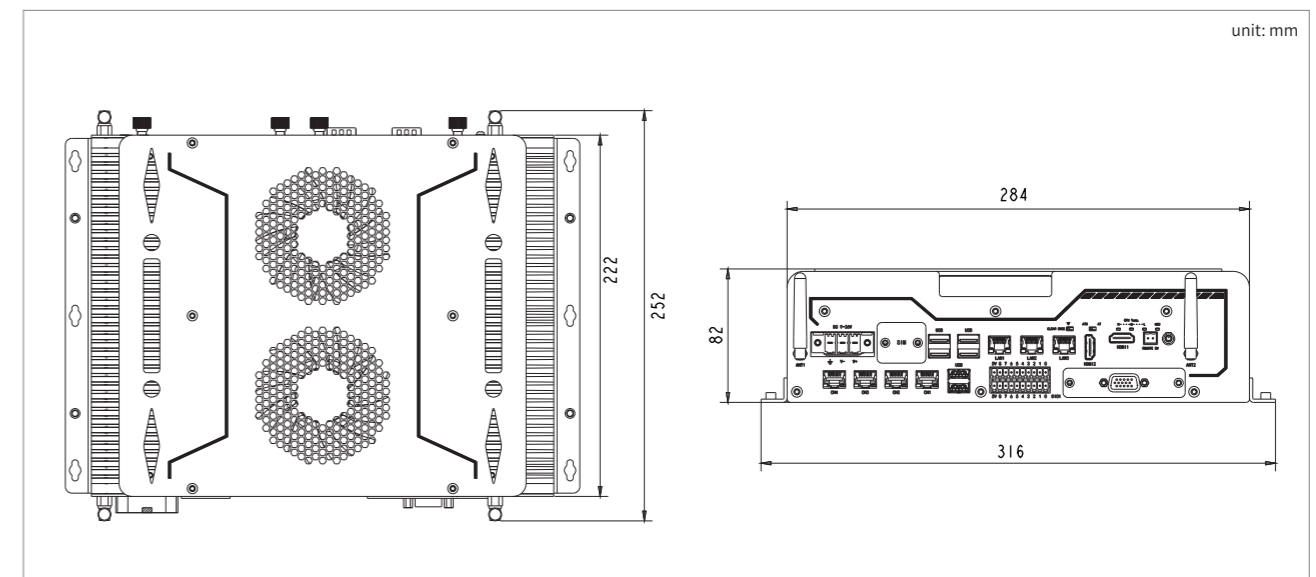
### System

<b>CPU</b>	Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU; Intel® Q470 PCH	<b>Power Requirement</b>	DC 9-36V 3-pin, wide power input, with short circuit protection, over voltage& over current protection, max output power: 350W
<b>RAM</b>	2*DDR4 SO-DIMM slot, support 2933MHz, up to 64GB 1*Mini-PCIe,PCIeX1/SATA3, USB2.0+SIM, support mSATA or 4G LTE;	<b>OS</b>	Windows 10 IoT Enterprise (64-bit), Windows Server 2019, Ubuntu, SUSE, Redhat Enterprise, Wind River Linux, Yocto Project (64-bit), Wind River VxWorks 7
<b>Expansion</b>	1*M.2 Type 2230 E-key,PCIeX1,USB2.0 & CNVio, support WiFi6 & BT5.0; 1*M.2 Type 3052 B-key, PCIeX1, USB2.0+SIM, support 5G/4G; 1*M.2 Type 2280 M-Key(PCIex4 signal), support NVMe, or PCIe;	<b>Watchdog Timer</b>	Watchdog timeout programmable via software 1 to 255 second
<b>Display</b>	Intel® UHD Graphics, support DirectX 12, openGL 4.5, 2*HDMI 1.4, :4096 x 2304@24Hz; 1*VGA: 1920*1200@60Hz; 1*MXM3.1, up to 190W, support GPU/AI accelerator, 2*DP, 4K display	<b>Mechanical</b>	
<b>Audio</b>	1*Line out+1*MIC(optional),support 5.1 channel	<b>Structure</b>	Temperature controlled fan, SGCC
<b>LAN</b>	2*Intel I225V+1*I225 LM, 3*2.5G-LAN, support iAMT 13.0, (Core I5/I7 CPU support Intel vPro) 4*Intel I210AT, with POE, 10/100/1000Mbps, PCIe 3.0 X1 bandwidth	<b>Color</b>	Black+Granite gray
<b>Storage</b>	2*2.5"HDD SATA3(RAID0,1), max support dual 15mm HDD, 6.0Gbps; 1*M.2 Type 2280 M-Key(PCIex4 signal), support NVMe; 1*mSATA(optional)	<b>Mounting</b>	Desktop mounting
<b>DIO</b>	8bit TTL signal, programmable input & output; 8+16 bit TTL signal, programmable input & output (S002)	<b>Dimension</b>	(L*W*H):284*222*82mm
<b>I/O Port</b>	3*2.5G-LAN, 4*POE(S002), 4*USB3.2 Gen2(10Gbps), 2*USB3.2 Gen1(S002), 2*USB2.0, 1*USB2.0 DB pin header, 1*USB2.0 typeA (built-in), 2*SIM slot 2*RS232/422/485, (DB9), 2*RS232(built-in)	<b>Net weight</b>	6.70kg
