

JHCTECH 集和诚

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JHCTECH IoT Computer
Connecting the Dots

AI Edge Computing System

AI

集和诚科技于2002年4月在深圳成立，是一家集研发，生产，销售和服务于一体的智能物联系统供应商。自创立以来，依托丰富的行业经验和强大的科研背景，践行“场景赋能产品创新”的战略方针，持续专注于AI边缘计算及系统应用平台的研发与生产，实现“物联机 联万物”的智慧时代。其多元化的产品和服务包括AI边缘计算、边缘控制器、无风扇车载电脑、工业平板电脑、嵌入式箱体电脑、国产化无风扇箱体电脑、工业控制计算机、单板计算机等，以及专注于行业应用和人工智能增值服务的定制解决方案，赋能各行各业的数字化转型。产品已通过3C、CE、FCC、E-Mark、EN50155等安全法规和行业认证，广泛应用于智能交通、数字化工厂、车路云一体化、人形机器人、低空经济、新能源和医疗等多个领域。

企业文化

战略目标:场景赋能产品创新

经营理念:专注行业、精于产品、优于服务

战略口号:物联机联万物

核心价值观:诚信、感恩、负责任

企业精神:以用户为中心，坚韧不拔，奉献，学习，创新，协同，包容，利他，向善

企业使命:致力于建设一个更智慧的地球和一个更智能化的明天;帮助改善每个人进步及长期发展,对世界的贡献

企业愿景:宁失利,勿失信。成为守诚信,重品质,敢担当,谋共赢的智能物联生态商业文明之典范

八大价值观

价值:借助技术创新为用户创造最大价值;

奋斗:坚持长期主义,努力奋斗,享受工作的快乐;

精神:任何方法论以核心价值观及企业精神衡量;

学习:学习力就是生命力,一切结果归根结底都是能力的体现;

团队:赋能个人成长,激活组织创造力,共建相互成就型组织;

行动:成功的标准是达成目标,效率和行动是关键;

情感:重情重义,不讲平均主义,反对机会主义;

竹林效应:

一根竹子，如果它没有生在竹林里，而是孤立的，那就没有强大而发达的根系。但当竹子生长在竹林里时，它就像互相协调的生态系统。他们的根系交织在一起，一边不断向外延伸，一边为新的竹笋快速成长提供丰富的能量。我们以利他，向善的企业文化价值取向与用户共创价值。我们以用户为中心，依托经营的意志力及组织生长力形成竹林效应。将使命，愿景和价值观传递到产品及服务中，为用户创造价值。



About JHCTECH

JHCTECH, established in 2002, is an intelligent IoT system supplier with extensive capabilities in research and development, production, sales, and service. With over two decades of experience in the industry and a strong scientific research background, JHCTECH is committed to a strategic approach of "Scenario Empowering Product Innovation". Continuously focusing on developing AI edge computing and system application platforms to usher in the intelligent era of "IoT computer connecting the dots."

JHCTECH offers a diverse range of products and services, including AI edge computing, edge controllers, fanless in-vehicle computers, industrial panel PCs, embedded box computers, domestically produced fanless box computers, industrial control computers, single-board computers, and customized solutions focused on industrial applications and AI value-added services, empowering digital transformation across all industries. These products have passed safety regulations and industry certifications such as 3C, CE, FCC, E-Mark, and EN50155, and are widely used in intelligent transportation, digital factories, vehicle-road-cloud integration, humanoid robots, low-altitude economy, new energy, medical, and other fields.

Corporate Culture

Brand Strategy: Scenario Empowering Product Innovation

Business Philosophy: Focus on the industry, specialize in products, and excel in services

Strategic Slogan: IoT Computer, Connecting the Dots

Core Values: Integrity, gratitude, and responsibility

Corporate Spirit: Customer-centric, tenacious, dedicated, learning, innovative, collaborative, inclusive, altruistic, and virtuous.

Corporate Mission: Committed to building a smarter earth and a more intelligent tomorrow, helping to improve everyone's progress and long-term development, and contributing to the world.

Corporate Vision: Rather lose everything than lose integrity. Become a model of smart IoT ecological and commercial civilization that keeps integrity, emphasizes quality, is courageous and seeks win-win outcomes.

Eight Corporate Values

1.Value: Creating maximum value for users through technological innovation.

2.Strive: Upholding long-termism, striving hard, and enjoying the joy of work.

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

4.Learning: Learning is vital as all achievements ultimately reflect one's capabilities.

5.Team: Empowering individual growth, activating organizational creativity, and co-building a mutually fulfilling organization.

6.Action: The standard of success is goal achievement; efficiency and action are the keys.

7.Affection: Valuing emotions and principles, opposing egalitarianism and opportunism.

Bamboo Forest Effect:

A bamboo, if it does not grow in a bamboo forest but is isolated, does not have a strong and developed root system. But when bamboo grows in a bamboo forest, it acts like a coordinated ecosystem. Their root systems are intertwined and continue to extend outward while providing abundant energy for the rapid growth of new bamboo shoots. We create value with users based on the corporate cultural value orientation of altruism and kindness. We are user-centered and rely on our business willpower and organizational growth to form the Bamboo Forest Effect. Transmit mission, vision and values into products and services to create value for users.



BRAV

Edge Computing System
边缘计算系统——布拉沃系列

A

CNTI

Fanless Computer
国产化无风扇箱体电脑——信泰系列

KGEC

Edge Controller
边缘控制器——考工系列(KAGO)

B

KMDA

Embedded Box Computer
嵌入式箱体电脑——卡曼达系列

C

ECC

Embedded Box PC
能源控制器系列

ALAD

Industrial Panel PC
工业平板电脑——阿拉丁系列

D

WPPC

Industrial Waterproof Panel PC
防水工业平板电脑

SIGM

Fanless In-Vehicle Computer
嵌入式车载电脑——西格玛系列

E

ICS

Intelligent Control System
交通监控服务器

NODE

NODE Core Module
NODE 核心模块

F

SBC

Embedded Single Board Computer
嵌入式单板电脑系列

PADR

IPC-PADR Series
工业控制计算机——潘多拉系列

JHCTECH IoT Computer
Connecting the Dots

BRAV
Edge Computing system

Product Listing

       							
BRAV-7120 (NVIDIA Jetson)		BRAV-7121 (NVIDIA Jetson)		BRAV-7123 (NVIDIA Jetson)		BRAV-7131 (NVIDIA Jetson)	
System							
CPU	6*Cores Arm® Cortex-A78AE v8.2 64 bit CPU 1.5MB L2+ 4MB L3		6*Cores Arm® Cortex-A78AE v8.2 64 bit CPU 1.5MB L2+ 4MB L3 (S001) 8*Cores Arm® Cortex-A78AE V8.2 64 bit CPU 2MB L2+ 4MB L3 (S002)		8*Cores Arm® Cortex®-A78AE v8.2 64 bit CPU 12*Cores Arm® Cortex®-A78AE v8.2 64 bit CPU		8*Cores Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2+4MB L3, maximum frequency 2.2GHz(S001); 12*Cores Arm® Cortex®-A78AE v8.2 64-bit CPU 3MB L2+6MB L3,maximum frequency 2.2 GHz(S002)
RAM	Onboard 4GB 64bit LPDDR5 34GB/S(S001) /8GB 128 bit LPDDR5 68GB/S(S002)		8GB(S001)/16GB(S002)128bitLPDDR5, 102.4 GB/S max.		8GB(S001)/16GB(S002)128 bitLPDDR5, 102.4 GB/Smax.		S001: 32GB; S002: 64GB 256 bit LPDDR5
Graphics	512*Cores NVIDIA Ampere GPU, 16*Tensor Cores(S001) 1024*Cores NVIDIA AmpereGPU, 32*Tensor Cores(S002)		1024*Cores NVIDIAAmpere GPU 765MHz, 32*Tensor Cores(S001); 1024*Cores NVIDIAAmpere GPU 918MHz, 32*Tensor Cores(S002);		1024*Cores NVIDIAAmpere GPU 765MHz, 32*Tensor Cores(S001) 1024*Cores NVIDIAAmpere GPU 918MHz, 32*Tensor Cores(S002)		S001:NVIDIA Ampere GPU, 1792 Cuda cores+ 56 Tensor Cores; S002:NVIDIA Ampere GPU, 2048 Cuda cores+ 64 Tensor Cores
I/O Interfaces							
LAN	2*LAN 10/100/1000Mbps		2*LAN 10/100/1000Mbps		2*IntelI210AT PCIe Gig. 10/100/1000Mbps		5*Intel I210AT, 10-1000M, supports WOL
USB	2*USB3.2;2*USB2.0		2*USB3.2; 2*USB2.0		2*USB 3.0 + PCIe X4 to 4*USB 3.0 (optional) All with USB 3.0 independent bandwidth		2*USB3.2 Gen2(10Gbps); 2*USB2.0
Display	1* HDMI		1* HDMI		1*HDMI 2.0		1* HDMI
Audio	/		/		Realtek ALC5640,1*MIC		1*Line out, Realtek ALC5640
Serial Port	2*2.5KV Iso. RS232+RS485 /422;		1*2.5KV Iso. RS232+1*2.5KV Iso. RS485 /422;		2*2.5KV Iso. RS485		2*RS422 / 485 ; 2*RS232
DIO	4-bit 2.5KV Iso. DI(TTL signal), 4-bit 2.5KV Iso. DO(TTL signal)		4-bit 2.5KV Iso. DI(TTL signal), 4-bit 2.5KV Iso. DO(TTL signal)		/		8bit DIO, TTL, 2.5KV optical isolation input/output
Storage							
Storage	1*M.2 2280 M-Key , NVMe high-speed memory card; 1*Micro SD		1*M.2 2280 M-Key, NVMe; 1*Micro SD		1*M.2 2280 M-Key, NVMe high-speed memory card		64GB eMMC, optional 1*2.5" SATA3; 1*M.2 2280 M-Key(PCleX4),NVMe; 1*Micro SD
Expansion							
Expansion Port	1*M.2 3052 B-Key,SIM, 4G LTE or 5G NR; 1*M.2 2280 M-Key , NVMe high-speed memory card; 1*Mini PCIe		1*M.2 3052 B-Key, 1*SIM, 4G LTE or 5G NR 1*M.2 2280 M-Key, NVMe high-speed memory card; 1*Mini PCIe		1*M.2 3052/304 B-Key.USB3.0, 4G LTE/5G NR,1*SIM,4*ANT; 1*M.2 2230 E-Key,PCleX1+USB2.0, WiFi6/BT5.0,2*ANT 1*PCle X4, optional conversion to 4*USB 3.0, 4*Gigabit Ethernet ports, etc.		1*Mini PCIe(PCleX2+USB+SIM), 4G LTE/LAN/CAN;1*M.2 3052 B-Key (PCleX2+USB+SIM), 4G LTE/5G; 1*M.2 2280 M-Key(PCleX4), NVMe/AI module; 1*M.2 2230 E-Key(PCleX1+USB), WiFi6/BT5.0
Power Supply							
Pwr Consump Input Voltage	DC 9~36V; 3-pin 3.81 mm Phoenix terminal TDP: 20W; DC12V output, max 3A; 4-pin 3.5mm Phoenix terminal		DC 9~36V, 3-pin 3.81 mm Phoenix terminal TDP:30W; DC12V output, max 3A, 4-pin 3.5 mm Phoenix terminal		DC 9~36V, 3-pin 3.81 mm Phoenix terminal TDP:30.12W		DC9-36V; DC out 12V 3A(Max); TDP:54W
Mechanical							
Structure	Fanless Cooling, SGCC frame		Aluminum extrusion enclosure, SGCC		Fan Cooling, SGCC frame		Fan cooling design, SGCC chassis
Dimension (W*H*D)	235*158*75mm		235*158*75mm		219.4*167.6*95mm		256.4*168*86.5mm
Net Weight	2.6KG		2.6kg		2.82kg		3.25KG
Environmental							
Operating Temp	-20°C~-60°C,airflow		-20°C~60°C,airflow		-20°C~60°C,with air flow		-20°C~60°C,with air flow
Storage Temp	- 40°C~85°C		- 40°C~85°C		- 40°C~85°C		- 40°C~85°C
Storage Humidity	10~90%@40°C, Non-condensing		10~95%@40°C, Non-condensing		10~95%@40°C, Non-condensing		10~90%@40°C, Non-condensing
Vibration	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)		5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)		5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)		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)		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 A		CE/FCC Class A		CE/FCC Class A		CE/FCC Class A
OS	Linux Ubuntu 20.04 and 22.04 with JetPack		Linux Ubuntu 20.04 and 22.04 with JetPack		Linux Ubuntu 22.04 with JetPack 6.0 package		Linux Ubuntu 20.04 and 22.04 with JetPack

     						
BRAV-7521-TBRAV-7601-SBRAV-7601/T003BRAV-7720-S001BRAV-7720-WPBRAV-7721-S001						
System						
CPU	Intel® Xeon® E or 9th/8th-Gen Core™ i7/i5/i3 LGA1151 processor, up to 8 cores 16 threads	Intel® Comet lake 10th-Gen Celeron/Pentium/ Corei9/i7/i5/i3 CPU, Intel® Q470 PCH	Intel® Comet lake 10th-Gen Celeron /Pentium/Corer i9/i7/i5/i3 CPu, Intel® Q470 PCH	Intel® 12th-Gen Alder lake-S or 13th-Gen Raptor lake-S or 14th-Gen Raptor lake-S Refresh Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, Intel® Q670 PCH	Intel® 12th-Gen Alder lake-S or 13th-Gen Raptor lake-S or 14th-Gen Raptor lake-S Refresh Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, Intel® Q670 PCH	Intel® 12th-Gen Alder lake-S or 13th-Gen Raptor lake-S or 14th-Gen Raptor lake-S Refresh Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, Intel® Q670 PCH
RAM	4* DDR4 2666/2400MHz SODIMM, 128GB max.	2*DDR4 SO-DIMM ,2933MHz, 64GB max.	2*DDR4 SO-DIMM ,2933MHz,64GB max.	2*262-Pin SODIMM, DDR5 4800MHz, 64GB max.	2*262-Pin SODIMM, DDR5 4800MHz, 64GB max.	2*262-Pin SODIMM, DDR5 4800MHz, 64GB max.
Graphics	Intel UHD Graphics, DirectX11.1, OpenGL 5.0 and OpenCL 2.1, DP: 4096*2304@60Hz, DP:4096*2304@60Hz, VGA: 1900*1200@60Hz, 3 independent displays	Intel® UHD Graphics, DirectX 12, openGL 4.5, 2* HDMI: 4096x2304@24Hz, 1*VGA: 1920*1200@60Hz; 1*MXM3.1, GPU/AI card<190W, 2*DP, 4K display	Intel® UHD Graphics, DirectX 12, OpenGL 4.5 Integrated GPU 2*HDMI 1.4: 4096*2304@24Hz max Integrated GPU 1*VGA analog display: 1920*1200@60Hz max Integrated GPU 2*DP: 3840*2160@60Hz max	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0, DP:7680*4320@60Hz, HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent displays	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0, DP:7680*4320@60Hz, HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent displays	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0, DP:7680*4320@60Hz, HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent displays
I/O Interfaces						
LAN	2* Intel I211AT/I210AT, 10-1000M; 1* Intel I219LM, 10-1000M, iVpro	3*Intel I226V,3*2.5G-LAN, iAMT 13.0/iVpro; 4* Intel I226V with POE+, 10-1000M(S002)	3*Intel I226V 2.5G-LAN,iAMT 13.0,vPro; 4*Intel I210AT(1*IEEE 802.3 bt POE++, 3* IEEE802.3 af),10-1000M	2* Intel I226V, 10-1000M; 1* Intel I219LM,10-1000M, iAMT 12.0	2* Intel I226V, 10-1000M; 1* Intel I219LM,10-1000M, iAMT 12.0	2* Intel I226V, 10-1000M; 1* Intel I219LM,10-1000M, iAMT 12.0
USB	6* USB3.1+ 2* USB2.0	4* USB3.2(10G)+2*USB2.0+2*USB3.0(optional); 2* USB3.2(5G,S002)	Front: 4*USB 3.2, 2*USB 3.0; Rear: 2*USB 2.0;Built-in 2*USB 2.0	4* USB3.2(10G)+2*USB3.0(5G)	4* USB3.2(10G)+2*USB3.0(5G)	4* USB3.2(10G)+2*USB3.0(5G)
Display	2* DP + 1* VGA	2* HDMI + 1* VGA; GPU 2*DP	2*HDMI+ 1* VGA	1* DP+1*HDMI+1* VGA	1* DP+1*HDMI+1* VGA	1* DP+1*HDMI+1* VGA
Audio	1* Line out + 1* MIC, Realtek ALC662VD	1* Line out + 1* MIC,optional audio	1*Audio-out, 1*MIC, Realtek ALC chip	/	/	/
Serial Port	2*RS232/422/485 + 2*RS232	2*RS232/422/485 + 2*RS232	Rear 2*RS232/422/485; Built-in 2*RS232	2*RS232/422/485	2*RS232/422/485	2*RS232/422/485
DIO	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)	8 bit TTL, programmable input/output 8+16 bit TTL, programmable input/output(S002)	8-bit, all TTL signals, programmable I/O	Optional 16bit DIO, TTL , programmable input/output	Optional 16bit DIO, TTL , programmable input/output	Optional 16bit DIO, TTL , programmable input/output
Storage						
Storage	4*2.5"SATA3; 1*M.2, NVMe	2*2.5"SATA3 HDD(RAID0,1), 15mm thickness 1*M.2 2280 M-Key(PCIeX4), NVMe; 1*mSATA(optional)	2*2.5" HDD SATA3(RAID0,1), 6G bit/s max; 1*M.2 Type 2280 M-Key(PCIex4),NVMe	2*2.5"SATA3 HDD(RAID0/1), 15mm thickness, 1*M.2 2280 M-Key(PCIe4.0X4), NVMe, 1*mSATA(optional)	2*2.5"SATA3 HDD(RAID0/1), 15mm thickness, 1*M.2 2280 M-Key(PCIe4.0X4), NVMe, 1*mSATA(optional)	2*2.5"SATA3 HDD(RAID0/1), 15mm thickness, 1*M.2 2280 M-Key(PCIe4.0X4), NVMe, 1*mSATA(optional)
Expansion						
Expansion Port	1*Mini PCIe(PCIeX1/USB+SIM,BIOS to mSATA); 1*M.2 E-Key(+SIM),WiFi6/BT5.0; 1*M.2 B-Key(+SIM),5G NR; 1*M.2 M-Key(PCIe3.0X4),NVMe; 2*PCIe3.0X16(X8),GPU<350W<300mm 2*PCIe3.0X16(x4), 2*AI card	1*Mini-Pcie(USB2.0+SIM),mSATA/4G LTE; 1*M.2 2230 E-key(PCIeX1/USB+CNVio),WiFi6/BT5.0; 1*M.2 3052 B-key(PCIeX1/USB+SIM), 5G/4G LTE; 1*M.2 2280 M-Key(PCIeX4), NVME/PCIe; 1*MXM3.1(PCIeX16),up to 190W; JHCTECH-02 E/IO, 2*PCIeX4, 2*USB3.2, 2*USB2.0	1*Mini-Pcie Full size,PCIeX1/SATA3,USB2.0+SIM,mSATA/4G LTE; 1*M.2 Type 2230 E-key,PCIeX1,USB2.0+CNVio,WiFi6+BT5.0; 1*M.2 Type 3052 B-key,PCIeX1, USB2.0+SIM,5G NR/4G LTE; 1*M.2 Type 2280 M-Key(PCIex4), NVME/PCIe; 1*MXM3.1,PCIeX16; JHCTECH-02 E/IO high-speed interface spec 2*PCIeX4,2*USB3.0, 2*USB2.0,160pinanti-vibration high-speed EU standard interface	1*Mini PCIe(PCIeX1/USB+SIM),4G LTE/PCIe; 1*Mini PCIe(PCIeX1/SATA),mSATA; 1*M.2 3052 B-Key(PCIeX1/USB+SIM),5G NR; 1*M.2 2280 M-Key(PCIe4.0X4), NVMe; 1*PCIe5.0X16(X16),GPU<450W<300mm 1*PCIe4.0X16(X4),AI card<75W<300mm	1*Mini PCIe(PCIeX1/USB+SIM),4G LTE/PCIe; 1*Mini PCIe(PCIeX1/SATA),mSATA; 1*M.2 3052 B-Key(PCIeX1/USB+SIM),5G NR; 1*M.2 2280 M-Key(PCIe4.0X4), NVMe; 1*PCIe5.0X16(X16),GPU<450W<300mm 1*PCIe4.0X16(X4),AI card<75W<300mm	1*Mini PCIe(PCIeX1/USB+SIM),4G LTE/PCIe; 1*Mini PCIe(PCIeX1/SATA),mSATA; 1*M.2 3052 B-Key(PCIeX1/USB+SIM),5G NR; 1*M.2 2280 M-Key(PCIe4.0X4), NVMe; 2*PCIe5.0X16(X8),GPU<450W<300mm; 2*PCIeX16(4.0X4+3.0X4),AI card<75W<300mm
Power Supply						
Pwr Consump	DC 12V 5-pin Term.	DC 9-36V 3-pin, with short circuit protection,	DC 9-36V wide power input, 3-pin 3.81mm Phoenix terminal	DC 12V, 1000W max. ;	DC 9-55V, 600W max. ;	DC 12V 5-pin 1000W max. ;
Input Voltage	TDP: 564W (i7-8700 CPU 32GB DDR4 2*2080TI)	over voltage& over current protection TDP: 80W	TDP :24V/2.17A(i3-10100TE CPU, 8G memory) With ACC delay power on and off signal	TDP:12V/8.275A 99.3W (i3-12100 CPU, 32GB DDR4, 128G	TDP:12V/9.87A 118.4W (i3-12300 CPU, 16GB DDR4, 128G SSD)	TDP: 12V/5.28A 63.4W (G7400 CPU, 32GB DDR4, 128G SSD)
Mechanical						
Structure	Aluminum-magnesium alloy, SGCC chasis	Temperature controlled fan, SGCC	Aluminum extrusion heat-dissipating enclosure, SGCC cabinet	SGCC frame, Aluminum-magnesium alloy chassis, temperature control by PWM fan	SGCC frame, Aluminum-magnesium alloy chassis, temperature control by PWM fan	SGCC frame, Aluminum-magnesium alloy chassis, temperature control by PWM fan
Dimension (W*H*D)	230*350*210mm	284*222*82mm	284*222*80.5mm	195*374.7*254.8mm	262*374.7*178mm	245*376.8*254.8mm
Net Weight	8.3kg	6.70kg	6.40kg	7.95kg	8.65kg	8.70kg
Environmental						
Operating Temp	-25~60°C, SSD, with air flow	-20~60°C, SSD, airflow	-20°C~60°C,airflow	-20~60°C, SSD, with air flow	-20~60°C, SSD, with air flow	-20~60°C, SSD, with air flow
Storage Temp	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C
Storage Humidity	10~95%@40°C, No-condensation	10~95%@40°C, No condensation	10~95%@40°C, No condensation	10~95%@40°C, No-condensation	10~95%@40°C, No-condensation	10~95%@40°C, No-condensation
Vibration	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)	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)
Shock	50g peak acceleration(duration;11ms)(SSD); 20g peak acceleration(duration;11ms)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)
Certification/ EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	Windows 7, Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux

     						
BRAV-7721-WPBRAV-7722BRAV-7820CNTI-R351CNTI-D2K1/S001CNTI-D2K1/T001						
System						
CPU	Intel® 12th-Gen Alder lake-S or 13th-Gen Raptor lake-S or 14th-Gen Raptor lake-S Refresh Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, Intel® Q670 PCH	Intel® 12th/13/14th-Gen Alder lake-S or Raptor lake-S or Raptor lake-S Refresh Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, Intel® Q670 PCH	Intel® Core™ Ultra CPU , Meteor Lake-H: Ultra 125H/155H; Arrow Lake-H: Ultra 225H/255H	Rockchip RK3588, 4 Cortex-A76 and 4 Cortex-A55, 2.4GHz	Phytium D2000, 8-core, 2.3GHz clock speed	Phytium D2000, 8-core, 2.3GHz clock speed
RAM	2*262-Pin SODIMM, DDR5 4800MHz, 64GB max.	4*DDR5 UDIMM, 4800/5600MHz,192GBmax.	DDR5-5600 MHz,2 * SO-DIMM Slot, up to 64GB	Onboard memory, 8/16GB LPDDR4	2*SODIMM.DDR4/2666MHz. up to 64GB	2*SODIMM.DDR4/2666MHz. up to 64GB
Graphics	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0, DP:7680*4320@60Hz, HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent displays	Intel® UHD Graphics,DirectX12, openGL4.5,openCL 3.0, HDMI:7680*4320@60Hz MAX.	iGPU: Intel® Arc™ (MTL-H 18 TOPS / ARL-H 77 TOPS), supports multi-channel H.265/H.264 encode & decode, AV1/VP9 decode, HDMI 2.1 up to 4096×2160@30Hz NPU: Intel® AI Boost (MTL-H 11 TOPS / ARL-H 13 TOPS, INT8)	Mali-G610 GPU, OpenGL ES3.2/OpenCL2.2/ Vulkan1.1, 2D&3D acceleration hardware ; HDMI:1920*1080@60Hz NPU:6 TOPS, INT4/INT8/INT16/FP16	Onboard 256MB dedicated graphics supported, with 1*VGA and 1*HDMI; expandable to 1*PCIe dedicated graphics card (Supports graphics cards under 35W)	Onboard 256MB dedicated graphics supported, with 1*VGA and 1*HDMI; expandable to 1*PCIe dedicated graphics card (Supports graphics cards under 35W)
I/O Interfaces						
LAN	2* Intel I226V, 10-1000M; 1* Intel I219LM,10-1000M, iAMT 12.0	2*Intel 1210AT chip,10-1000M 1*Intel 1210AT chip, IPMI remote management (B2400 BMC)	1* Intel® I226LM 2.5G LAN Chip (RJ45,10-2500 Mbps), 13.0 iAMT 1* Intel® I210AT GbE LAN Chip (RJ45,10-1000Mbps)	2*RTL8211F, 10-1000M; 2*RTL8111H,10-1000M	4*LAN, 10-1000M	4*LAN, 10-1000M
USB	4* USB3.2(10G)+2*USB3.0(5G)	Front4*USB3.2(Type A), Built-in:2*USB2.0(2*4 header)	2*USB3.2, 2*USB2.0	2* USB3.0+2*USB2.0	6*USB3.0:2*USB2.0	6*USB3.0:2*USB2.0
Display	1* DP+1*HDMI+1* VGA	4*HDMI	2*HDMI, dual Independent Display	1*HDMI	1*VGA+1*HDMI	1*VGA+1*HDMI
Audio	/	1*Line out,RealtekALC897 chip	Realtek Audio HDA codec , 1 * Line-Out +1*MIC	Realtek ALC5640 chip, Audio out	1*Line Out,1*Mic	1*Line Out,1*Mic
Serial Port	2*RS232/422/485	Front 2*RS232/422/485; Built-in 1*RS232	2*RS232 (DB9 Male)	1*RS232+1*RS485; 2*CAN (CAN Open2.0,DB9)	8*RS232	8*RS232
DIO	Optional 16bit DIO, TTL signal, programmable input/output	/	/	1*8 bit DIO(DB9)	8*DI (opto-isolated) + 8*DO (relay-isolated)	8*DI (opto-isolated) + 8*DO (relay-isolated)
Storage	2*2.5"SATA3 HDD(RAID0/1), 15mm thickness 1*M.2 2280 M-Key(PCIe4.0X4), NVMe, 1*mSATA(optional)	1*2.5" HDD/SSD SATA3 6.0Gbps, 6G bit/s MAX. 1*M.2 Type 2280 M-Key(PCIex4),NVMe 1*mSATA(optional with Mini PCIe)	2 * M.2 2280 Key-M Slot (PCIe 4x Gen4, Support PCIe X4 NVMe)	Onboard 64G eMMC, 1*M.2 2242 M-key, NVMe	1*SATA3, 1*M.2 2280 B-key (SATA signal)	1*SATA3, 1*M.2 2280 B-key (SATA signal)
Expansion						
Expansion Port	1*Mini PCIe(PCIeX1/USB+SIM),4G LTE/PCIe; 1*Mini PCIe(PCIeX1/SATA),mSATA; 1*M.2 3052 B-Key(PCIeX1/USB+SIM),5G NR; 1*M.2 2280 M-Key(PCIe4.0X4), NVMe; 2*PCIe5.0X16(X8),GPU<450W<300mm; 2*PCIeX16(4.0X4+3.0X4),AI card<75W<300mm	1*Mini-PCIe Full size,SATA and PCIe signal automatic detection and recognition ;1*M.2 Type2230 E-key,BMC; 1*M.2 Type 3042/52 B-key,PCIeX1, USB2.0+SIM,5G NR /4G LTE;1*M.2 Type2280 M-Key (PCIex4), NVME/PCIe; 1*MXM3.1,PCIe4.0 X16,up to 190W, all MXM GPU and AI acceleration cards with power consumption below 190W	1*M.2 3042/3052 Key-B (USB 3.0 + PCIe + USB 2.0, supports 4G/5G), with 1* Nano SIM Card Slot 1* M.2 2230 Key-E (PCIe + USB 2.0 + CNVi, supports Wifi 6 + Bluetooth 5.4) 2*M.2 2280 Key-M (PCIe 4.0 X4, supports NVMe or other functional modules)	1*Full size Mini PCIe(+SIM), 4G LTE; (Opt.) onboard Wifi6/BT5.0	1*PCIe 3.0 (x16)	1*PCIe 3.0 (x16)
Power Supply						
Pwr Consump	DC 9-55V , 1000W max. ;	DC 19V power supply interface	DC 12v/10A	DC 9-36V ;	DC 12V (3-pin, 3.81mm pitch)	DC 12V (3-pin, 3.81mm pitch)
Input Voltage	TDP: 12V/7.73A 92.8W (i7-12700T CPU, 32GB DDR4, 128G SSD)	5-pin 7.62mm, output power 500W TDP:19V/6.48A(i7-12700 CPU, 8G, 128G SSD)	TDP:45W (Intel Ultra 9 285H)	TDP:13.32W(12V/1.11A, 8GB+64GeMMC)	TDP: 50W (excluding dedicated graphics)	TDP: 50W (excluding dedicated graphics)
Mechanical						
Structure	SGCC frame, Aluminum-magnesium alloy chassis, temperature control by PWM fan	Aluminum extruded profile heat dissipation shell, SGCC frame	Aluminum extruded profile heat dissipation shell, SGCC frame	Aluminum-magnesium alloy, SGCC frame	Aluminum profile, SGCC enclosure	Aluminum profile, SGCC enclosure
Dimension (W*H*D)	230*350*210mm	362*240*115mm	284*205*90mm;	169*100*44.2mm	258*137*273mm(including mounting bracket)	258*137*273mm(including mounting bracket)
Net Weight	9.70kg	6.70kg	4kg	0.696kg	4kg	4kg
Environmental						
Operating Temp	-20~60°C, SSD, with air flow	-20°C~60°C,airflow	-20°C~70°C(28W CPU, airflow), -20°C~65°C(45W CPU, airflow)	-20~60°C, SSD, air flow	0~55°C (excluding external dedicated graphics)	0~55°C (excluding external dedicated graphics)
Storage Temp	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	-40°C~85°C	-40°C~85°C
Storage Humidity	10~95%@40°C, No-condensation	10~95%@40°C, No-condensation	10~95%@40°C, No-condensation	10~95%@40°C, Non-condensing	10~95%RH, Non-condensing	10~95%RH, Non-condensing
Vibration	5grms/5~500Hz/random/during operation(SSD); 1grms/5~500Hz/random/during operation(HDD)	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)	/	/
Shock	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	/	/
Certification/ EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Android, Linux	Kylin V10	Kylin V10

Optional AI card/GPU

MLU220-MXM



Port Type	MXM 3.1 (PCIe3.0 X2)
RAM	8GB, LPDDR4x 64bit, 3200Mhz
AI Comp Pwr	16TOP(INT8)
Pwr Cosumption	16.5W
Surface temp	-20~70 °C
Heat dissipation	Passive cooling
Dimension	70*82mm (non cooler)

Hailo-8



Port Type	NGFF M.2 Key M PCIe Gen 3, 4-lanes (x4)
RAM	
AI Comp Pwr	26 TOPS (INT8)
Pwr Cosumption	8.25W
Surface temp	-40° ~85° C
Heat dissipation	Passive cooling
Dimension	22 x 42 / 22 x 60 / 22 x 80 mm

Optional AI card/GPU

Goldwasser-UL32/64



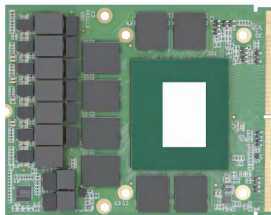
Port Type	PCIe2.0X4	PCIe3.0X4
RAM	2/4GB	4/8GB
AI Comp Pwr	32TOPS(INT8)	64TOPS(INT8)
Pwr Cosumption	28W	35W
Surface temp	-20~60 °C	-20~60 °C
Shape	Half height,single slot	Half height,single slot
Heat dissipation	Passive cooling	Passive cooling
Dimension	114.2*68.9mm	114.2*68.9mm

Goldwasser-UL32/64-MXM



Port Type	PCIe2.0X4	PCIe3.0X4
RAM	4/8GB	8/16GB
AI Comp Pwr	32TOPS(INT8)	64TOPS(INT8)
Pwr Cosumption	10W	15W
Surface temp	-20~55 °C	-20~55 °C
Shape	MXM,TYPE-A	MXM,TYPE-A
Heat dissipation	Active/Passive cooling	Active/Passive cooling
Dimension	82*70mm	82*70mm

Arc A750E ECM 16G



Port Type	MXM 3.1 (PCIe 4.0 X16)
RAM	16GB GDDR6, 17.5Gbps,256bit, 560GB/s
AI Comp Pwr	235 TOPS
Xe Core	28
Surface temp	-10°C ~ 60°C
Pwr Cosumption	190W
Dimension	105*82mm

Acr A770 ECM 16G



Port Type	MXM 3.1 (PCIe 4.0 X16)
RAM	16GB GDDR6, 17.5Gbps, 256bit, 560GB/s
AI Comp Pwr	262TOPS
Xe Core	32
Surface temp	-10°C ~ 60°C
Pwr Cosumption	190W
Dimension	105*82mm

MR V50



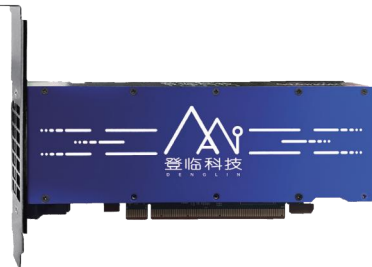
Port Type	PCIe4.0X16
RAM	16GB HBM2E
AI Comp Pwr	256TOPS(INT8),64TFLOPS(FP32),16TFLOPS(FP16)
Pwr Cosumption	75W
Surface temp	0~50 °C
Shape	PCIe, Half height and half length
Heat dissipation	Passive cooling
Dimension	68.9*167.5mm

MR V100



Port Type	PCIe4.0X16
RAM	32GB HBM2E
AI Comp Pwr	384TOPS(INT8),96TFLOPS(FP32),24TFLOPS(FP16)
Pwr Cosumption	150W
Surface temp	0~45 °C
Shape	PCIe,Full height and full length
Heat dissipation	Passive cooling
Dimension	111.5*266.7mm

Goldwasser-L128



Port Type	PCIe3.0X16
RAM	32/64GB
AI Comp Pwr	128TOPS(INT8)
Pwr Cosumption	40W
Surface temp	0~50 °C
Shape	Half height and half length,single slot
Heat dissipation	Passive cooling
Dimension	167.65*68.9mm

Goldwasser-L256



Port Type	PCIe3.0X16
RAM	32/64GB
AI Comp Pwr	256TOPS(INT8)
Pwr Cosumption	70W
Surface temp	0~50 °C
Shape	Half height and half length, single slot
Heat dissipation	Passive cooling
Dimension	167.65*68.9mm