<b>LED</b>	1*HDD LED, 3*CPU Temp LED(Red: warning, Yellow: high temp, Green:normal)	<b>Environmental</b>	
<b>Control switch</b>	1* Power, 1*2-pin SW, 1*F-panel, 1*AT-ATX, 1*Clear CMOS	<b>Operating temp</b>	-20°C~60°C, airflow
		<b>Storage temp</b>	-40°C~85°C
		<b>Storage humidity</b>	10~90%@40°C, No-condensation
		<b>Vibration</b>	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz//random/during operation(HDD)
		<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)
		<b>Certificates/EMC</b>	CE/FCC Class B

## I/O view



## Dimensions



## Ordering Information

Model	Specifications
BRAV-7601/S001	3*2.5G LAN,8bit DIO
BRAV-7601/S002	3*2.5G LAN, 4* POE 8+16bit DIO, 2*USB3.2 Gen1
MXM3.1 GPU	MLU220-MXM, NVIDIA GTX 16 Series/RTX 30 Series mobile MXM GPU
PA-220DC24	AC/DC power adapter, DC24V@9.17A ,220W
PA-300DC24	AC/DC power adapter, DC24V@12.5A ,300W

# BRAV-7601-T

Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU, 7\*LAN, 8\*USB, 2\*COM, 3\*M.2, 8+16 bit DIO

## Key Specification

- Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU
- Aluminum chassis, fanless,
- 3\*2.5G-LAN+4\*Gig-LAN with POE function
- VGA+2\*HDMI, 3 independent display
- 3\*M.2 support Gig+WiFi6, 4G LTE, 5G NR
- 1\*MXM3.1, support MLU220-MXM AI accelerator
- DC9~36V wide power input, with short circuit, over voltage and over current protection



## Product Overview

BRAV-7601-T is a high performance fan-less AI Edge computing system, powered by Intel® Comet lake CPU. It supports Cambricon MLU220 acceleration module, multi-network port, multi-display, rich I/O function, DC9-36V wide power input, which makes it very suitable for C-V2X, Special vehicle mounted, high-precision machine vision, medical imaging and other applications.