KGEC

Edge controller

Product Listing

				
	KGEC-6200	KGEC-6300	KGEC-6310	KGEC-6500
System				
CPU	Intel® Elkhart lake Soc CPU, Celeron J6412;	6th/7th Gen Intel® Skylake-S/Kabylake-S Pentium/Core I3/I5/I7 CPU LGA 1151 socket,max support 65W	8th gen Intel Whiskeylake U ; Core U: I5-8265U;	Intel 10th Gen. Cometlake-S Core i9/i7/i5/i3/Celeron CPU,LGA 1200 Socket
RAM	1* DDR4 SODIMM 3200MHz, 32GB max.	1* DDR4 2400/2133MHz, 16GB max.	2* DDR4 2400MHz , 32GB max.	2*DDR4 SO-DIMM 2933MHz , 64GB max.
Graphics	Intel Gen10 UHD Graphics, H.265/HEVC,HW; HDMI2.0: 4096*2304@60Hz	IntelGen.9 HD Graphics,HEVC/H265 HW DP: 4096*2304@60Hz, DVI-I(DVI-D+VGA) DVI-D: 1920*1200@60Hz, VGA: 2560*1600@60Hz	Intel Gen. 9 UHD Graphics,HEVC/ H265 HW HD codec HDMI: 4096*2304@60Hz DVI-D: 2560x1600,60Hz	Intel® UHD Graphics,Supports DirectX 12, OpenGL 4.5&OpenCL 2.1 HDMI: 4096*2160@30Hz, DVI-I(DVI-D+VGA): 1920x1200,60Hz
I/O Interface				
LAN	2*Intel I226V, 10-1000M	2*Intel I210AT,10-1000M	3*Intel I210AT,10-1000M; 1*Intel®I219LM ,iAMT12.0 and iVpro	1*Intel I226V, 10M-2.5G,support WOL; 1*Intel®I219LM , support WOL
USB	2* USB3.1, 2*USB2.0	4* USB3.0	2*USB3.1+ 2* USB2.0	4*USB3.2+ 3* USB2.0(Build-in)
Display	1* HDMI	1* DP + 1* DVI-I	1* DVI-D + 1* HDMI	1* DVI-I + 1*HDMI
Audio	/	/	1* Line out + 1* MIC	/
Serial Port	1*RS232/422/485; 1*RS232	2*RS232/422/485 with isolated TVS	2*RS232/422/485	2*RS232/422/485
DIO	6 bit DIO(MI/O)		8-bit DIO(Phoenix terminal)	/
Storage				
Storage	1*mSATA Full Size,AHCI	1*mSATA full height card	1*2.5"SATA3.0, 1*mSATA ,AHCI	1*2.5" SATA3.0, 1*mSATA ,AHCI
Expansion				
Expansion	1*Mini PCIe(PCleX1/USB+SIM),4G/Wifi/BT	1*Mini PCIe(PCleX1/USB+SIM),4G/Wifi/BT; Optional 1*PCle3.0 X4(X1) + 1*32bit-PCI; Optional 1*PCle3.0 X4(X1)	1*M.2 E-key(PCle X1/USB2.0),Wifi/BT; 1*Mini PCIe(PCle X1/USB+SIM),4G/Wifi/ BT	1*Mini PCIe(PCle X1/USB2.0+SIM),4G/Wifi/BT; Optional 1*PCle3.0 X4(X4), 4*PoE+LAN
Power Supply				
Power& TDP	DC 12V;Optional DC 9~36V(OFX-075) 15.6W(Celeron J6412,32G DDR4,128G SSD)	DC 12~24V input, 2*2-pin; S001(43.7W I7-7700 4GB)/ (49.4W I7-7700 4GB,+Expansion)	DC 12~24V, 2*2-pin; 31.68W (CPU I3-8145U 4GB)	DC 12~24V, 2*2-pin; 64.8W(I5-10500E,32GB DDR4,128G HDD)
Mechanical				
Structure	Aluminum chassis, SGCC frame	Aluminum chassis, SGCC frame	Aluminum chassis, SGCC frame	Aluminum chassis, SGCC frame
Dimension (W*H*D)	130*100*40mm	S001(202*151*57.8mm/ 202*151*109.8mm,+Expansion)	202*151*81mm	202*154*57.8mm/202*154*89.5mm(+Expansion)
Weight	750g	S001: 2.52KG/3.52KG(+Expansion)	2.59KG	1.85KG/2.20KG(+Expansion)
Environmental				
Operating temp	- 20°C~60°C , SSD	- 20°C~60°C , SSD	- 20°C~60°C , SSD	- 20°C~60°C , SSD
Storage temp	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C	- 40°C~85°C
Storage Humidity	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~90%@40°C, non-condensing
Vibration	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/random/during operation(HDD)	5 grms/5~500Hz/random/during operation(SSD); 1 grms/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)
Shock	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 A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	RTOS: INtime, EC-Win, RTX-2014/2016, Ubuntu Preempt-RT,Win11/Win10,SUSE, Ubuntu, Wind River, Red Hat Enterprise	RTOS: INtime, EC-Win, RTX-2014/2016 and Ubuntu Preempt-RT,Windows 7, Windows 10, Linux Fedora Ubuntu(Note: 7th gen Intel® Kabylake-S processor does not support Windows 7 32-bit)	RTOS: INtime, EC-Win, RTX-2014/2016 and Ubuntu Preempt-RT Windows 10, SUSE, Ubuntu, Wind River, Red Hat Enterprise	RTOS: INtime, EC-Win, RTX-2014/2016, Ubuntu Preempt-RT&Xenomai Windows 10, Windows 11, SUSE, Ubuntu, VXWork,

JHCTECH IoT Computer
Connecting the Dots

JHCTECH IoT Computer
Connecting the Dots

KMDA
Embedded Box Computer



       								
	KMDA-2602	KMDA-2602/T002	KMDA-2630-S	KMDA-2630-T	KMDA-2631	KMDA-2632/S002	KMDA-2701	KMDA-2702
Processor								
CPU	Intel Baytrail-D Celeron J1900 ,Frequency 2.0~2.42GHz, 4C4T, 2M cache, 22nm, TDP 10W	Intel Baytrail-D Celeron J1900 ,Frequency 2.0~2.42GHz, 4C4T, 2M cache, 22nm, TDP 10W	Intel® Elkhart lake SoC CPU: Celeron J6412	Intel® Elkhart lake SoC CPU: Celeron J6412	Intel® Elkhart lake SoC CPU: Celeron J6412 2.0-2.6GHz 4-core 4-thread	Intel Twin lake CPU, 4-core 4-thread	Intel Baytrail-D Celeron J1900 ,Frequency 2.0~2.42GHz, 4C4T, 2M cache, 22nm, TDP 10W	Intel Baytrail-D Celeron J1900 , Frequency 2.0~2.42GHz, 4C4T, 2M cache, 22nm, TDP 10W
RAM	1*DDR3L,1333MHz,SODIMM, 8GB max.	1*DDR3L,1333MHz,SODIMM, 8GB max.	1*DDR4 SO-DIMM , 3200MHz, 32GB max.	1*DDR4 SO-DIMM , 3200MHz, 32GB max.	1*DDR4 3200 MHz SODIMM, 32GB max	1*DDR5 SO-DIMM,5600MHz,96GB max	1*DDR3L, 1333MHz, SODIMM, 8GB max.	1*DDR3L, 1333MHz, SODIMM, 8GB max.
Graphics	Intel HD Graphics, Support synchronous or asynchronous dual display, VGA: 1920*1200@60Hz, HDMI: 1920*1080@60Hz, support OpenGL 3.2, DirectX 11, OpenCL 1.2, MPGE2/H.264	Intel HD Graphics, Support synchronous or asynchronous dual display VGA: 1920*1200@60Hz, HDMI: 1920*1080@60Hz, support OpenGL 3.2, DirectX 11, OpenCL 1.2, MPGE2/H.264	Intel Gen11 UHD Graphics, HDMI2.0: 4096*2304@60Hz VGA: 1920*1200@60Hz	Intel Gen11 UHD Graphics, HDMI2.0: 4096*2304@60Hz VGA: 1920*1200@60Hz	Intel UHD Graphics/iRIS® Xe Graphics, supports Intel® DL Boost technology DirectX12.1, OpenGL 4.6 + OpenCL 3.0, HDMI: 4096*2304@60Hz	Intel® Graphics, 24 execution units, DirectX12.1, OpenGL 4.6, OpenCL 3.0, HDMI: 4096 x 2160@60Hz	Intel HD Graphics, Support dual independent display, VGA: 1920*1200@60Hz, HDMI: 1920*1080@60Hz,support OpenGL 3.2, DirectX 11, OpenCL 1.2, MPGE2/H.264	Intel HD Graphics, Support dual independent display VGA: 1920*1200@60Hz, HDMI: 1920*1080@60Hz,support OpenGL 3.2, DirectX 11, OpenCL 1.2, MPGE2/H.264
I/O Port								
LAN	4*Intel I211AT PCIe, 10-1000M	2*Intel I211AT PCIe, 10-1000M	2*Intel I226V, 10M-2.5G, WOL; 2*Realtek 8111H, 10-1000M	2*Intel I226V, 10M-2.5G, WOL;	3*LAN with independent isolation transformer, 10-1000M	2*LAN with independent isolation transformers RTL811H-VB chip;10-1000M	4*Intel I211AT PCIe, 10-1000M	3*Intel I211AT PCIe, 10-1000M
USB	1* USB3.0, 5*USB2.0 , 1*USB2.0 (Built-in)	1* USB3.0, 3*USB2.0	2*USB3.2 Gen2, 6*USB2.0, 1*USB2.0(Built-in)	2*USB3.2 Gen2, 2*USB2.0, 1*USB2.0(Built-in)	2*USB3.1+2*USB2.0 Type A	2*USB3.1+2*USB2.0 Type A	1* USB3.0, 5*USB2.0 , 1*USB2.0 (Built-in)	1* USB3.0, 5*USB2.0 , 1*USB2.0 (Built-in)
Display	1*HDMI+ 1*VGA	1*HDMI+ 1*VGA	1*HDMI+1*VGA	1*HDMI+1*VGA	1*HDMI	1*HDMI	1*VGA+1*HDMI	1*VGA+1*HDMI
Audio	1*Line out,Realtek ALC662VD	1*Line out,Realtek ALC662VD	Audio out+1*Line in+1*Mic,Realtek ALC897	1*Line out,Realtek ALC897	/	/	1*Line out+1*Mic, Realtek ALC662VD	1*Line out+1*Mic, Realtek ALC662VD
COM/ Others	2*RS232/422/485, 2*RS232, 2*RS232/485, 1*2 pin terminal, Remote switch, USB mouse/keyboard	2*RS232/422/485, 1*2 pin terminal, Remote switch, USB mouse/keyboard	2*RS232/422/485, 2*RS232	2*RS232/422/485, 2*RS232	2*RS232/485 Both serial ports provided as 6-pin Phoenix terminal	2*RS232/485 and 6*RS485 three-wire signals (all 8 serial ports in 1*6P Phoenix terminal form)	4*RS232/422/485, 2*RS232, 1*2 pin terminal, Remote switch, USB mouse/keyboard	8*RS232/422/485, 2*RS232, 1*2 pin terminal, Remote switch, USB mouse/keyboard
DIO	8-bit TTL, Programmed input–output	8-bit TTL, Programmed input–output	8 bit DIO(DB9)	8 bit DIO(DB9)	4*DI+4*DO with isolation (DIO are 1*6P phoenix terminal);	8*DI + 6*DO with isolation (DIO are 1*6P phoenix terminal);	24-bit TTL, Programmed input–output	16-bit TTL, Programmed input–output
Storage								
Storage	1*2.5" HDD SATA2 Bay, 3.0 Gbps, 1*mSATA Full-height card, support AHCI	1*2.5" HDD SATA2 Bay, 3.0 Gbps, 1*mSATA Full-height card, support AHCI	1*2.5"SATA3; 1*mSATA, AHCI	1*2.5"SATA3; 1*mSATA, AHCI	1*mSATA, 1*SATA3.0, 6Gbps max	1*mSATA, SATA3.0, 6Gbps max	1*3.5" HDD SATA2 Bay, 3.0 Gbps, 1*mSATA Full-height card, support AHCI	1*2.5" HDD SATA2 Bay, 3.0 Gbps, 1*mSATA Full-height card, support AHCI
Expansion								
Expansion Port	1*Mini PCIe, with SIM slot, support 4G/Wifi/BT, 1*I-port(LPT/USB2.0/Mini PCIe)	1*Mini PCIe, with SIM slot, support 4G/Wifi/BT,	1*M.2 B-key 3052(Pcie X1/USB2.0+SIM), 5G NR/4G LTE; 1*Full size Mini PCIe(Pcie X1)	1*M.2 B-key 3052(Pcie X1/USB2.0+SIM), 5G NR/4G LTE; 1*JHCTECH Express-01 80pin: 2*PCleX1, 4*USB2.0, Front-Audio; 1*PS/2, Front-Panel, 1*Sm bus, 1*eSPI	2*Mini-PCle (PCleX1+USB2.0) MiniPCle 1 (SIM, 4G)	2*Mini-PCle(PCleX1+USB2.0) MiniPCle1 (SIM, 4G)	1*Mini PCIe(PCle/USB+SIM), support 4G LTE/Wifi/BT	1*Mini PCIe(PCle/USB+SIM), support 4G LTE/Wifi/BT
Power Supply								
Input voltage &TDP	DC IN 9~36V, D-Jack with M8 interface, short circuit protection, OVP&OCP TDP: 14.4W(2.5" HDD)	DC IN 9~36V, D-Jack with M8 interface, short circuit protection, OVP&OCP TDP: 14.4W(2.5" HDD)	DC 12V or DC 9-36V, short circuit protection, OVP&OCP TDP:26.4W	DC 12V or DC 9-36V, short circuit protection, OVP&OCP TDP: 18.12W	DC-IN 12V/9~36V , TDP14.4W (CPU Celeron J6412 @2.00GHz, 4G DDR4, 128GmSATA)	DC-IN 12V/9~36V Wide voltage input TDP: 19.68W	DC IN 9~36V, D-Jack with M8 interface, short circuit protection, OVP&OCP TDP: 19.2W(3.5" HDD)	DC IN 9~36V, D-Jack with M8 interface, short circuit protection, OVP&OCP TDP: 15.6W(2.5" HDD)
Mechanical								
Structure	Top/Bottom Aluminum Chassis, SGCC frame	Top/Bottom Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	U-shaped Aluminum Chassis, SGCC frame	U-shaped Aluminum Chassis, SGCC frame
Color	Silver gray	Silver gray	Silver white+Aquamarine	Silver white+Aquamarine	Silver gray	Silver gray	Silver gray	Silver gray
Installation	desktop mounting & VESA 100*100mm	desktop mounting &VESA 100*100mm	desktop mounting	desktop mounting	Horizontal desktop installation	Horizontal desktop installation	desktop mounting	desktop mounting
Dimension	155*111.8*65mm	155*111.6*49mm	162*111.8*65mm	162*111.8*65mm	222*140*45mm(with mounting kit) 190*140*45mm(without mounting kit)	222*140*45mm(with mounting kit) 190*140*45mm(without mounting kit)	210*144*82.7mm	210*144*82.7mm
Net Weight	1.30KG	1.05KG	1.32KG	1.30KG	1.32kg	1.32kg	2.60KG	2.60KG
Environmental								
Operating Temp	-20°C~65°C,SSD,with air flow -10°C~55°C,HDD,with air flow	-20°C~65°C,SSD,with air flow -10°C~55°C,HDD,with air flow	-20°C~60°C, SSD, with air flow	-20°C~60°C, SSD, with air flow	-20~60°C	-20~60°C	-20°C~70°C,SSD,with air flow -10°C~55°C,HDD,with air flow	-20°C~70°C,SSD,with air flow -10°C~55°C,HDD,with air flow
Storage Temp	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C
Storage Humidity	10~95%@40°C, No- condensation	10~95%@40°C, No- condensation	10~95%@40°C, No-condensation	10~95%@40°C, No-condensation	10~95%@40°C, No- condensation	10~95%@40°C, No- condensation	10~95%@40°C, No- condensation	10~95%@40°C, No- condensation
Vibration	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation (SSD)	5 grms/5~500Hz/random/operation (SSD)	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)
Shock	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);	50g peak acceleration(duration 11ms,SSD);	50g peak acceleration(duration 11ms,SSD) 20g peak acceleration(duration 11ms,HDD)	50g peak acceleration(duration 11ms,SSD) 20g peak acceleration(duration 11ms,HDD)
Certificate/ EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	Windows 7, Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	Windows 7,Windows 10, Windows 11 , Linux

																				
KMDA-3301			KMDA-3302			KMDA-3303			KMDA-3305			KMDA-3306			KMDA-3307					
Processor																				
CPU	Intel® Tigerlake U Core I3/I5/I7 CPU		Intel® Tiger lake U Soc CPU (core i3-1115G4/i5-1135G7/i7-1165G7)		Intel® Tiger lake U Soc CPU (corei3-1115G4/i5-1135G7/i7-1165G7)				Intel® Tiger lake U Soc CPU (core i3-1115G4/i5-1135G7/i7-1165G7)				Intel® Core™ Ultra 5 125U (Meteor Lake) /Ultra 5 225U (Arrow Lake) 2*P-cores+8*E-cores+2*LPE cores		Intel® Core™ Ultra 5 125U (Meteor Lake) /Ultra 5 225U (Arrow Lake) 2*P-cores+8*E-cores+2*LPE cores					
RAM	2*DDR4 SO-DIMM slot, support 3200MHz, 64GB max.		1*DDR4 SO-DIMM slot, support 3200MHz, 32GB max.		1*DDR4 SO-DIMM,3200MHz,32GB max				1*DDR4 SO-DIMM,3200MHz,32GB max				1*DDR5 SO-DIMM 5600MHz, 96GB / 128GB		1*DDR5 SO-DIMM 5600MHz, 96GB / 128GB					
Graphics	Intel UHD Graphics or iRIS® X® Graphics , Supports Intel DL boost deep learning technology, DirectX12.1, OpenGL 4.6 and OpenCL 2.0, HDMI 2.0 max res 4096x2304@60Hz, DP 1.4 max res 7680x4320@60Hz		Intel UHD Graphics or iRIS® X® Graphics , DirectX12.1, OpenGL 4.6 and OpenCL 3.0, HDMI max res. 4096x2304@60Hz		Intel UHD Graphics/ iRIS® Xe Graphics, DirectX12.1, OpenGL 4.6 and OpenCL 3.0, HDMI: 4096x2304@60Hz				Intel UHD Graphics or iRIS® Xe , DirectX12.1, OpenGL 4.6 and OpenCL 3.0, HDMI max res. 4096x2304@60Hz				Intel® Graphics, Xe Graphics *4, DirectX12.2, OpenGL 4.6, HDMI: 7680x4320@60Hz		Intel® Graphics, Xe Graphics *4, DirectX12.2, OpenGL 4.6, HDMI: 7680x4320@60Hz					
I/O Port																				
LAN	3*Intel I225V, 10M / 100M / 1000M / 2.5G, support iAMT 13.0		2*Intel I210AT, 10/100/1000Mbps adaptive, supports WOL		3*Intel I210AT, 10-1000Mbps,				3*I210AT+6* Gigabit switch electrical ports, 10-1000Mbps,supports WOL				3*LAN, Intel I210AT, 10-1000M		3*I210AT+6* Gigabit switch electrical ports, 10-1000Mbps,supports WOL					
USB	2*USB3.2, 2*USB2.0, built-in: 2*USB2.0		2*USB3.2; 2*USB2.0		4*USB3.2 ,2*USB2.0				4*USB3.2 , 2*USB2.0				2*USB3.0,4*USB2.0		2*USB3.0,4*USB2.0					
Display	1*DP+1*HDMI 8K+4K dual display output		1*HDMI 4K display output		2*HDMI				2*HDMI				2*HDMI		2*HDMI					
Audio	Realtek ALC662 controller (Opt.)		/		Realtek ALC897, Audio out + Mic				Realtek ALC897, Audio out + Mic				Realtek ALC897, Audio out + Mic		Realtek ALC897, Audio out + Mic					
COM/ Others	2*RS232/422/485		1*RS232/422/485; 1*RS232		2*RS485, 2*RS232				2*RS485, 2*RS232				3*RS232, 3*RS485		2*RS485, 2*RS232					
DIO	1*8-bit DIO (2*5Pin)		1*8-bit DIO (2*5Pin)		1*16bit Iso. DIO (two 10Pin Phoenix terminal)				1*16bit Iso. DIO (two 10Pin Phoenix terminal)				1*16bit Iso. DIO (two 10Pin Phoenix terminal)		1*16bit Iso. DIO (two 10Pin Phoenix terminal)					
Storage																				
Storage	1*2.5" SATA3; 1*full size mSATA, support AHCI 1*M.2 22080 M-Key NVME(PCIe4.0 X2)		2*Full Size mSATA, up to SATA6.0 Gbps, one is PCIeX1 signal automatic detection option		1*Full Size mSATA, SATA6.0 Gbps max				1*Full Size mSATA, SATA6.0 Gbps max				1*Full Size mSATA, SATA6.0 Gbps max		1*Full Size mSATA, SATA6.0 Gbps max					
Expansion																				
Expansion Port	1*full size Mini PCIe(PCIe X1+USB2.0), support Wifi/BT 1*M.2 3052 B-Key(SIM slot+PCIe X1+USB2.0) support 4G LTE/5G NR;1*M.2 22080 M-Key (PCIe4.0 X2) support high speed signal function card		1*full size Mini PCIe(PCIe X1+USB2.0), CAN2.0 1*M.2 3042/3052 B-Key (SIM slot+PCIe X1+USB2.0), 4G LTE /5G NR 1*M.2 2230 E-Key(PCIe X1+USB2.0), WiFi/BT		1*Full Size Mini PCIe(PCIeX1+USB2.0) SIM, 4G LTE and BT etc. modules 1*M.2 2280 M-Key, NVME storage				1*Full Size Mini PCIe(PCIeX1+USB2.0) SIM, 4G LTE and BT etc. modules				1*Full Size Mini PCIe(PCIeX1+USB2.0) SIM, 4G. LTEand BT etc. modules 1*M.2 2280 M-Key , NVME		1*Full Size Mini PCIe(PCIeX1+USB2.0) SIM, 4G LTE and BT etc. modules					
Power Supply																				
Input voltage &TDP	DC 9-36V, 1*3-pin phoenix term, with short circuit, over voltage and over current protection TDP: 12V/2.00A(i7-1165G7 CPU, 4G DDR4 Ram, 64G SSD)		DC 9-36V, 1*3-pin phoenix term, with short circuit, over voltage and over current protection TDP: 37.2W(Intel Core i7-1165G7 CPU,4G DDR4 Ram, 64G SSD)		DC 9-36V, 1*3-pin phoenix term, TDP:21.84W (i5-1135G7/12V/1.82A)				DC 9-36 V, 1*3-pin Phoenix connector Typical: 23.64 W (i7-1165G7 / 8 GB / 128 GB mSATA) Max: 21.84 W (i5-1135G7 / 12 V / 1.82 A)				DC 9-36V, 1*3-pin TDP:27.36W		DC 9-36 V, 1*3-pin Phoenix connector Typical: 23.64 W (i7-1165G7 / 8 GB / 128 GB mSATA) Max: 21.84 W (i5-1135G7 / 12 V / 1.82 A)					
Mechanical																				
Structure	Aluminum Chassis, SGCC frame		SGCC frame		Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame		Aluminum Chassis, SGCC frame					
Color	Blue+white		Silver gray		Silver gray				Silver gray				Silver gray		Silver gray					
Installation	Desktop / DIN-Rail (optional)		Desktop / DIN-Rail (optional)		Desk, anti-vibration non-slip foot pads, opt Din-Rail				Desk, opt Din-Rail or Wall				Desk, opt Din-Rail		Desk, opt Din-Rail or Wall					
Dimension	250*154*61.9mm		172*116*54mm		223.5*118*75.2mm (bracket) ; 190*118*70mm (Without)				223.5*118*75.2mm (bracket) ; 190*118*70mm (Without)				190*118*70mm (Without bracket)		223.5*118*75.2mm (bracket) ; 190*118*70mm (Without)					
Net Weight	2.55kg		0.89KG		1.842kg				1.842kg				1.842kg		1.842kg					
Environmental																				
Operating Temp	-20~65°C, wide temp SSD, airflow		-20~60°C, wide temp SSD, airflow		-20~60°C, wide-temp SSD, air flow (default fanless structure) -20~70°C, wide-temp SSD, air flow (with built-in fan structure)				-20~60°C, wide temp SSD, airflow				-20~70°C, wide temp SSD, airflow		-20~60°C, wide temp SSD, airflow					
Storage Temp	-40°C~85°C		-40°C~85°C		-40°C~85°C				-40°C~85°C				-40°C~85°C		-40°C~85°C					
Storage Humidity	10~95%@40°C, No- condensation		10~95%@40°C, No- condensation		10~95%@40°C, No- condensation				10~95%@40°C,No- condensation				10~95%@40°C, No- condensation		10~95%@40°C,No- condensation					
Vibration	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)		5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)		5 grms/5~500Hz/random/operation (SSD)				5 grms/5~500Hz/random/operation (SSD)				5 grms/5~500Hz/random/operation (SSD);		5 grms/5~500Hz/random/operation (SSD)					
Shock	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)				50g peak acceleration(duration 11ms,SSD)				50g peak acceleration(duration 11ms,SSD)		50g peak acceleration(duration 11ms,SSD)					
Certificate/ EMC	CE/FCC Class A		CE/FCC Class A		CE/FCC Class A				CE/FCC Class A				CE/FCC Class A		CE/FCC Class A					
OS	Windows 10, Windows 11 , Linux		Windows 10, Windows 11 , Linux		Windows 10, Windows 11 , Linux				Windows 10, Windows 11 , Linux				Windows 10, Windows 11 , Linux		Windows 10, Windows 11 , Linux					

Product Listing

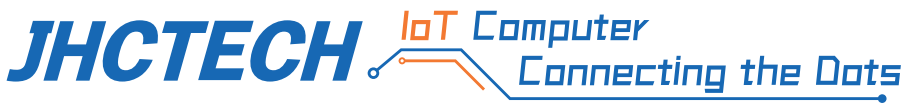
   				  																	
KMDA-3610				KMDA-3920		KMDA-3920ETC		KMDA-3921		KMDA-5610/S001		KMDA-5610/S002		KMDA-5611/S001							
Processor																					
CPU	Intel Skylake-S/Kabylake-S Celeron/ Pentium/Core i3/i5/i7, H110 Chipset			Intel Skylake-S/Kabylake-S Celeron/ Pentium/Core i3/i5/i7 H110 Chipset,optional Q170 Chipset			Intel Skylake-S/Kabylake-S Celeron/ Pentium/Core i3/i5/i7 H110 Chipset,optional Q170 Chipset			Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 processor H310 chipset			Intel® Coffee lake 9th/8th-Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1151 CPU Q370 chipset			Intel® Coffee lake 9th/8th-Gen Core™i9/i7/i5/i3/Pentium /Celeron LGA1151 CPU					
RAM	2*260-Pin ,DDR4,2133/2400MHz, 32GB max.			2*260-Pin ,DDR4,2133/2400MHz, 32GB max.			2*260-Pin ,DDR4,2133/2400MHz, 32GB max.			2*260-Pin ,DDR4,2400/2666MHz, 64GB max.			4*260-Pin ,DDR4,2400/2666MHz, 128GB max.			2*260-Pin SODIMM, DDR4 2666/2400MHz, 64GB max					
Graphics	Intel Gen. 9 HD Graphics,HEVC/H265 HW HD codec, HDMI:3840*2160@30Hz, DP:4096*2304@60Hz,VGA:1920*1200@60Hz, 2 independent display+1 copy display			Intel Gen. 9 HD Graphics,HEVC/H265 HW HD codec, HDMI:3840*2160@30Hz, DP:4096*2304@60Hz,VGA:1920*1200@60Hz, 3 independent display(Intel Q170)			Intel Gen. 9 HD Graphics,HEVC/H265 HW HD codec, HDMI:3840*2160@30Hz, DP:4096*2304@60Hz,VGA:1920*1200@60Hz, support 3 independent display(Intel Q170)			Intel Gen. 9 HD Graphics,HEVC/H265 HW HD codec, HDMI:3840*2160@30Hz, DP:4096*2304@60Hz,VGA:1920*1200@60Hz, support 3 independent display (Intel Q170)			Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 or PCIe X16, DP:4096*2304@60Hz,VGA:1900*1200@60Hz, HDMI:3840*2160@30Hz(2 independent displays, 1 Copy Display)			Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1, DP:4096*2304@60Hz,VGA:1920*1200@60Hz, DP:4096*2304@60Hz (3 independent display)			Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1, HDMI:4096*2160@24Hz, VGA:1920*1200@60Hz		
I/O Port																					
LAN	1*Intel I211AT PCIe ,10-1000M, 1*Intel I219 LM,support Intel Vpro,			1*Intel I211AT PCIe ,10-1000M, 1*Intel I219 LM support Intel Vpro(Intel Q170),			1*Intel I211AT PCIe ,10-1000M, 1*Intel I219 LM support Intel Vpro(Intel Q170),			1*Intel I211AT PCIe ,10-1000M, 1*Intel I219 LM. support Intel Vpro(Intel Q170),			1*Intel I210AT PCIe ,10-1000M, 1*Intel I219 LM,			2*Intel I211AT/I210AT, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, iAMT13.0,vPro;			1*Intel I210AT + 1*Intel I219LM, PCIe X1 4*Intel I210AT POE+ (at.), 10-1000M		
USB	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Built-in)			4* USB3.0, 2*USB2.0 , 1*USB2.0 (Built-in)			4* USB3.0, 1*USB2.0 (Built-in)			4* USB3.0, 2*USB 2.0, 1*USB2.0 (Built-in)			4* USB3.1, 2*USB2.0, 1*USB2.0(Built-in)			6* USB3.1, 2*USB2.0, 2*USB2.0(Built-in)			2*USB2.0 ; 1*USB2.0(Built-in)		
Display	1*DP+1*HDMI+1*VGA			1*DP+1*HDMI+1*VGA			1*DP+1*HDMI+1*VGA			1*DP+1*HDMI+1*VGA			1*DP+1*HDMI+1*VGA			2*DP+1*VGA			1*HDMI; 1*VGA		
Audio	1*Line out+1*Mic,Realtek ALC662VD			1*Line out+1*Mic, Realtek ALC662VD			1*Line out+1*Mic, Realtek ALC662VD			1*Line out+1*Mic, Realtek ALC662VD			1*Line out+1*Mic, Realtek ALC662VD			1*Line out+1*Mic,Realtek ALC662			/		
COM/ Others	2*RS232/422/485, 2*RS232, 1*PS/2(mouse/keyboard)			2*RS232/422/485, 2*RS232, 1*PS/2(mouse/keyboard)			2*RS232/422/485, 8*RS232, 1*PS/2(mouse/keyboard)			2*RS232/422/485 , 2*RS232, 1*PS/2(mouse/keyboard)			2*RS232/422/485, 2*RS232,			2*RS232/422/485, 2*RS232;			1*RS232/422/485 1*RS232		
DIO	8-bit TTL, Programmable DIO 16-bit TTL, Programmable DIO			8-bit TTL, Programmable DIO			16-bit Programmable DIO (2*10Pin) 16-bit Programmable DIO(DB25),TTL			8-bit DIO(2*5Pin) 16-bit DIO(build-in),TTL, programmable input & output			16-bit iso DIO: 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(200mA)			16 bit iso. DIO(2*10pin); 16 bit DIO(2*10pin)			32bit Iso. DIO(2*18-pin Phoenix terminal)		
Storage																					
Storage	2*2.5" SATA3,HDD, 1*mSATA Full-height card,1*M.2 2242 B-key			2*2.5" SATA3 HDD,support RAID0,1(Intel Q170), 1*mSATA,1*M.2 2242 B-key			2*2.5" SATA3 HDD,support RAID0,1(Intel Q170), 1*mSATA,1*M.2 2242 B-key			2*2.5" SATA3,HDD,support RAID0,1(Intel Q170), 1*mSATA,1*M.2 2242 B-key			2*2.5" SATA3,HDD, 1*mSATA,with SIMslot,support 4G			2*2.5" SATA3,RAID0,1; 1*Mini PCIe(SATA3.0/USB2.0), mSATA			1*2.5" easy-plug SATA bay, SATA3.0 max 6Gbps; 1*full size mSATA, SATA3.0+USB2.0, max 6Gbps		
Expansion																					
Expansion Port	1*Mini PCIe, with SIM slot, support 4G/Wifi/BT			1*Mini PCIe, with SIM slot, support 4G LTE/Wifi/BT, 1*PCIe X16, 1*PCIe X4, or 2*PCI, 1*I-port(LPT/USB2.0/Mini PCIe)			1*Mini PCIe(+SIM), 4G LTE/Wifi/BT; 1*PCIe3.0X16+1*PCIe3.0 X4(X4) or 2*32 bit PCI			1*Mini PCIe, with SIM slot, support 4G/Wifi/BT, 1*PCIeX16,1*PCIe X4(X1 signal)+2*PCI, or 2*PCIeX16(X8)+1*PCIeX8(X4)			1*M.2 E-Key 2230, Support Gigabit WFI module, 1*I-port(LPT/USB2.0/16-bit DIO/Mini PCIe)			1*M.2 E-Key 2230(PcieX1&USB2.0); 1*Mini PCIe(SATA3.0/USB2.0+SIM)			1*Mini-PCIe full size,SIM card slot, 4G/WIFI/PCIe signal function module		
Power Supply																					
Input voltage &TDP	DC 12~24V input, TDP: 68.4W (I7-6700T CPU 16GB DDR4)			DC 12~24V input, TDP: 68.78W (I7-6700T , 4GB DDR4, 1TB HDD)			DC 12~24V input, TDP: 68.78W (I7-6700T , 4GB DDR4, 1TB HDD)			DC 12~24V input, TDP: 68.78W (I7-6700T , 4GB DDR4, 1TB HDD)			DC IN 9-36V ,with protection of short circuit, over voltage, over current; TDP: 96W(i7-8700 ,32G DDR4,128G SSD)			DC IN 9-36V , with protection of short circuit, over voltage, over current TDP:60.5W (i7-8700T , 32G DDR4, 128G SSD)			DC IN 9-36V, 3-pin 5.0mm TDP : 73.15W		
Mechanical																					
Structure	Aluminum rectangular cooling plates, SGCC paint main cabinet			Aluminum rectangular cooling plates, SGCC paint main cabinet			Aluminum rectangular cooling plates, SGCC paint main cabinet			Aluminum Chassis, SGCC frame			Aluminum Chassis, SGCC frame			Aluminum Chassis, SGCC frame					
Color	Silver gray			Silver gray			Silver gray			Silver gray			Silver white + Aquamarine			Silver white + Aquamarine			Silver gray		
Installation	desktop mounting			desktop mounting,wall-mount			desktop mounting,wall-mount			desktop mounting,wall-mount			desktop mounting			desktop mounting			Wall(default), Desktop(optional), DIN-Rail (optional)		
Dimension	221*251*88mm			220*250*131mm			220*250**131.5mm			220*250**172mm			230*267.3*92mm			230*267.3*92mm			225*154*75.6 mm		
Net Weight	4.84KG			5.27KG			5.45KG			5.58KG			5.1KG			5.1KG			2.520KG		
Environmental																					
Operating Temp	-20℃~-65℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			-20℃~-65℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			-20℃~-65℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			-20℃~-65℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			-20℃~-60℃,SSD, with air flow; -10℃~-55℃,HDD, with air flow;			-20℃~-60℃,SSD, with air flow; -10℃~-55℃,HDD, with air flow;		
Storage Temp	-40℃~-85℃			-40℃~-85℃			-40℃~-85℃			-40℃~-85℃			-40℃~-85℃			-40℃~-85℃			-40℃~-85℃		
Storage Humidity	10~90%@40℃, No- condensation			10~90%@40℃, No- condensation			10~90%@40℃, No- condensation			10~90%@40℃, No- condensation			10~90%@40℃, No- condensation			10~95%@40℃, No-condensation			10~95%@40℃, No-condensation		
Vibration	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)			5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)		
Shock	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)			50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)			50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)		
Certificate /EMC	CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A		
OS	Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux			Windows 7,Windows 10, Windows 11 , Linux		