## Product Parameters

### System

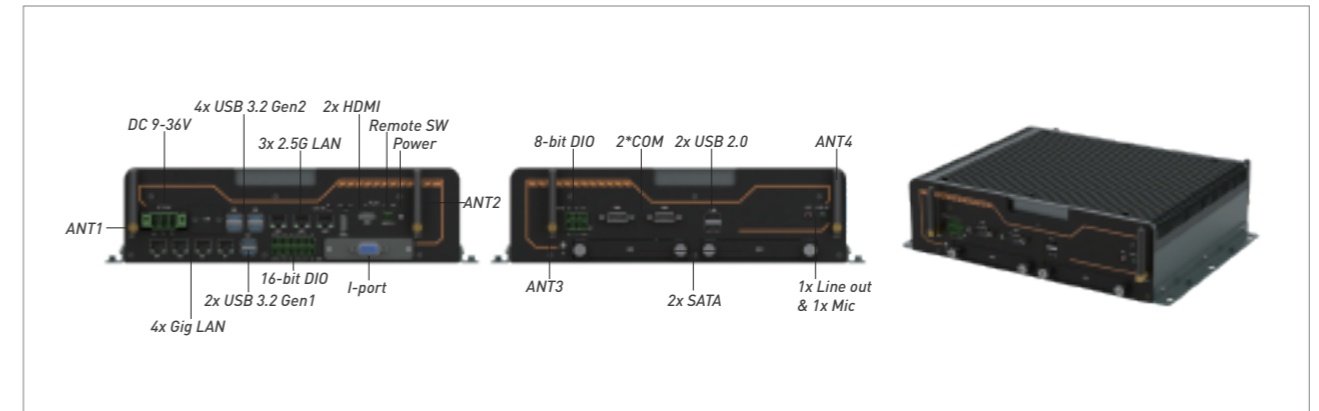
<b>CPU</b>	Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU; Intel® Q470 PCH
<b>RAM</b>	2*DDR4 SO-DIMM slot, support 2933MHz, up to 64GB
<b>Expansion</b>	1*Mini-PCIe,PCIeX1/SATA3, USB2.0+SIM, support mSATA or 4G LTE; 1*M.2 Type 2230 E-key,PCIeX1, USB2.0 & CNVio, support WiFi6/BT5.0; 1*M.2 Type 3052 B-key, PCIeX1, USB2.0+SIM, support 5G/4G; 1*M.2 Type 2280 M-Key(PCIex4 signal), support NVMe, or PCIe; 1*MXM3.1, PCIeX16,support MLU220-MXM; JHCTECH-02 E/IO: 2*PCIeX4, 2*USB3.2, 2*USB2.0, 160pin
<b>Display</b>	Intel® UHD Graphics, support DirectX 12, OpenGL 4.5, 2*HDMI 1.4, : 4096 x 2304@24Hz, 1*VGA: 1920*1200@60Hz
<b>Audio</b>	1*Line out+1*MIC(Optional), support 5.1 channel
<b>LAN</b>	2*Intel I25V+1*I225 LM, 3*2.5G-LAN, support iAMT 13.0, Core I5/I7 CPU support Intel vPro 4*Intel I210AT, with POE, 10/100/1000Mbps,PCIe 3.0 X1 bandwidth
<b>Storage</b>	2*2.5"HDD SATA3(support RAID0,1), max support 15mm HDD, 6.0Gbps; 1*M.2 Type 2280 M-Key(PCIex4 signal), support NVMe; optional 1*mSATA
<b>DIO</b>	8bit TTLsignal, programmable input and output; 8+16 bit TTL signal, programmable input and output(T002)
<b>I/O Port</b>	3*2.5G-LAN; 4*POE(T002), 4*USB3.2 Gen2(10Gbps), 2*USB3.2 Gen1(T002), 2*USB2.0, 2*SIM slot 2*RS232/422/485, (DB9), 2*RS232(built-in)
<b>LED</b>	1*HDD LED, 3*CPU Temp LED (Red: warning, Yellow: high temp, Green: normal)
<b>Control switch</b>	1* Power, 1*2-pin SW, 1*F-panel, 1*AT-ATX, 1*Clear CMOS

<b>Power Requirement</b>	DC 9-36V 3-pin,wide power input, with short circuit protection, over voltage & over current protection, max output power: 350W
<b>OS</b>	Windows 10 IoT Enterprise (64-bit), Windows Server 2019, Ubuntu, SUSE, Redhat Enterprise, Wind River Linux, Yocto Project (64-bit), Wind River VxWorks 7
<b>Watchdog Timer</b>	Watchdog timeout programmable via software 1 to 255 second
<b>Mechanical</b>	
<b>Structure</b>	Aluminum chassis, SGCC
<b>Color</b>	Black+Granite gray
<b>Mounting</b>	Desktop mounting
<b>Dimension (L*W*H):</b>	284*222*80.5mm
<b>Net weight</b>	6.40kg