Product Listing

   				  																									
KMDA-5920/S001				KMDA-5920/S002				KMDA-5921/S001				KMDA-5921/S002				KMDA-6610				KMDA-6611/S001				KMDA-6920					
Processor																													
CPU		Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 processor H310 chipset				Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 processor Q370 chipset				Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 processor H310 chipset				Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 processor Q370 chipset				Intel® Comet lake 10th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU H420E Chipset				Intel® Comet lake 10th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU H420E Chipset				Intel® Comet lake 10th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU H420E Chipset			
RAM		2*260-Pin ,DDR4,2400/2666MHz, 64GB max.				4*260-Pin ,DDR4,2400/2666MHz, 128GB max.				2*260-Pin ,DDR4,2400/2666MHz, 64GB max.				4*260-Pin ,DDR4,2400/2666MHz, 128GB max.				2*260-Pin ,DDR4,2933MHz, 64GB Max.				2*260-Pin SODIMM, DDR4 2933MHz,64GB max				2*260-Pin ,DDR4,2933MHz, 64GB Max.			
Graphics		Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 or PCIe X16, DP:4096*2304@60Hz, VGA:1900*1200@60Hz, HDMI:4096*2160@30Hz(2 independent displays, 1 Copy Display)				Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 or PCIe X16, DP:4096*2304@60Hz, VGA1900*1200@60Hz, support 3 independent display				Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 or PCIe X16, DP:4096*2304@60Hz,VGA:1900*1200@60Hz, HDMI:4096*2160@30Hz(2 independent displays, 1 Copy Display)				Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 or PCIe X16, DP:4096*2304@60Hz, VGA1900*1200@60Hz, support 3 independent display				Intel UHD Graphics, Supports DirectX12, OpenGL 4.5; DP:4096*2304@60Hz, VGA:1900*1200@60Hz, HDMI:4096*2160@30Hz (2 independent display)				Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, HDMI:4096*2160@30Hz, VGA:1920*1200@60Hz				Intel UHD Graphics, Supports DirectX12, OpenGL 4.5; DP:4096*2304@60Hz, VGA:1900*1200@60Hz, HDMI:4096*2160@30Hz (2 independent display)			
I/O Port																													
LAN		1*Intel I211AT/I210AT PCIe ,10-1000M, WOL 1*Intel I219 LM, 10-1000M, WOL				2*Intel I211AT/I210AT PCIe, 10-1000M, WOL 1*Intel I219 LM, support Intel Vpro				1*Intel I211AT/I210AT PCIe, 10-1000M, WOL 1*Intel I219 LM,10-1000M, WOL				2*Intel I211AT/I210AT PCIe ,10-1000M, WOL 1*Intel I219 LM support Intel Vpro				1*Intel I226V, PCIe X1, 10M-2.5G, WOL; 1*Intel I219 LM, 10-1000M, WOL				1*Intel I210AT + 1*Intel I219LM 4*Intel I210AT POE+ (at.), 10-1000Mbps,				1*Intel I226V, PCIe X1, 10M-2.5G, WOL; 1*Intel I219 LM, 10-1000M, WOL			
USB		4* USB3.1, 2*USB2.0, 1*USB2.0(Built-in)				6* USB3.1, 2* USB2.0, 2*USB2.0(Built-in)				4* USB3.1, 2*USB2.0, 1*USB2.0(Built-in)				6* USB3.1, 2*USB2.0, 2*USB2.0(Built-in)				4* USB3.2 Gen1, 2*USB2.0, 2*USB2.0(Built-in)				2*USB2.0; 1*USB2.0(Built-in)				4* USB3.2 Gen1, 2*USB2.0, 2*USB2.0(Built-in)			
Display		1*DP+1*HDMI+1*VGA				2*DP+1*VGA				1*DP+1*HDMI+1*VGA				2*DP+1*VGA				1*DP+1*HDMI+1*VGA				1*HDMI; 1*VGA				1*DP+1*HDMI+1*VGA			
Audio		1*Line out+1*Mic, Realtek ALC662VD				1*Line out+1*Mic, Realtek ALC662VD				1*Line out+1*Mic, Realtek ALC662VD				1*Line out+1*Mic, Realtek ALC662VD				1*Line out+1*Mic, Realtek ALC 897				/				1*Line out+1*Mic, Realtek ALC 897			
COM/ Others		2*RS232/422/485, 2*RS232,				2*RS232/422/485, 2*RS232,				2*RS232/422/485, 2*RS232,				2*RS232/422/485, 2*RS232,				2*RS232/422/485, 2*RS232; 1*LPT, 1*PS/2				1*RS232/422/485 , 1*RS232				2*RS232/422/485, 2*RS232; 1*LPT, 1*PS/2			
DIO		16-bit iso DIO: 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(200mA)				16-bit iso DIO: 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(200mA)				16-bit iso DIO: 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(200mA)				16-bit iso DIO: 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(200mA)				8-bit DIO,TTL 16-bit DIO(2*10 pin)				32bit Iso. DIO				8-bit DIO,TTL 16-bit DIO(2*10 pin)			
Storage																													
Storage		2*2.5" SATA3; 1*Mini PCIe(SATA3.0/USB2.0), mSATA				2*2.5" SATA3, RAID 0/1; 1*Mini PCIe(SATA3.0/USB2.0), mSATA; 1*M.2 M-Key 2280(PcieX4), NVME				2*2.5" SATA3; 1*Mini PCIe(SATA3.0/USB2.0), mSATA				2*2.5" SATA3, RAID 0/1; 1*Mini PCIe(SATA3.0/USB2.0), mSATA; 1*M.2 M-Key 2280(PcieX4), NVME				2*2.5" SATA3, 6Gbps; 1*mSATA(SATA3.0/USB2.0)				1*2.5" easy-plug SATA bay, SATA3.0, max 6Gbps; 1*full size mSATA, SATA3.0+USB2.0, max 6Gbps				2*2.5" SATA3, 6Gbps; 1*mSATA(SATA3.0/USB2.0)			
Expansion																													
Expansion Port		1*M.2 E-Key 2230, Support Gigabit WFI module, 1*PCle X16, 1*PCle X4, 1*I-port(LPT/USB2.0/16-bit DIO/Mini PCIe)				1*M.2 B-Key,with SIM slot. support5G, 1*M.2 E-Key, 1*PCle X16,1*PCle X4, 1*Mini PCIe,with SIM slot. support4G/WIFI/BT 1*I-port(LPT/USB2.0/16-bit DIO/Mini PCIe)				1*M.2 E-Key 2230, Support Gigabit WFI module/BT5.0 1*PCle X16, 1*PCle X4 , 2*32-bit PCI 1*I-port(LPT/USB2.0/16-bitDIO/Mini PCIe)				1*M.2 B-Key,with SIM slot. support 5G, 1*M.2 E-Key, 1*Mini PCIe,with SIM slot. support4G/WIFI/BT, 1*I-port(LPT/USB2.0/16-bit DIO/Mini PCIe), 2*PCle X8,2*PCle X4 or 1*PCle X16,1*PCle X4,2*PCI				1*Mini PCIe(PCleX1/USB2.0+SIM), 4G LTE/PCle;				1*Full Size Mini PCIe SIM, 4G、LTE and BT etc. modules				1*PCle3.0 X16(X16)+1*PCle3.0 X16(X4) ; or 1*PCle3.0 X16(X16)+ 1*32-bit PCI; 1*Mini PCIe(PCleX1/USB2.0+SIM), 4G LTE/PCle;			
Power Supply																													
Input voltage &TDP		DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 60.5W(I7-8700T,16G DDR4,128G SSD)				DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 60.5W(I7-8700T,16G DDR4,128G SSD)				DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 48.5W(I7-9700,16G DDR4,128G SSD)				DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 48.5W(I7-9700,16G DDR4,128G SSD)				DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 59.5W(i5-10500 /4G DDR4/256G SSD)				DC 9-36V, 3-pin 5.0mm; TDP : 80.01W				DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 57.2W(i7-10700TE /4G DDR4/256G SSD)			
Mechanical																													
Structure		Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame				Aluminum Chassis, SGCC frame			
Color		Silver white + Aquamarine				Silver white + Aquamarine				Silver white + Aquamarine				Silver white + Aquamarine				Silver white + Aquamarine				Silver gray				Silver white + Aquamarine			
Installation		desktop mounting				desktop mounting				desktop mounting				desktop mounting				desktop mounting				Wall(default), Desktop(optional), DIN-Rail(optional)				desktop mounting			
Dimension		230*273*143mm				230*273*143mm				230*273*204mm				230*273*204mm				230*267.3*92mm				225*154*75.6 mm				230*273*143mm			
Net Weight		5.9KG				5.9KG				7.25KG				7.25KG				5.12KG				2.52KG				5.9KG			
Environmental																													
Operating Temp		-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow				-20℃~-60℃,SSD,with air flow -10℃~-55℃,HDD,with air flow			
Storage Temp		-40℃~85℃				-40℃~85℃				-40℃~85℃				-40℃~85℃				-40℃~85℃				-40℃~85℃				-40℃~85℃			
Storage Humidity		10~90%@40℃, No- condensation				10~90%@40℃, No- condensation				10~90%@40℃, No- condensation				10~90%@40℃, No- condensation				10~90%@40℃, No- condensation				10~95%@40℃, No- condensation				10~90%@40℃, No- condensation			
Vibration		5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)				5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)				5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)				5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)				5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)				5 grms/5~500Hz/random/operation (SSD)				5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)			
Shock		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)				50g peak acceleration(duration 11ms,SSD)				50g peak acceleration(duration 11ms,SSD) 20g peak acceleration(duration 11ms,HDD)			
Certificate /EMC		CE/FCC Class A				CE/FCC Class A				CE/FCC Class A				CE/FCC Class A				CE/FCC Class A				CE/FCC Class A				CE/FCC Class A			
OS		Windows 7,Windows 10, Windows 11 , Linux				Windows 7,Windows 10, Windows 11 , Linux				Windows 7,Windows 10, Windows 11 , Linux				Windows 7,Windows 10, Windows 11 , Linux				Windows 10, Windows 11 , Linux				Windows 10, Windows 11 , Linux				Windows 10, Windows 11 , Linux			

Product Listing

       								
KMDA-6921 KMDA-7610 KMDA-7611/S001 KMDA-7611/T001 KMDA-7920 KMDA-7921 SCC-3116 ECC-U5000								
Processor								
CPU	Intel® Comet lake 10th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU H420E Chipset	Intel® 12th/13th/14th Gen Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh LGA1700 Series CPU	Intel® Alder lake-S/Raptor Lake-S 12/13th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU; H610 PCH	Intel® Alder lake-S/Raptor Lake-S 12/13th Gen Core™ i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU; H610 PCH	Intel® 12th/13th/14th Gen Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh LGA1700 Series CPU	Intel® 12th/13th/14th Gen Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh LGA1700 Series CPU	Intel® Baytrail-D Celeron J1900 , frequency 2.0~2.42GHz, quad-core with 4 threads, 2M cache, 22nm, TDP 10W	Intel® Elkhart lake SoC CPU: Celeron J6412 2.0-2.6GHz
RAM	2*260-Pin ,DDR4,2933MHz, 64GB Max.	2*262-Pin, DDR5,4800MHz, 64GB max.	2*DDR5 SODIMM, 4800MHz, 64GB max.	2*DDR5 SODIMM, 4800MHz, 64GB max.	2*262-Pin, DDR5,4800MHz, 64GB max.	2*262-Pin, DDR5,4800MHz, 64GB max.	1*DDR3L, 1333MHz SODIMM, 8GB max.	1*DDR4, 3200MHz SODIMM, 32GB max.
Graphics	Intel UHD Graphics, Supports DirectX12, OpenGL 4.5; DP:4096*2304@60Hz, VGA:1900*1200@60Hz, HDMI: 4096*2160@30Hz (2 independent display)	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0 DP:8K@60Hz,HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent display	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0; HDMI : 4096x2160@60Hz,	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0; HDMI : 4096x2160@60Hz,	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0 DP:8K@60Hz,HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent display	Intel® UHD Graphics, Supports DirectX 12, OpenGL 4.5, OpenCL 3.0 DP:8K@60Hz,HDMI:4096*2160@60Hz, VGA:1920*1200@60Hz, 3 independent display	Intel HD Graphics,OpenGL 3.2, DirectX 11, OpenCL 1.2, MPGE2/H.264, Dual independent display, VGA : 1920*1200@60Hz, HDMI:1920*1080@60Hz	Intel UHD Graphics / Iris® Xe Graphics, Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz
I/O Port								
LAN	1*Intel I226V, PCIe X1, 10M-2.5G, WOL; 1*Intel I219 LM, 10M-1000M, WOL	1*Intel I226V, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, WOL	3*Intel I210AT, 10M-1000M, WOL; 1*Intel I219LM, 10M-1000M, WOL	1*Intel I210AT, 10M-1000M, WOL; 1*Intel I219LM, 10M-1000M, WOL	1*Intel I226V, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, WOL	1*Intel I226V, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, WOL	3*Intel I210AT, 10-1000M	3*RTL811H-VB, 10-1000M
USB	4* USB3.2 Gen1, 2*USB2.0, 2*USB2.0	2* USB3.2(10G),2*USB3.2(5G),2*USB2.0	2* USB3.2 Gen2, 2* USB3.2 Gen1	4*USB3.2;1*USB2.0	2* USB3.2(10G),2*USB3.2(5G),2*USB2.0	2* USB3.2(10G),2*USB3.2(5G),2*USB2.0	1* USB3.0; 6*USB2.0	2* USB3.1; 2*USB2.0
Display	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	1*HDMI	1*HDMI	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	1*HDMI+1*VGA	1*HDMI
Audio	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic,Realtek ALC897	/	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic,Realtek ALC662VD	/
COM/ Others	2*RS232/422/485, 2*RS232; 1*LPT, 1*PS/2	2*RS232/422/485, 2*RS232; 1*SM Bus	2*RS232/422/485; 4*RS232	2*RS232/422/485	2*RS232/422/485, 2*RS232; 1*SM Bus	2*RS232/422/485, 2*RS232; 1*SM Bus	4*RS232/422/485, 1*RS232; 1*PS/2	2*RS232/485, 6*RS485; 2*CAN
DIO	8-bit DIO,TTL 16-bit DIO(2*10 pin)	16 bit iso. DIO,8bit DI(,PNP/NPN),8bit DO 16 bit iso. DIO(2*10pin)	8 bit iso. DIO(2*5pin)	8 bit iso. DIO(2*5pin)	16 bit iso. DIO, 8bit DI(PNP/NPN),8bit DO 16 bit iso. DIO(2*10pin)	16 bit iso. DIO, 8bit DI(PNP/NPN),8bit DO 16 bit iso. DIO(2*10pin)	8bit DIO (DB9) ,TTL	8*DI+6*DO
Storage								
Storage	2*2.5" SATA3, 6Gbps; 1*mSATA(SATA3.0 & USB2.0)	2*2.5" SATA3, 15mm; 1*mSATA(SATA3)	1*2.5"SATA3.0, 6Gbps; 1*mSATA, 6Gbps	1*mSATA, 6Gbps	2*2.5" SATA3, 15mm; 1*mSATA(SATA3)	2*2.5" SATA3, 15mm; 1*mSATA(SATA3)	1*2.5" SATA2,HDD/SSD; 1*mSATA, AHCI	1*mSATA, 6Gbps
Expansion								
Expansion Port	1*PCIe3.0 X16(X16)+ 1*PCIe3.0 X4(X2), 2*32-bit PCI; 1*Mini PCIe(PCleX1/USB2.0+SIM), 4G LTE/PCle;	1*Mini PCIe(PCleX1/USB+SIM), 4G LTE/PCle;	2*Mini PCIe(PCle X1/USB2.0), PCIe module; 1*M.2 3052/3042 B-Key (PCle X1/USB2.0+SIM),5G NR;	2*Mini PCIe(PCle X1/USB2.0), PCIe module; 1*M.2 3052/3042 B-Key (PCle X1/USB2.0+SIM),5G NR;	1*PCIe5.0X16(X16)+1*PCIe3.0X16(X4); or 1*PCIe5.0X16(X16)+1*32bit PCI; 1*Mini PCIe(PCleX1/USB+SIM),4G LTE	1*PCIe5.0X16(X16)+1*PCIe3.0X4(X2)+ 2*32bit PCI; 1*Mini PCIe(PCleX1/USB+SIM),4G LTE	1*Mini PCIe(+SIM),4G LTE/Wifi/BT;	1*Mini PCIe(+SIM),4G LTE/Wifi/BT; 1*Mini PCIe(PCleX1+USB2.0)
Power Supply								
Input voltage &TDP	DC IN 9-36V ,with protection of short circuit, over voltage, over current TDP: 60W(i7-10700K /4G DDR4/256G SSD)	DC IN 9-36V 3-pin, with protection of short circuit, over voltage, over current; TDP: 79.1W	DC 9-36V, with SCP,OVP,OCP; TDP: 105.84W (Intel I3-12100/128GB SSD/32GB RAM)	DC 9-36V, with SCP,OVP,OCP; TDP: 105.84W (Intel I3-12100/128GB SSD/32GB RAM)	DC IN 9-36V 3-pin, with protection of short circuit, over voltage, over current; TDP: 80.2W	DC IN 9-36V 3-pin, with protection of short circuit, over voltage, over current; TDP: 80.2W	DC IN 9-36V,OVP&OCP; TDP: 14.4W(2.5" HDD)	DC IN 12V/9-36V,OVP&OCP; TDP: 18.35W(Celeron J6412/2.00GHz, 8G DDR4, 128G mSATA)
Mechanical								
Structure	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame
Color	Silver white + Aquamarine	Silver white+Aquamarine	Silver gray	Silver gray	Silver white+Aquamarine	Silver white+Aquamarine	Silver gray	Silver gray
Installation	desktop mounting	desktop mounting	desktop/Wall/Din-Rail mounting	desktop/Wall/Din-Rail mounting	desktop mounting	desktop mounting	desktop mounting	desktop mounting
Dimension	230*273*204mm	256.68*267.3*99mm	238*169*75.6mm	238*169*61.8mm	256.68*312.7*149.9mm	256.68*312.7*210.9mm	268*160*57.6mm	222*140*45mm
Net Weight	6.84KG	5.12KG	2.55KG	2.32KG	6.31 KG	7.4KG	2.15KG	1.32KG
Environmental								
Operating Temp	-20℃~60℃,SSD,with air flow -10℃~55℃,HDD,with air flow	-20℃~60℃,SSD, with air flow; -10℃~55℃,HDD, with air flow;	-20℃~60℃,SSD, with air flow; -10℃~55℃,HDD, with air flow;	-20℃~60℃,SSD, with air flow; -10℃~55℃,HDD, with air flow;	-20℃~60℃,SSD, with air flow; -10℃~55℃,HDD, with air flow;	-20℃~60℃,SSD, with air flow; -10℃~55℃,HDD, with air flow;	-20℃~65℃,SSD,with air flow -10℃~55℃,HDD,with air flow	-20℃~60℃,SSD, with air flow
Storage Temp	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃
Storage Humidity	10~90%@40℃, No- condensation	10~95%@40℃, No-condensation	10~95%@40℃, No-condensation	10~95%@40℃, No-condensation	10~95%@40℃, No-condensation	10~95%@40℃, No-condensation	10~90%@40℃, No- condensation	10~90%@40℃, No- condensation
Vibration	5 grms/5~500Hz/random/operation (SSD); 1 grms/5~500Hz/random/operation (HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)	5 grms/5~500Hz/random/operation (SSD) 1 grms/5~500Hz/random/operation (HDD)
Shock	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); 20gpeak acceleration(duration 11ms,HDD)	50g peak acceleration(duration 11ms,SSD); 20gpeak 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)
Certificate /EMC	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux



ALAD Panel PC Models and Key Differences

Model	CPU	Model	CPU	Model	CPU
A1010T/T(P)	Elkhart lake	K1020T	Sky lake-U/ Kaby lake-U	K1050T/T(P)	Tiger lake-U
A1210T/T(P)		K1220T		K1250T/T(P)	
A1510T(P)		K1520T		K1550T(P)	
A1710T/T(P)		K1720T		K1750T/T(P)	
A1810T(P)		K1820T(P)		K1850T(P)	
A1910T/T(P)		K1920T		K1950T/T(P)	
A2110T(P)		K2120T(P)		K2150T(P)	
A2310T(P)		K2320T(P)		K2350T(P)	