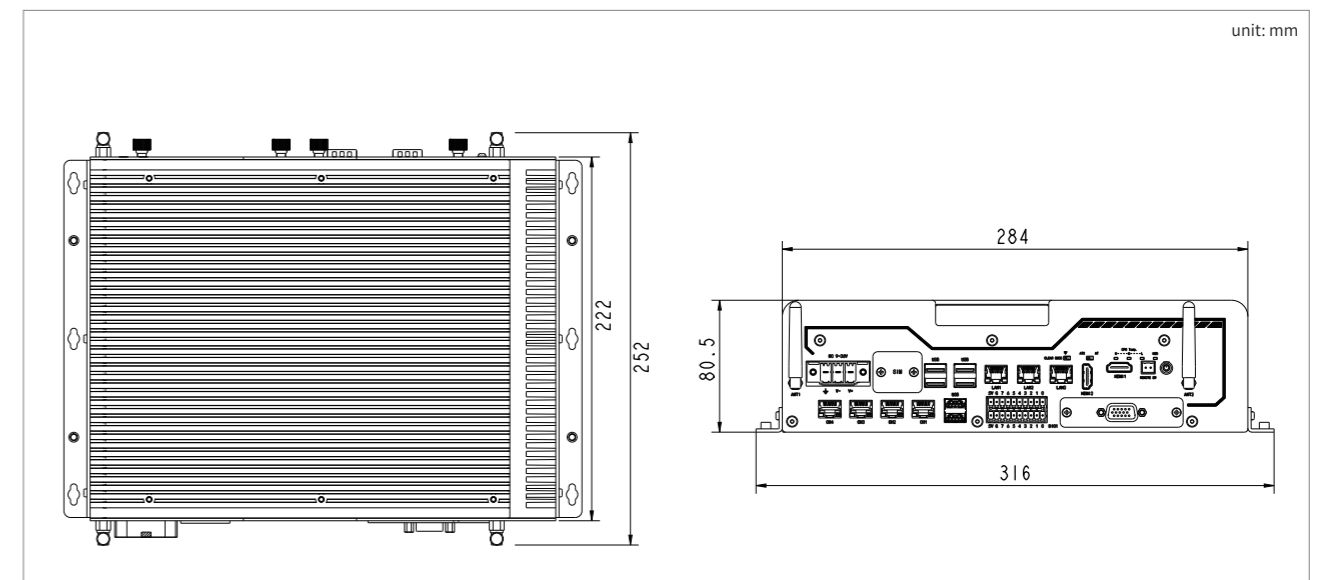
### Environmental

<b>Operating Temp</b>	-20°C~60°C, airflow
<b>Storage Temp</b>	-40°C~85°C
<b>Storage Humidity</b>	10~90%@40°C, No condensation
<b>Vibration</b>	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz//random/during operation(HDD)
<b>Shock</b>	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)
<b>Certificates/EMC</b>	CE/FCC Class B

## I/O view



## Dimensions



## Ordering Information

Model	Specifications		
BRAV-7601/T001	Fanless AI Edge Computing System	3*2.5G LAN,8bit DIO	Intel Q470 PCH, +Intel CML LGA1200 CPU, 1*MXM 3.1, 4*USB3.2 Gen2, 2*USB2.0, 2*COM, 1*Mini PCIe, 1*M.2 E-Key, 1*M.2 B-Key, 2*HDMI, 1*VGA, 1*MIC & 1*Audio-out(optional), 1*mSATA(optional), 1*M.2 M-Key, 2*2.5"SATA bay, 1*I-Port, DC 9~36V
BRAV-7601/T002		3*2.5G LAN, 4* POE 8+16bit DIO, 2*USB3.2 Gen1	
MXM3.1 GPU	Cambricon MLU220-MXM		
PA-120DC19	AC/DC power adapter, DC19V/6.32A,120W		
PA-220DC24	AC/DC power adapter, DC24V@9.17A ,220W		