Product Listing

System	ALAD-K1050T(P)	ALAD-K1250T(P)	ALAD-K1550T(P)	ALAD-K1551T(P)	ALAD-K1750T(P)	ALAD-K1850T(P)	ALAD-K1950T(P)	ALAD-K2150T(P)	ALAD-K2350T(P)
CPU	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W	Intel® Tigerlake U Celeron/Core i3/i5/i7 CPU, ULT SoC, TDP 12W/15W
RAM	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.	1*DDR4, 3200Mhz SODIMM, 32GB max.
Graphics	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz	Intel®UHD/ Intel® Iris® Xe Graphics: Intel DL boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI:4096*2304@60Hz
I/O Interfaces									
LAN	2*Intel i210AT, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL	2*Intel i226V, 10M-1000M, WOL
USB	4*USB3.2	4*USB3.2+1*USB2.0	4*USB3.2	4*USB3.2+1*USB2.0	4*USB3.2+1*USB2.0	4*USB3.2	4*USB3.2+1*USB2.0	4*USB3.2	4*USB3.2
Display	1*HDMI	1*HDMI	1*HDMI	1*HDMI	1*HDMI	1*HDMI	1*HDMI	1*HDMI	1*HDMI
Audio	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897	1*Line out, Realtek ALC897
Serial port	2*RS232/422/485	2*RS232/422/485+2*RS232	2*RS232/422/485	2*RS232/422/485+2*RS232	2*RS232/422/485+2*RS232	2*RS232/422/485+2*RS232	2*RS232/422/485+2*RS232	2*RS232/422/485+2*RS232	2*RS232/422/485+2*RS232
LCD Display									
Dimensions	10.1" TFT LCD	12.1" TFT LCD	15.6" TFT LCD	15.0" TFT LCD	17.0" TFT LCD	18.5" TFT LCD	19.0" TFT LCD	21.5" TFT LCD	23.8" TFT LCD
Resolution	1280*800	1280*800	1920*1080	1024*768	1280*1024	1366*768	1280*1024	1920*1080	1920*1080
Max. colors	16.2M	16.2M	16.2M	16.2M	16.7M	16.7M	16.7M	16.7M	16.7M
Luminance	350	500	350	350	350	300	470	300	350
Viewing Angle	85°(L), 85°(R), 85°(U),85°(D)	80°(L), 80°(R), 70°(U),70°(D)	85°(L), 85°(R), 85°(U),85°(D)	80°(L), 80°(R), 80°(U),80°(D)	80°(L), 80°(R), 80°(U),80°(D)	85°(L), 85°(R), 85°(U),85°(D)	85°(L), 85°(R), 85°(U),85°(D)	89°(L), 89°(R), 89°(U),89°(D)	89°(L), 89°(R), 89°(U),89°(D)
Touch screen									
Touch type	5-wire resistive touch screen/ projected capacitive touch screen	5-wire resistive touch screen/ projected capacitive touch screen	5-wire resistive touch screen/ projected capacitive touch screen	5-wire resistive touch screen/ projected capacitive touch screen	projected capacitive touch screen	5-wire resistive touch screen/ projected capacitive touch screen	projected capacitive touch screen	projected capacitive touch screen	projected capacitive touch screen
Transmittance	83%/≥85%	83%/90%	83%/90%	83%/90%	90%	83/90%	90%	90%	90%
Controller	USB	USB	USB	USB	USB	USB	USB	USB	USB
Storage	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA	1*2.5" SATA3.0 HDD/SSD, 1*mSATA
Expansion	1*Mini PCIe(PCle&USB),PCle module; 1*M.2 3042/3052(+SIM), 4G LTE/5G NR	1*Mini PCIe(PCle&USB),PCle module; 1*M.2 3042/3052(+SIM), 4G LTE/5G NR	1*Mini PCIe(PCle&USB),PCle module; 1*M.2 3042/3052(+SIM), 4G LTE/5G NR Opt.1*PCleX4 (X4) /1*32bit PCI	1*Mini PCIe(PCle&USB),PCle module; 1*M.2 3042/3052(+SIM), 4G LTE/5G NR Opt.1*PCleX4 (X4) /1*32bit PCI	1*Mini PCIe(PCle&USB),PClemodule 1*M.2 3042/3052(+SIM), 4G /5G NR	1*Mini PCIe(PCle&USB),PCle module 1*M.2 3042/3052(+SIM), 4G/5G NR	1*Mini PCIe(PCle&USB),PCle module 1*M.2 3042/3052(+SIM), 4G /5G NR Opt.1*PCleX4 (X4) /1*32bit PCI	1*Mini PCIe(PCle&USB),PCle module 1*M.2 3042/3052(+SIM), 4G /5G NR Opt.1*PCleX4 (X4) /1*32bit PCI	1*Mini PCIe(PCle&USB),PCle module 1*M.2 3042/3052(+SIM), 4G /5G NR Opt.1*PCleX4 (X4) /1*32bit PCI
Power Supply									
Input voltage & TDP	DC IN 9~36V; 34.5W (CPU i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (CPU i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (CPU i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (CPU i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (i7-1165G7, 8G DDR4, 128G SSD)	DC IN 9~36V; 11.5W (i7-1165G7, 8G DDR4, 128G SSD)
Mechanical									
Sturcture	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell	Aluminum die-casting front bezel , fin-shaped radiator shell
Dimension (W*H*D)	275*193*51mm Panel mounting opening size(W*H): 270*188mm	315*259*51mm Panel mounting opening size(W*H): 303*247mm	416*265*59mm Panel mounting opening size(W*H): 403*251mm	380*315*56mm Panel mounting opening size(W*H): 368*303mm	415.5*360.5*59mm Panel mounting opening size(W*H): 407*352mm	482*305*59mm Panel mounting opening size(W*H): 474*396mm	453.5*388.5*64mm Panel mounting opening size(W*H): 445*380mm	546.9*344.7*64mm Panel mounting opening size(W*H): 538*335mm	594*375*64mm Panel mounting opening size(W*H): 583*364mm
Mounting	Panel/VESA 100*100/75*75mm	Panel/VESA 100*100/75*75mm	Panel/VESA 100*100/75*75mm	Panel/Rack/VESA 100*100/75*75mm	Panel/Rack/VESA 100*100/75*75mm	Panel/VESA 100*100/75*75mm	Panel/Rack/VESA 100*100/75*75mm	Panel/VESA 100*100/75*75mm	Panel/VESA 100*100/75*75mm
Net Weight	1.85KG	2.8KG	3.7KG	4.3KG	6.1KG	6.63KG	6.9KG	8.15KG	7.74KG
Environmental									
Operating Temp.	0~ 50°C, HDD(-10 ~ 55°C, SSD),airflow	0~ 50°C, HDD(-10 ~ 55°C, SSD),airflow	0~ 50°C, HDD(-10 ~ 55°C, SSD),airflow	0~ 50°C, HDD(-10 ~ 55°C, SSD),airflow	0~ 50°C, HDD(-10~55°C, SSD),airflow	0~ 50°C, HDD(-10~55°C, SSD),airflow	0~ 50°C, HDD(-10~55°C, SSD), airflow	0~ 50°C, HDD(-10~55°C, SSD), airflow	0~ 50°C, HDD(-10~55°C, SSD), airflow
Storage Temp.	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C	-20°C~60°C
Storage Humidity	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing	10~95%@40°C, non-condensing
Vibration	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD	1g 5~500Hz,with HDD
Shock	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD	10g peak acceleration (duration 11ms) with HDD
EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
OS	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, Android, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto



System	
WPPC-H1520T(P)	
CPU	Intel Twin Lake N150 Intel® Tiger lake Core i3/i5/i7ULT SOC,TDP 6W/28W
RAM	1*DDR4 3200 MHz SODIMM,Max.32GB
Graphics	Intel® Graphics (N150) Intel® Iris® Xe Graphics (i5-1135G7)
I/O Interfaces	
Rear Panel I/O	1*M12 8-Pin COM: 1*RS232/422/485 (RS232 by default) 1*M12 8-Pin USB2.0 Type A dual-port 2*M12 8-Pin 2.5GbE LAN 1*M12 4-pin DC-IN terminal socket
Optional I/O	1*Reserved Optional I/O Port:1*COM / 1*USB2.0 Type A dual-port
Other	1* SUS304 Vent Valve, 2* WIFI Antenna Interfaces (Optional)
LCD Display	
Type	15" TFT LED Backlight
Resolution	1024*768@60Hz
Max. colors	16.2M
Luminance ^(cd/m²)	400
Viewing Angle	80°(left), 80°(right), 80°(up), 80°(down)
Touch screen	
Touch type	Projected Capacitive Touch Screen
Transmission	90%
Controller	USB
Storage	
Storage	1* M.2 2280 M-Key (supports NVME SSD storage), 1* Full-Size mSATA
Expansion	
Expansion Port	1* Mini PCIe (supports PCIe & USB signals), 1* M.2 B-Key Type 3042/3052, 1* Mini-SIM Card Slot
Power Supply	
Input voltage & TDP	DC IN 9~36V, D-Jack w/M8, Power consumption: 19.5W
Mechanical	
Sturcture	SUS304 stainless steel/5052 Aluminum alloy/SECC
Type (W*H*D)	343*267*53mm
Installation	Desktop mounting VESA(100mm*100mm)
Net Weight	4.7KG
Environmental	
Operating Temperature	-20°C ~ 50°C (-4°F to +122°F)
Storage Temperature	-30°C ~ 70°C (-22°F to +158°F)
Storage Humidity	10~95%@40°C, No- condensation
Vibration	1g 5~500Hz
Shock	10g peak acceleration (duration 11ms) with HDD
EMC	CE,FCC Class A
OS	
Windows 11*IoT Enterprise, Windows 10*IoT Enterprise, Linux, Ubuntu	



ALAD-101T		ALAD-151T		ALAD-171T		ALAD-181T(P)		ALAD-191T		ALAD-211T(P)		
LCD Display												
Dimension	10.1" TFT LED		15" TFT LED		17" TFT LED		18.5" TFT LED		19" TFT LED		21.5" TFT LED	
Resolution	1280*800		1024*768		1280*1024		1366*768		1280*1024		1920*1080	
Max. colors	16.7M		16.2M		16.2M		16.7M		16.7M		16.7M	
Max. Luminance	350		350		600		300		470		300	
Viewing Angle	85°(left), 85°(right), 85°(up), 85°(down)		80°(left), 80°(right), 80°(up), 80°(down)		80°(left), 80°(right), 70°(up), 80°(down)		89°(left), 89°(right), 85°(up), 85°(down)		85°(left), 85°(right), 75°(up), 85°(down)		89°(left), 89°(right), 89°(up), 89°(down)	
Backlight life	15000 hours/50000 hours		50000 hours		70000 hours		50000 hours		50000 hours		50000 hours	
Touch screen												
Touch type	5-wire resistive touch screen/pro- jected capacitive touch screen		5-wire resistive touch screen/pro- jected capacitive touch screen		5-wire resistive touch screen/pro- jected capacitive touch screen		Projected capacitive touch screen		5-wire resistive touch screen/pro- jected capacitive touch screen		Projected capacitive touch screen	
Light Transmission	80%/90%		83%/90%		80%/90%		90%		83%/90%		90%	
Controller	USB/USB		USB/USB,RS232		USB/USB		USB/RS232		USB/USB		USB/RS232	
I/O Port												
OSD menu/language	AUTO/Power/Menu/Source/UP (LEFT)/DOWN(RIGHT) Chinese, English, German, French, Russian, Italian, Spanish, Arabic and other optional languages				AUTO/Power/Menu/Source/UP (LEFT)/DOWN(RIGHT) Chinese, English, German, French, Russian, Italian, Spanish, Arabic and other optional languages							
Display	1*VGA+1*HDMI/1*DP (choose one)		1*VGA+1*HDMI/1*DP (choose one)		1*VGA+1*HDMI/1*DP (choose one)		1*VGA+1*HDMI/1*DP (choose one)		1*VGA+1*HDMI/1*DP (choose one)		1*VGA+1*HDMI/1*DP (choose one)	
Audio	1*Line in, 2*2W power speaker		1*Line in, 2*3W power speaker		1*Line in, 2*3W power speaker		1*Line in, 2*3W power speaker		1*Line in, 2*3W power speaker		1*Line in, 2*3W power speaker	
Touch interface	1*RS232 Touch, 1*USB Touch		1*RS232 Touch, 1*USB Touch		1*RS232 Touch, 1*USB Touch		1*RS232 Touch, 1*USB Touch		1*RS232 Touch, 1*USB Touch		1*RS232 Touch, 1*USB Touch	
Power												
Power Input	DC 10-30V		DC 10-30V		DC 10-30V		DC 10-30V		DC 10-30V		DC 10-30V	
TDP	12V@0.65A (No Power output)		12V@0.65A (No Power output)		12V@1.6A (No Power output)		12V@1.6A (No Power output)		12V@1.6A (No Power output)		12V@1.6A (No Power output)	
Standby power consumption	Standby power consumption <1W		Standby power consumption <1W		Standby power consumption <1W		Standby power consumption <1W		Standby power consumption <1W		Standby power consumption <1W	
Mechanical												
Structure	Aluminum alloy die-casting, flat panel, cooling fin case		Aluminum alloy die-casting, flat panel, cooling fin case		Aluminum alloy die-casting, flat panel, cooling fin case		Aluminum alloy die-casting, flat panel, cooling fin case		Aluminum alloy die-casting, flat panel, cooling fin case		Aluminum alloy die-casting, flat panel, cooling fin case	
Dimension (W*H*D)	275*193*51mm Panel mounting opening size(W*H): 271*189mm		380*315*56mm Panel mounting opening size (W*H): 367.3*303.3mm		415.5*360.5*59mm Panel mounting opening size (W*H): 407*352mm		482.3*304.3*59.1mm Panel mounting opening size (W*H): 473.8*295.8mm		453.5*388.5*64.1mm Panel mounting opening size (W*H): 445*380mm		546.9*344.7*64.1mm Panel mounting opening size (W*H): 537.5*335.3mm	
Net Weight	1.8kg		4.3kg		TBD		6.6kg		TBD		8.1kg	
Installation	Panel mounting, VESA (75*75mm)		Panel mounting, VESA (100*100/75*75mm)		Panel mounting, VESA (100*100mm)		Panel mounting, VESA (100*100/75*75mm)		Panel mounting, VESA (100*100/75*75mm)		Panel mounting, VESA (100*100/75*75mm)	
Environmental												
Operating Temp	-20~70°C, with air flow		0~50°C, with air flow		0~50°C, with air flow		0~50°C, with air flow		0~60°C, with air flow		0~50°C, with air flow	
Storage Temp	-40~80°C		-20~60°C		-20~60°C		-20~60°C		-40~80°C		-20~60°C	
Humidity	10~95%@40°C, No- condensation		10~95%@40°C, No- condensation		10~95%@40°C, No- condensation		10~95%@40°C, No- condensation		10~95%@40°C, No- condensation		10~95%@40°C, No- condensation	
Vibration	1g 5~500Hz		1g 5~500Hz		1g 5~500Hz		1g 5~500Hz		1g 5~500Hz		1g 5~500Hz	
Shock	10g peak acceleration(duration 11ms)		10g peak acceleration(duration 11ms)		10g peak acceleration(duration 11ms)		10g peak acceleration(duration 11ms)		10g peak acceleration(duration 11ms)		10g peak acceleration(duration 11ms)	
Certificate	CE,FCC Class A		CE,FCC Class A		CE,FCC Class A		CE,FCC Class A		CE,FCC Class A		CE,FCC Class A	

Optional function module

ECB-293&ECD-2460



PC interface	Mini PCIe,52Pin
Ethernet	2*Intel I210AT,10-1000M
Operating Temp	-20°C~70°C
Dimension	30*50.9*6.0mm (ECB-246)
	51*27*18mm (ECD-2460)

ECB-260 CANBus



PC interface	Mini PCIe,52Pin
CAN interface	2*DB9
Application	FCANBus
CAN standard	CAN2.0A/CAN2.0B,ISO/DIS 11898-1/2/3
Protocol support	VehicleDBC, CANopen, J1939
Operating Temp	-40°C~85°C
Dimension	50.95*30*1.6mm

OFX-075



Input	DC IN 9-36V
Output	DC OUT 12V
TDP	54W~78W(max.)
Operating Temp	0°C~60°C
Dimension	53*38mm

JHCTECH IoT Computer
Connecting the Dots

SIGM

Embedded In-vehicle Computer-SIGM

					
SIGM-2661			SIGM-U1350		
SIGM-3250			SIGM-U3550		
SIGM-3255			SIGM-3555		
System			System		
CPU	Intel® Elkhart lake Celeron J6412 main frequency2.0-2.6GHz quad-core quad-thread CPU	Intel® Skylake/Kabylake-U CPU i3/i5 /i7 2 Cores , 4 Threads	Intel®Tiger lake U Soc Core i7/i5/i3 CPU	CPU	Intel® Skylake/Kabylake-U Corei3/i5/i7 CPU; Optional MLU220T MXM 8G Ram 16TOPS(INT8)
RAM	1*DDR4 3200MHz SODIMM memory, up to 32GB	DDR4, 2133MHz, onboard 4GB+1*SODIMM, 4+16GB max.	Single-channel DDR4 260-pin SO-DIMM, 3200MHz, up to 32GB	RAM	Onboard 4GB +1*SODIMM, 4+16GB max.
Graphics	Intel® UHD Graphics, LVDS:1920x1200@60Hz, VGA:1920*1200@60Hz, three independent displays and one copy display	CPU integrated Intel Gen. 9 HD Graphics, DP: 4096*2304@60Hz, Smart Display: 1920*1200@60Hz, VGA: 1920*1200@60Hz, 3 independent display	Intel® UHD Graphics LVDS:1920x1200@60Hz, VGA:1920*1200@60Hz, 3 independent and 1 copy display	Graphics	Intel® Gen. 9 HD Graphics, DP:4096*2160@60Hz, Smart Display: 1920*1200@60Hz, VGA: 1920*1200@60Hz, 3 independent display
I/O			I/O		
LAN	2*RTL8111H chip Gigabit network port, 10/100/1000Mbps rate adaptive	6*Intel I210AT PCIe Gig. Ethernet, M12 connectors, 4 of which have POE function, 802.3af(15.4W)	2*RTL8111H chip Gigabit network port, 10/100/1000Mbps rate adaptive	LAN	2*Intel® I210AT 10M-1000M (M12)
USB	4*USB3.1 (Type A) , 2*USB2.0	2* USB3.0; 1*USB2.0 ; 2*USB2.0 (M12)	4*USB3.2 (Type A) , 2*USB2.0	USB	2* USB3.0; 1*USB2.0 ; 2*USB2.0 (M12)
Display	1*LVDS+3*VGA	1*DP+1*VGA+1*Smart Display	1*LVDS+3*VGA	Display	1*DP+1*VGA+1*Smart Display
Audio	Opt. Realtek ALC897 Audio, Audio out and MIC	Opt. Realtek ALC662VD audio, Audio outand MIC	Opt. Realtek ALC897 Audio, Audio out and MIC	Audio	/
Serial port	14*COM (2*RS232/422/485, 12*RS232, DB9 Male)	1*RS232 isolated (DB9 male connector), 1*RS485 isolated (DB9 male connector), optional 2*CAN 2.0 (DB9 male connector)	14*COM (2*RS232/422/485, 12*RS232, DB9 Male)	Serial port	1*Console RS232 (RJ45)
DIO	/	4-ch input/4-ch output, isolated (DB9), 2.5KV opto-isolator input (H: 5-24V, L: 0-1.5V) , opto-isolator output (200mA)	/	DIO	/
Storage			Storage		
Storage	1个128GB mSATA , 1个2.5" 32GB SSD , dual storage	1*2.5" HDD SATA bay; 1*mSATA full height card(SATA+USB)	1*128GB mSATA , 1*2.5" 32GB SSD , dual storage	Storage	1*2.5" HDD SATA bay; 1*mSATA(SATA+USB)
Expansion			Expansion		
Expansion Port	1*Mini PCIe Full Size,optional support PCIe signal module/Wif module	2*Mini PCIe, with dual SIM slot, support dual 4G LTE/ Wifi/BT/GPS 1*Mini PCIe, optional mSATA 1*Mini PCIe with USB signal, When using 2*CAN, this slot is occupied	1*Mini PCIe Full Size , optional support PCIe signal module /Wif module	Expansion Port	2*Mini PCIe(+SIM), 4G/GSM/Wifi/BT/GPS 1*Mini PCIe(SATA+USB), mSATA 1*Mini PCIe(PCle X1/USB)
Power Supply			Power Supply		
Input voltage & Power Consumption	Power module 9-36V wide voltage input, 3-pin terminal interface, TDP: 12V/1.93A(J6412 CPU, 8G, 128G SSD)	Railway power module, DC 48/72/110V input, 4-pin connector M12 (S00X), DC 9~36V input, 5-pin terminal port M12 (T00X) TDP: 28W (I5-6200U, 8GB)	Power module 9-36V wide voltage input, 3-pin terminal interface, TDP: 12V/2.46A(I5-1135G7, 8G, 512G SSD)	Input voltage & TDP	Railway power:DC 110V(43-160V), 4-pin M12; 28W(Non. MLU220T)/44.5W(with MLU220T)
Mechanical			Mechanical		
Structure	Aluminum chassis, stainless steel frame	Aluminum chassis, stainless steel frame	Aluminum chassis, stainless steel frame	Structure	Aluminum chassis, stainless steel frame
Dimension (W*H*D)	260*151*110.8mm (Without mounting kit) , 287*151*114.8mm (With mounting kit)	270*154*64.5mm	260*151*110.8mm (Without mounting kit) 287*151*114.8mm (With mounting kit)	Dimension (W*H*D)	430*44.5*283mm
Net weight	3.10KG	3.2KG	3.10KG	Net weight	4.69KG
Environmental			Environmental		
Operating temperature	-25~60°C	EN50155 TX: -40~70°C(Operating10min in 85°C)	-20~70°C	Operating temperature	EN50155 TX: -40~70°C
Storage temperature	-40°C~85°C	- 40°C~85°C	-40°C~85°C	Storage temperature	-40°C~85°C
Storage humidity	10~90%@40°C, Non-condensing	10~90%@40°C, non-condensing	10~90%@40°C, Non-condensing	Storage humidity	10~95%@40°C, Non-condensation
Vibration	5grms/5~500Hz/random/in working(SSD); 1grms/5~500Hz/random/in working(HDD)	MIL-STD-801G, EN50155	5grms/5~500Hz/random/in working(SSD); 1grms/5~500Hz/random/in working(HDD)	Vibration	MIL-STD-810G, EN50155
Shock	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	MIL-STD-801G, EN50155	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	Shock	MIL-STD-810G, EN50155
Certification /EMC	Chinese 3C	EN50155, E-Mark, CE/FCC Class A	Chinese 3C	Certification /EMC	EN50155: 2017 & E-Mark & CE & FCC Class A
OS			OS		
OS	Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	OS	Windows 7Windows 10, Windows 11 , Linux

				
	ICS-2010	ICS-2020	ICS-4010	ICS-4040
System				
CPU	1/2 Intel Xeon Gen1/2 scalable series processors, Intel® C621 PCH	1/2 Intel Xeon Gen4/5 scalable series processors, Intel® C741 PCH	1/2 Intel Xeon Gen1/2 scalable series processors, Intel® C621 PCH	1/2 Intel Xeon Gen4/5 scalable series processors, Intel® C741 PCH
RAM	16*DDR4,2933MHz ECC LRDIMM/RDIMM LRDIMM:4T (16*256GB); RDIMM:2T (16*128GB)	16*DDR5,2933MHz ECC LRDIMM/RDIMM LRDIMM/RDIMM:4T (16*256GB)	16*DDR4,2933MHz ECC LRDIMM/RDIMM LRDIMM:4T (16*256GB); RDIMM:2T (16*128GB)	16*DDR5,5600MHz,3DS RDIMM/RDIMM 4T max. (16*256GB)
Graphics	VGA:1920*1200@60Hz,	VGA:1920*1200@60Hz,	VGA:1920*1200@60Hz,	VGA:1920*1200@60Hz,
I/O				
LAN	2*Intel I210AT 10M-1000M; 1*IPMI2.0, Aspeed AST2500 BMC	2*Broadcom BCM5720 1GBase-T; 1*IPMI2.0, Aspeed AST2600 BMC	2*Intel I210AT 10M-1000M; 1*IPMI2.0, Aspeed AST2500 BMC	2*Intel I210AT 10M-1000M; 1*IPMI2.0, Aspeed AST2500 BMC
USB	4* USB3.0+2*USB2.0	6* USB3.0	4* USB3.0+ 2*USB2.0	6* USB3.0
Display	1*VGA	1*VGA	1*VGA	1*VGA
Audio	/	/	/	/
Serial port	1*RS232(DB9)	1*RS232 (DB9)	1*RS232 (DB9)	1*RS232 (DB9)
DIO	/	/	/	/
Storage				
Storage	2*2.5" SAS/SATA3.0,RAID0,1	2*2.5" SAS/SATA3.0,RAID0,1	8*2.5"/3.5" SAS/SATA, RAID0/1/5/10; 2*2.5" SAS/SATA	8*2.5"/3.5" SAS/SATA, RAID0/1/5/10; 2*2.5" SAS/SATA
Expansion				
Expansion Port	2*PCIe3.0X16+1*PCIe3.0X8; 1*M.2 22110/2280 M-Key (PCIe3.0X4) , 1*M.2 2280 M-Key (PCIe3.0X4)	2*PCIe5.0X16+1*PCIe5.0X8; 2*M.2 22110/2280 M-Key (PCIe4.0X2) , NVMe; 3*MCIOX8(6*PCIe5.0X4 NVMe)	6*PCIe3.0X16+1*PCIe3.0X8(X4); 1*M.2 22110/2280 M-Key(PCIe3.0X4)	6*PCIe5.0X16+1*PCIe5.0X8; 1*M.2 22110/2280 M-Key(PCIe4.0X4); 3*MCIO(PCIe5.0X8,6*NVMe)
Power Supply				
Input voltage & TDP	550W/800W/1200W/1600W; 1+1 hot swap redundant power supply	550W/800W/1200W/1600W; 1+1 hot swap redundant power supply	550W/800W/1200W/1600W/2000W/2200W; 1+1 hot swap redundant power supply	550W/800W/1200W/1600W/2000W/2200W; 1+1 hot swap redundant power supply
Mechanical				
Structure	Imported SGCC hot dip galvanized steel sheet,19-inch rack 2U standard	Imported SGCC hot dip galvanized steel sheet,19-inch rack 2U standard	Imported SGCC fingerprint resistant galvanized steel, 19-inch rack 4U standard	Imported SGCC fingerprint resistant galvanized steel, 19-inch rack 4U standard
Dimension (W*H*D)	442*447*87mm	442*447*87mm	645*445*176.5mm	645*445*176.5mm
Net weight	11.33kg	11.33kg	18KG	18KG
Environmental				
Operating temp.	0~50°C	10~35°C	0~60°C	5~35°C
Storage temp.	-20°C~75°C	-40°C~70°C	- 20°C~75°C	- 40°C~65°C
Storage humidity	5~95%@40°C, Non-condensation	5~95%@40°C, Non-condensation	5~95%@40°C, Non-condensation	5~95%@40°C, Non-condensation
Vibration	TBD	TBD	TBD	TBD
Shock	TBD	TBD	TBD	TBD
Certification /EMC	CCC/CE/FCC Class A	CCC/CE/FCC Class A	CCC/CE/FCC Class A	CCC/CE/FCC Class A
OS	Windows Server 2019/2012/2008 R2(64-bit) , Windows SBS 2011(64-bit), Red Hat Enterprise Linux Server(64-bit), Suse Enterprise Linux Server(64-bit), Ubuntu Server(64-bit)	Windows Server 2019/2012/2008 R2(64-bit) , Windows SBS 2011(64-bit), Red Hat Enterprise Linux Server(64-bit), Suse Enterprise Linux Server(64-bit), Ubuntu Server(64-bit)	Windows Server 2019/2012/2008 R2(64-bit) , Windows SBS 2011(64-bit), Red Hat Enterprise Linux Server(64-bit), Suse Enterprise Linux Server(64-bit), Ubuntu Server(64-bit)	Windows Server 2019/2012/2008 R2(64-bit) , Windows SBS 2011(64-bit), Red Hat Enterprise Linux Server(64-bit), Suse Enterprise Linux Server(64-bit), Ubuntu Server(64-bit)



       																								
EOM-I912		NODE-I719		NODE-I721		NODE-I914		NODE-I916		NODE-I966		NODE-I973		EPI-I908										
Formfactor	INE Type F			NODE Type 1			NODE Type 1			NODE Type 1			NODE Type 2			NODE Type 2			Intel® Skylake/Kabylake-U processor /Core i3/i5/i7					
CPU	Intel® Tiger lake U SoC CPU: i7-1165G7, 4C8T, 2.8~4.7GHz/28W; i5-1135G7, 4C8T, 2.4~4.2GHz/28W; i3-1115G4, 2C4T, 3.0~4.1GHz/28W;			Intel Elkhart lake Soc CPU: Celeron J6412, 4C4T, 2.0-2.6GHz/10W			Intel Twin lake CPU : N150, 4C4T, 0.8~3.40 GHz/6W			Intel® Tiger lake U SoC CPU: i7-1165G7, 4C8T, 2.8~4.7GHz/28W; i5-1135G7, 4C8T, 2.4~4.2GHz/28W; i3-1115G4, 2C4T, 3.0~4.1GHz/28W;			Intel® Core™ Ultra 5 125U: 2*P Core + 8*E Core, 14, 1.3~4.3 GHz, 15W Intel® Core™ Ultra 5 225U: 2*P Core + 8*E Core, 14, 1.3~4.8 GHz, 15W			Intel gen. 9th Coffee lake-s LGA1151			Intel® Comet lake-S CPU: Core i9/i7/i5/i3/Celeron			1*DDR4,2133MHz,SODIMM, 16GB max.		
DRAM	Dual-channel DDR4 2*260-pin SO-DIMM, up to 3200MHz, 64GB max.			Single channel DDR4 1*260-pin SO-DIMM, up to 3200MHz, 32GB max.			Single channel DDR5 1*260-pin SO-DIMM, 4800MHz, 16GB max			Single channel DDR4 1*260-pin SO-DIMM, up to 3200MHz, 32GB max.			Single channel DDR5 1*260-pin SO-DIMM, 5600MHz, 48GB max			Dual-channelDDR4 2*260-pin SO-DIMM, 2400/2666MHz, 64GB max			Dual-channel DDR4 2*260-pin SO-DIMM, up to 2933MHz, 64GB max.			Intel® Gen. 9 HD Graphics;HDMI & 48-Bit LVDS Dual display, support Intel HD video & wireless display technology; HDMI: 3840*2160@30Hz, LVDS: 1920*1200@60Hz		
Graphics	Intel UHD Graphics or Iris® Xe Graphics, Supports Intel® Deep Learning Boost, DirectX12.1,OpenGL 4.6 and OpenCL 2.0; HDMI 2.0: 4096x2304@60Hz, DP 1.4: 7680x4320@60Hz, eDP: 4096x2304@60Hz			Intel® UHD Graphics, DirectX12.1, OpenGL and OpenCL; DP1.4 : 4096*2160@60Hz, eDP: 4096*2160@60Hz			Intel® UHD Graphics, DirectX, OpenGL and OpenCL DP 1.4 :4096x2160@60Hz, eDP:4096x2160@60Hz			Intel Iris® Xe Graphics, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI 2.0: 4096x2304@60Hz, DP 1.4: 7680x4320@60Hz, eDP: 4096x2304@60Hz			Intel® Graphics, Intel® Arc™ graphics, DirectX12.2, OpenGL 4.6 and OpenCL 3.0, HDMI 2.1 :096x2304@60Hz, DP 1.4: 7680x4320@60Hz, eDP: 3820*2400@120Hz			Intel ® UHD Graphics 630, DirectX 12, OpenGL 4.5 and OpenCL 2.1 HDMI 4K: 4096x2160@30Hz, DP :4096x2304@60Hz, eDP :4096x2304@60Hz			Intel ® UHD Graphics 630, DirectX 12, OpenGL 4.5 and OpenCL 2.1; HDMI:4096*2160@30Hz, DP:4096*2304@60Hz, eDP:4096*2304@60Hz			2*Intel® I210AT/I211AT, 10-1000 M		
Connector 1	eSPI and Fusa PCle Gen3 X1*4/X4*1 PCle Gen3 or USB3.2 X2*1 COM 1 USB2.0 3 SATA 1 DDI 1 GPIO Up to 15 channels F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.1 4 USB2.0 10 PCle3.0 X1*4 PCle3.0 X2*1 SATA(PCleX1) 2 eSPI 1 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 4 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.2 4 eDP 1 PCleX1 3 USB3.2/PCleX1 4 USB2.0 8 SATA3.0/PCleX1 2 eSPI 1 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 4 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.2 4 USB2.0 10 PCle3.0 X1*4 PCle3.0 X2*1 PCle3.0 X4*1 SATA(PCleX1) 2 eSPI 1 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 4 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.2 2 USB2.0 10 PCleX1 4 PCleX2 1 PCleX4 1 eSPI 1 SATA(PCleX1) 2 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 4 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.1 6 USB2.0 10 PCleX1 5 PCleX2 1 SATA 4 LPC(eSPI) 1 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 3 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.2 6 USB2.0 10 PCle3.0 X1*5 PCle3.0 X2*1 SATA(PCleX1) 4 LPC(eSPI) 1 HDA 1 SM BUS 1 Legacy IO 1 RTC 1 UART 3 GPIO 3 F-Panel: Power SW/Reset/PW-LED/HDD-LED			1*HDMI+1*LVDS(pin) 1*Line out+1*Mic, Realtek ALC662,1*Amplifier 2*RS232/422/485,2*RS232(pin); 2 channel power amplifier output; 1*SM Bus wafer; 1*Capacitive touch screen interface, 1*Resistive touch screen interface 8-bit DIO,programmable TTL 2*SATA3 6.0Gbps; 1*mSATA,support AHCI		
Connector 2	PCle3.0 X1*1 PCle3.0 or USB3.1 X2*1 CPU PCle Gen4 X1*2 HDA 1 USB2.0 5 SATA 1 DDI 1 COM 2 GPIO Up to 30 channels																		1*MiniPCle(PCleX1/USB+SIM), 4G/LTE/GSM/Wifi/BT/GPS; 1*80pin EIO:LPC, SM Bus, 2*PCleX1					
Power& TDP	DC IN 12V;			DC IN 12V;			DC IN 12V;			DC IN 12V;			DC IN 12V;			DC IN 12V;			DC 9~36V, 3-pin terminal; 45W(I7-7500U, 4GB, 64GB SSD, 1TB HDD)					
Dimension	133*95*16.6mm			95*82*6.4mm			95*82*6.4mm			95*82*6.4mm			95*82*6.4mm			150*100*13mm			150*100*13mm			190*115mm (Height: 27.4mm, PCB: 1.6mm)		
Operating temp.	0~60°C(Standard); -40~85°C(Extend)			0~60°C			0~60°C			0~60°C			0~60°C			0~60°C			0~60°C			0~60°C		
Storage temp.	-40°C~85°C			-40°C~85°C			-40°C~85°C			-40°C~85°C			-40°C~85°C			-40°C~85°C			-40°C~85°C			-40°C~85°C		
Storage Humidity	10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, Non-condensing			10~95%@40°C, No condensation		
EMC/ Certification	CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A			CE/FCC Class A		
Watchdog Timer	Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			Watchdog timeout programmable via software 1 to 255 second			programmable via software 1 to 255 second		
OS Support	Windows 10, Windows 11,Linux			Windows 10, Windows 11,Linux			Windows 10, Windows 11,Linux			Windows 10, Windows 11,Linux			Windows 10, Windows 11,Linux			Windows7,Windows 10, Windows 11,Linux			Windows 10, Windows 11,Linux			Windows 7,Windows 10, Windows 11,Linux		

								
ECM-I718				MATX-I953-T001				
ECM-I910				MATX-I961				
ECM-I913				MITX-I984				
PITX-I915				ATX-I971				
System								
CPU	Intel® Elkhart lake SoC CPU: Celeron J6412 2.0-2.6GHz/		Intel® Tiger lake U Soc CPU (Core i3-1115G4/i5-1135G7/i7-1165G7.)		Intel® 6th/8th/9th Gen Core i7/i5/i3/ Pentium/ Celeron LGA1151 CPU, TDP 65W		Intel® 9th/8th-Gen Pentium/ Celeron/Core i7/i5/i3 LGA1151 CPU up to 65W	
RAM	1*DDR4 SODIMM,3200MHz, 32GB max.	2*DDR4 SODIMM,2400MHz, 32GB max.	2*DDR4 SODIMM,3200MHz, 64GB max.	LPDDR4x Onboard memory, 16GB max.	2*DDR4 UDIMM,2133/2666MHz, 64 GB max.	4*DDR4 2666/2400MHz, 128GB max.	2*262-pin Non-ECC SODIMM, 2*DDR5 4800/5600MHz, 96GB max	2* DDR4 288-Pin Non-ECC UDIMM, 2933MHz, 64GB max.
Graphics	Intel® Gen.10 UHD Graphics, HEVC/H265 HW; HDMI :4096*2304@60Hz, DP :4096*2160@60Hz, LVDS :1920*1200@60Hz	Intel® Gen. 9 UHD Graphics,Support 3*4K independent display,DirectX 12,HEVC/H265 HW HD codec, highest dynamic frequency is up to 1.2GHz; HDMI :4096*2304@24Hz, DP :4096*2304@60Hz,eDP:4096x2304@60Hz	Intel UHD Graphics or X® Graphics , Supports Intel DL boost,DirectX12.1,OpenGL 4.6 and OpenCL 3.0,HDMI:4096*2304@60Hz, DP:7680*4320@60Hz, LVDS:1920*1200@60Hz,3 independent display	Intel UHD Graphics or iRIS® Xe Graphics , Supports Intel Deep Learning boost, DirectX12.1,OpenGL 4.6 and OpenCL 3.0, HDMI: 4096*2304@60Hz, eDP: 4096*2304@60Hz, 2 independent displays	Intel UHD Graphics, DirectX12,OpenGL 4.5, OpenCL 2.1; HDMI: 4096*2160@30Hz VGA:1920*1200@60Hz DVI-D: 1920 x 1200@60Hz	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0, OpenCL 2.1 DP:4096*2304@60Hz, HDMI: 3840*2160@30Hz, 3 independent displays	Intel® UHD Graphics 770, DirectX 12,OpenGL 4.5, OpenCL 3.0, HDMI:4096*2160@60Hz, eDP:4096*2160@60Hz, LVDS:1920*1200@60Hz	Intel UHD Graphics, DirectX12, OpenGL 4.5, OpenCL 2.1, HDMI:4096*2160@30Hz, VGA:1920*1200@60Hz
I/O								
LAN	2*Realtek 8111H, 10-1000M,WOL	2*Intel@1210AT/1211AT, 10-1000M	1*Intel® I226V, 10-1000M, 1*Intel® I219LM,10-1000M,iAMT13.0	1*Intel® I210AT, 10-1000M; 1*Intel® I219LM, 10-1000M	1* Intel® I210AT,10/100/1000M Intel® I219LM,10-1000M,iVpro	2*Intel I210AT/I211AT,10-1000M; 1*Intel I219LM,10-1000M,iVpro	1*Intel® I210AT, 10/100/1000Mbps 1*Intel® I219LM, 10/100/1000Mbps support WOL	1*Intel® I226V, 10M-2.5G; 1*Intel® I219LM, 10-1000M,iVpro
USB	4*USB3.1(10G), 2*USB2.0(pin)	4*USB3.0, 2*USB2.0(pin)	4*USB3.2(10G), 2*USB2.0(pin)	2*USB3.2, 2*USB2.0 (pin)	4*USB3.2, 2*USB2.0, 4*USB2.0(pin),1*USB2.0(Type A)	4*USB3.1, 4*USB2.0, 2*USB3.1(pin),1*USB2.0(Built-in)	4*USB3.2, 2*USB2.0, 2*USB2.0(2*5pin dupont pins)	4*USB3.2(5G), 4*USB2.0, 3*USB2.0(pin)
Display	1*HDMI+1*DP+1*LVDS(pin)	1*HDMI(1.4)+1*DP(1.2)+1*eDP(pin)	1*HDMI+1*DP+1*LVDS(pin)	1*HDMI+1*eDP	1*HDMI + 1*VGA+ 1*DVI-D	2*DP+1*HDMI	1*eDP, 2*HDMI, 1*LVDS	1*HDMI+1*VGA
Audio	1*Line in+1*Line out+1*Mic, Realtek ALC897	1*Line in+1*Line out+1*Mic, Realtek ALC897	1*Line in+1*Line out+1*Mic, Realtek ALC897	1*Line in+1*Line out+1*Mic, Realtek ALC897	1*Line in+1*Line out+1*Mic, Realtek Audio HDA codec	1*Line in+1*Line out+1*Mic, Realtek ALC897	Realtek ALC897, 5.1 channels, 2*3W	1*Line in+1*Line out+1*Mic, Realtek ALC897,1*Amplifier(Optional)
Serial port &Others	1* RS232/422/485(pin),3*RS232(pin)	2* RS232/422/485(pin),2*RS232(pin)	2* RS232/422/485(pin),2*RS232(pin)	1* RS232/422/485 (pin) , 1*RS232 (pin)	1*RS232/422/485, 4*RS232; 1*RS232/422; 1*LPT; 1*PS/2; 1*SM Bus	4*RS232(pin); 1*PS/2(pin), 1*SM bus	2*RS232/422/485, DB9 Male 2*RS232(2*5pin dupont pins)	2* RS232/422/485, 4*RS232(pin); 1*LPT , 1*PS/2(pin)
DIO	8-bit DIO,programmable TTL	8-bit DIO,programmable TTL	8-bit DIO,programmable TTL	/	8-bit DIO,programmable TTL	8-bit DIO,Programmable TTL	1*8bit DIO(2*5pin dupont pins) 1*F_AUDIO(2*5pin dupont pins)	8-bit DIO,programmable TTL
Storage								
storage	1*SATA 3.0 HDD/SSD; 1*mSATA	1*SATA 3.0 HDD/SSD,1*mSATA(optional)	1*SATA 3.0 HDD/SSD; 1*mSATA(Optional)	1*SATA 3.0, 6.0Gbps; 1*mSATA (Opt.)	4*SATA 3.0 HDD/SSD support RAID 0/1/5/10 1*M.2 2280 M-key(PCIeX4), NVMe or SATA	4*SATA3, HDD/SSD support RAID 0/1/5/10 1*M.2 2280 M-key(PCIe X4), NVMe	1*mSATA(Default SATA, Optional PCIeX1), 2*SATA3.0, supports 3 storage drives	4*SATA3, HDD/SSD
Expansion								
Expansion	1*M.2 2230 E-key,WiFi5/BT5.0, or 1*M.2 3052 B-key(+SIM),4G LTE/5G NR;	1*M.2 2230 E-key,WiFi/BT5.0; 1*Mini PCIe(+SIM),4G LTE/PCIe module (BIOS to mSATA)	1*Mini PCIe(PCIeX1),PCIe module/mSATA; 1*M.2 2230 E-key,WiFi/BT5.0, or 1*M.2 3052 B-key(+SIM),4G LTE/5G NR;	1*Mini PCIe(PCIeX1),PCIe module/mSATA; 1*M.2 2230 E-key, WiFi5/BT5.0,	1*PCIeX16(X16);1*PCIeX4(X4), 1*Mini PCIe(+SIM) 2* 32-bit PCI	1*Mini PCIe(+SIM); 2*PCIe X16(1*X16/2*X8), 2*PCIe X8(Gen3, 2*X4)	1*PCIeX16(Gen4.0, X16Signal), GPU below 120W; 1*M.2 E-Key 2230, Wifi+BT Wireless, 1*M.2 B-Key 3042/3052 (PCIe3.0X1+USB2.0The signal has a SIM slot) , 5G NR/4G LTEwireless routing	1*PCIeX16; 3*PCIeX4(X2+X1+X1 / 1*PCIeX4); 3* 32-bit PCI
Power Supply								
Power& TDP	DC 12V; or OFX-075 75W:DC IN 9-36V; 15.6W (J6412/32G DDR4/128 SSD)	DC 12V; or OFX-075 75W: DC IN 9-36V; 19.92W (I5-8265U, 8GB DDR , 500G SSD)	DC 12V; or OFX-075 75W:DC IN 9-36V; 45.36W (i7-1165 G7/4G DDR4/128G SSD)	DC 12V; 39.208W (i7-1165G7@2.8G)	24-Pin ATX+4-Pin ATX 12V	24-pin ATX/8-pin ATX 12V; 374W (I7-8700, 16GB DDR , 2*4TB, GTX-1660)	DC-IN 12V, 6pin house port, TDP: 115W (i9-12900 CPU/32G DDR5/128G SSD, without accelerator card or function card)	24-Pin ATX/8-Pin ATX 12V, 184.85W(I7-10700K/16G DDR4/256G SSD)
Environment								
Dimension (W*H)	146*102mm(Height: radiator with fan 37mm, fanless radiator 52mm, PCB:1.6mm)	146*102mm(Height: radiator with fan 37mm, fanless radiator 52mm, PCB:1.6mm)	146*102mm(Height: radiator with fan 37mm, fanless radiator 52mm; PCB:1.6mm)	100*72mm	244*244mm (Height :34.9mm,PCB: 1.6mm)	244*244mm (Height:30.8mm, PCB: 1.6mm)	170*170mm, Mini ITX form	305*244mm (Height: 37.58mm, PCB: 1.6mm)
Operating temp.	0~60°C	0~60°C	0~60°C	0~60°C	0~60°C	0~60°C	0~60°C	0~60°C
Storage temp.	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	-40°C~85°C	- 40°C~85°C	- 40°C~85°C	-40°C~85°C
Storage humidity	10~95%@40°C, No-condensation	10~95%@40°C, No condensation	10~95%@40°C, No-condensation	10~95%@40°C, Non condensation	10~95%@40°C, Non condensation	10~95%@40°C, Non condensation	10~95%@40°C, Non-condensing	10~95%@40°C, Non condensation
Certification	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
Watchdog timer	programmable via software 1 to 255 second	programmable via software 1 to 255 second	programmable via software 1 to 255 second	programmable via software 1 to 255 second	programmable via software 1 to 255 second	programmable via software 1 to 255 second	/	programmable via software 1 to 255 second
OS								
OS	Windows 10, Windows 11, Linux	Windows7,Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux	Windows 7 (SKL-S:32bit/64bit), Windows 10,Windows11,Linux	Windows 7, Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux

Product Listing



ATX-I980

Intel 12/13/14th Gen. Alder lake-S Core i9/i7/i5/i3/Pentium/Celeron CPU,LGA 1700 Socket,125W max.
4* DDR4 288-Pin Non-ECC UDIMM, 3200MHz, 128GB max.
Intel Xe 700 UHD Graphics , DirectX 12, OpenGL 4.5, OpenCL 2.1; HDMI:4096*2160@60Hz, GA:1920*1200@60Hz DP:7680*4320@60Hz
1*Intel® I226V, 10-1000M,WOL; 1*Intel® I219LM, 10-1000M, iAMT13.0,vPro
4*USB3.2(10G), 4*USB2.0 2*USB3.2(10G,pin), 3*USB2.0(pin)
1*HDMI+1*DP+1*VGA
1*Line out+1*Mic,Realtek ALC897, Optional Amplifier
1* RS232/422/485, 5* RS232(pin);
8-bit DIO,programmable TTL
4*SATA3.0, RAID 0/1/10/5 1*M.2 2280 M-Key(PCIe4.0X4)
2*PCIe 5.0 X16 (X8)+2*PCIe 4.0 X4 (X4) + 2*PCIe 3.0 X4(X4+X1)+1*32-bit PCI 1*M.2 2280 M-Key(PCIe4.0X4)
24-Pin ATX+8-Pin ATX 12V 110W(I7-12700K CPU/16G D4/128G SSD)
305*244mm (Height: 34.9mm, PCB: 1.6mm)
0~60°C
-40°C~85°C
10~95%@40°C, Non condensation
CE/FCC Class A
programmable via software 1 to 255 second
Windows 10, Windows 11, Linux

PADR-M102-718

System

CPU	Intel® Elkhart lake SoC CPU: Celeron J6412
RAM	1*DDR4, 3200MHz, 32GB max.
Graphics	Intel® Gen. 10 UHD Graphics, HDMI:4096*2304@60Hz, DP:4096*2160@60Hz, 2 independent Display
I/O	
LAN	2*Realtek 8111H,10-1000M,WOL
USB	4*USB3.1 Gen1(5Gbps)
Display	1*DP+1*HDMI
Audio	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 1*RS232
DIO	8bit DIO(OptionalRS232)programmable

Storage

storage	1*2.5" SATA,15mm; 1*mSATA
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Expansion

Expansion	1*M.2 2230 B-Key,Wifi5/BT5.0, or 1*M.2 3052 E-Key,4G LTE/5G NR
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Power Supply

Power& TDP	DC 12V/DC 9~36V; TDP: 15.6W (J6412/32G DDR4/128 SSD)
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Mechanical

Structure	SGCC
Color	Silk Grey+Pastel Blue
Installation	desktop mounting
Dimension (W*H*D)	204*148*70mm
Weight	1.55KG

Environment

Operating temp.	0°C~50°C,SSD,with air flow;
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A

OS

OS	Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-M102-910

CPU	Intel® Whiskey lake-U CPU, Core i5-8265U
RAM	2*DDR4, 2400MHz, 32GB max.
Graphics	Intel® Gen. 9 UHD Graphics, HDMI:4096*2304@24Hz, DP:4096*2304@60Hz, 2 independent Display
I/O	
LAN	1*Intel I219LM,10-1000M,WOL; 1*Intel I226V,10-1000M,WOL
USB	4*USB3.0(5G)
Display	1*DP+1*HDMI
Audio	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 1*RS232
DIO	8bit DIO(OptionalRS232)programmable

storage	1*2.5" SATA,15mm; 1*mSATA(Optional)
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Expansion	1*Mini PCIe(+SIM),4G LTE/Wifi/BT/mSATA; 1*M.2 2230 E-Key,Wifi5/BT5.0, or 1*M.2 2230 E-Key,Wifi/BT
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Power& TDP	DC 12V/DC 9~36V; TDP: 27.9W(I7-8565U,16GB DDR,1*4T SSD)
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Structure	SGCC
Color	Silk Grey+Pastel Blue
Installation	desktop mounting
Dimension (W*H*D)	204*148*70mm
Weight	1.55KG

Operating temp.	0°C~50°C ,SSD,with air flow;
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A

OS

OS	Windows 7, Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-M102-913

CPU	Intel® Tiger lake U Soc CPU , core i3-1115G4/i5-1135G7/i7-1165G7,
RAM	2*DDR4, 3200MHz, 64GB max.
Graphics	Intel UHD Graphics/ Xe Graphics , Supports Intel DL boost,DirectX12.1, OpenGL 4.6 and OpenCL 3.0, HDMI:4096*2304@60Hz, DP:7680*4320@60Hz,2 independent Display
I/O	
LAN	1*Intel I219LM,10-1000M,WOL,iAMT13.0; 1*Intel I226V,10-1000M,WOL
USB	4*USB3.2
Display	1*DP+1*HDMI
Audio	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 1*RS232
DIO	8bit DIO(OptionalRS232)programmable

storage	1*2.5" SATA,15mm; 1*mSATA(Optional)
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Expansion	1*Mini PCIe,PCIe module/mSATA; 1*M.2 2230 E-Key,Wifi5/BT5.0, or 1*M.2 3052 B-Key(+SIM),4G LTE/5G NR
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Power& TDP	DC 12V/DC 9~36V; TDP: 45.36W (i7-1165 G7/4G DDR4/128G SSD)
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Structure	SGCC
Color	Silk Grey+Pastel Blue
Installation	desktop mounting
Dimension (W*H*D)	204*148*70mm
Weight	1.55KG

Operating temp.	0°C~50°C,SSD,with air flow;
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A

OS

OS	Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-S501-953-T001

CPU	Intel® 6th/8th/9th Gen Core i7/i5/i3/ Pentium/ Celeron LGA1151 CPU, TDP 65W
RAM	2*DDR4 UDIMM,2133/2666MHz, 64 GB max.
Graphics	Intel UHD Graphics, DirectX12,OpenGL 4.5, OpenCL 2.1; HDMI:4096*2160@30Hz VGA:1920*1200@60Hz
I/O	
LAN	1* Intel® I210AT,10/100/1000M Intel® I219LM,10-1000M,iVpro
USB	4*USB3.2, 2*USB2.0, 4*USB2.0(pin),1*USB2.0(Type A) 1*HDMI + 1*VGA+ 1*DVI-D
Display	1*Line in+1*Line out+1*Mic, Realtek Audio HDA codec
Serial port &Others	1*RS232/422/485, 4*RS232; 1*RS232/422; 1*LPT; 1*PS/2; 1*SM Bus
DIO	8-bit DIO,programmable TT

storage	4*SATA 3.0 HDD/SSD support RAID 0/1/5/10 1*M.2 2280 M-key(PCIeX4), NVMe or SATA
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Expansion	1*PCIeX16(X16); 1*PCIeX4(X4), 1*Mini PCIe(+SIM) 2* 32-bit PCI
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Power& TDP	24-Pin ATX+4-Pin ATX 12V 115W (i7-7700/16G DDR4/128GSSD)
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Structure	Door with lock, SGCC, metal mold molding
Color	Granite grey
Installation	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	430*470*173mm
Weight	14KG

Operating temp.	0~60°C
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A

OS	Windows 7(SKL-S:32bit/64bit), Windows 10,Windows11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-S501-961

CPU	Intel® 8/9th Gen. Coffee-S Core i9/i7/i5/i3 LGA1151 CPU,up to 95W,Q370 Chipset
RAM	4*288 pin DDR4, 2666MHz, 128GB max.
Graphics	Intel® UHD Graphics,DirectX12,OpenGL 4.5; HDMI:4096*2304@24Hz, DP:4096*2304@60Hz,3 independent display
I/O	
LAN	2*Intel I210AT/I211AT, 10-1000M,WOL; 1*Intel I219LM,10-1000M,WOL/AMT12.0/iVpro
USB	4*USB3.1 Gen2(10Gbps), 7*USB2.0
Display	2*DP+1*HDMI
Audio	1*Line out+1*Mic,Realtek ALC662VD
Serial port &Others	2*RS232/422/485
DIO	8bit DIO(pin),programmable

storage	4*SATA3, 6.0Gbps, 1 anti-vibration drive cage supporting 4*3.5" and 2*2.5" drives, plus 1 slim ODD bay, enabling flexible multi-type storage combinations
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Expansion	2*PCIe3.0 X16(1*X16 or 2*X8)+ 2*PCIe3.0 X8(X4)+1*32 bit PCI; 1*M.2 2280 M-Key(PCIe3.0X4) 1*Mini PCIe(X1/USB+SIM)
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Power& TDP	AC100-240V,Standard ATXPower 300W, Optional 500W/750W/1000W; TDP: 374W (I7-8700, 16GB DDR , 2*4TB, GTX-1660)
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Structure	Door with lock, SGCC, metal mold molding
Color	Granite grey
Installation	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	430*470*173mm
Weight	14KG

Operating temp.	0°C~50°C
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A, 3C

OS	Windows 7, Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-S501-971

CPU	Intel 10th Gen. Cometlake-S Core i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU, up to 125W, H420E Chipset
RAM	2*288 pin DDR4, 2933MHz, 64GB max.
Graphics	Intel® UHD Graphics,DirectX12,OpenGL4.5; HDMI:4096*2160@30Hz, VGA:1920*1200@60Hz
I/O	
LAN	1*Intel I226V, 10M-2.5G, WOL; 1*Intel I219LM, 10-1000M, WOL
USB	4*USB3.2 Gen1(5Gbps), 5*USB2.0
Display	1*HDMI+1*VGA
Audio	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 2*RS232
DIO	8bit DIO(pin),programmable

storage	4*SATA3, 6.0Gbps, 1 anti-vibration drive cage supporting 4*3.5" and 2*2.5" drives, plus 1 slim ODD bay, enabling flexible multi-type storage combinations
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Expansion	1*PCIe3.0 X16(X16)+ 3*PCIe3.0 X4(X2+1+1 or Bios X4)+ 3*32 bit PCI
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Power& TDP	AC100-240V,Standard ATXPower 300W, Optional 500W/750W; TDP: 184.85W(I7-10700K/16G DDR4/256G SSD)
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Structure	Door with lock, SGCC, metal mold molding
Color	Granite grey
Installation	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	430*470*173mm
Weight	14KG

Operating temp.	0°C~50°C
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A, 3C

OS	Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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PADR-S501-980

CPU	Intel 12/13/14th Gen. Alder lake-S/Raptor Lake-S Core i9/i7/i5/i3/Pentium/Celeron LGA1700 CPU, 125W max., Q670 Chipset
RAM	4x288-pin Non-ECC UDIMM , Dual-Channel DDR4 3200MHz, 128GB max.
Graphics	Intel Xe 700 UHD Graphics , DirectX 12, OpenGL 4.5 and OpenCL 2.1; HDMI:4096*2160@60Hz, DP:7680*4320@60Hz, VGA:1920*1200@60Hz
I/O	
LAN	1*Intel I226V,10-1000M, WOL 1*Intel I219LM, 10-1000M, iAMT13.0, paired with i5/i7/i9 CPU,supports vPro
USB	4*USB3.2, 7*USB2.0
Display	VGA+HDMI+DP
Audio	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 1*RS232
DIO	8bit DIO(pin),programmable

storage	4*SATA3, 6.0Gbps, RAID0/1/10/5, 1 anti-vibration drive cage supporting 4*3.5" and 2*2.5" drives, plus 1 slim ODD bay, enabling flexible multi-type storage combinations
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Expansion	2*PCIe X16 Gen5.0 slot(X8), 2*PCIe X4 Gen4.0 slot(X4), 2*PCIe X4 Gen3.0 slot(1*X4, 1*X1), 1*32-bit PCI slot 1*M.2 2280 M-Key (Gen4.0 PCIe X4)
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Power& TDP	AC100-240V,Standard ATXPower 300W, Optional 500W, 750W and 1000W; TDP: 232.3W (I7-12700K CPU/16G DDR4/256G SSD)
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Structure	Door with lock, SGCC, metal mold molding
Color	Granite grey
Installation	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	430*470*173mm
Weight	14KG

Operating temp.	0°C~50°C
Storage temp.	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation
Vibration	5 grms/5~500Hz/random/operation(SSD); 1 grms/5~500Hz/random/operation(HDD)
Shock	50g peak acceleration(duration 11ms,SSD); 20g peak acceleration(duration 11ms,HDD)
Certification	CE/FCC Class A, 3C

OS	Windows 10, Windows 11, Linux
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Watchdog timer	programmable via software 1 to 255 second
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