

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

KMDA

Embedded Box Computer
嵌入式箱体电脑——卡曼达系列

B

ECC

Embedded Box PC
能源控制器系列

KGEC

Edge Controller
边缘控制器——考工系列(KAGO)

C

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

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

       							
BRAV-7120 (NVIDIA Jetson)		BRAV-7121 (NVIDIA Jetson)		BRAV-7123 (NVIDIA Jetson)		BRAV-7131 (NVIDIA Jetson)	
BRAV-7134 (NVIDIA Jetson)		BRAV-7135 (NVIDIA Jetson)		BRAV-7220		BRAV-7520	
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)	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)	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)	Intel® Tigerlake U Celeron/Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W/28W
RAM	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	32GB(S001)/64GB(S002)256 bit LPDDR5, 204.8 GB/S max.	32GB(S001)/64GB(S002) 256 bit LPDDR5, MAX 204.8 GB/S	2*DDR4 3200MHz, 64GB max.
Graphics	512*Cores NVIDIA Ampere GPU, 16*Tensor Cores(S001) 1024*Cores NVIDIA AmpereGPU, 32*Tensor Cores(S002)	1024*Cores NVIDIA Ampere GPU 765MHz, 32*Tensor Cores(S001); 1024*Cores NVIDIAAmpere GPU 918MHz, 32*Tensor Cores(S002);	1024*Cores NVIDIA Ampere 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	1792*Cores NVIDIA Ampere Architecture GPU 930MHz, with 56*Tensor Cores(S001) 2048*Cores NVIDIA Ampere Architecture GPU 1.3GHz, with 64*Tensor Cores(S002)	1792*Cores NVIDIA Ampere Architecture GPU 930MHz, with 56*Tensor Cores(S001) 2048*Cores NVIDIA Ampere Architecture GPU 1.3GHz, with 64*Tensor Cores(S002)	Intel® UHD / Iris®Xe Graphics , Supports Intel DeepLearning boost, DirectX12.1, OpenGL 4.6 and OpenCL 3.0; HDMI2.0:4096x2304@60Hz, DP 1.4: 7680x4320@60Hz
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	2*Intel I210IT PCIe Gig. Ethernet, 10-1000M, 6 Gigabit Ethernet ports on switches optional	5*Intel I210AT PCIe Gig. Ethernet, 10-1000M	2* Intel I211AT/I210AT, 10-1000M; 1* Intel I219LM, 10-1000M, iVpro
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	2*USB3.2,2*USB2.0,built-in 1*USB2.0	4*USB3.2(Type A), 2*USB2.0(Type A)	2* USB3.2+ 2* USB2.0
Display	1* HDMI	1* HDMI	1*HDMI 2.0	1* HDMI	1* HDMI	1*HDMI	2* DP + 1* VGA
Audio	1*Line out Realtek ALC5640	1*Line out Realtek ALC5640	Realtek ALC5640,1*MIC	1*Line out, Realtek ALC5640	1*Line out Realtek ALC5640	1*Line Out,1*Mic /	1* Line out + 1* MIC
Serial Port	1*2.5KV Iso. RS232+1*2.5KV Iso. RS485 /422;	1*2.5KV Iso. RS232+1*2.5KV Iso. RS485 /422;	2*2.5KV Iso. RS485	2*RS422 / 485 ; 2*RS232	1*RS485+1*RS232	2*2.5KV Iso. RS232, 2*2.5KV Iso. RS485	2*RS232/422/485 + 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	8-bit DIO	4-bit 2.5KV Iso. DI , 4-bit 2.5KV Iso. DO (Phoenix terminal interface)	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)
Camera Interface	Default support 2*4 lane Mipi(22pin), 4*GMSL (optional)	Default support 2*4 lane Mipi(22pin), 4*GMSL (optional)			Default support 2*4 lane Mipi(22pin), 4*GMSL (optional)		
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	64GB eMMC ,2*M.2 2280 M-Key, PCleX4, NVMe high-speed memory card	1*M.2 Type 2280 M-Key, PCleX4, NVMe high-speed memory card	1*2.5"SATA3+ 1*mSATA ; 2*M.2 M-Key 2280(PCleX2), NVMe
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	2*M.2 2280 M-Key,PCleX4, NVMe high-speed memory card or edge AI computing module;	1*M.2 3042/3052 B-Key, SIM, PCIeX1+USB2.0, 4G LTE/5G NR;1*M.2 2230 E-Key , PCIeX1+USB2.0, WiFi6/BT5.0; I-PORT (2*PCleX1, 2*USB2.0, 2*I2C, 2*SPI)	1*Mini PCIe(PCleX1/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(PCle3.0X4),NVMe; 1*PCle3.0X16(X16),GPU<350W<300mm 1*PCle3.0X16(x4), AI card<75W<300mm
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	DC 9~36V ,3-pin 3.81 mm Phoenix terminal TDP: 50W	DC 9~36V , 3-pin3.81 mm Phoenix terminal; TDP: 54W	DC 12V 5-pin Term; TDP: 324W (I7-8700 CPU 32GB DDR4 1*2080TI)
Mechanical							
Structure	Fanless Cooling, SGCC frame	Aluminum extrusion enclosure, SGCC	Fan Cooling, SGCC frame	Fan cooling design, SGCC chassis	Fan Cooling, SGCC frame	Fan Cooling, SGCC frame	Aluminum Case,SGCC chassis
Dimension (W*H*D)	235*158*75mm	235*158*75mm	219.4*167.6*95mm	256.4*168*86.5mm	284*205*86.5mm	212.8*130*84mm	326.4*183*96.6mm
Net Weight	2.6KG	2.6kg	2.82kg	3.25KG	3.8KG	2.55kg	4.67KG
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	-20°C~70°C	-20°C~60°C,with air flow	-20°C~70°C,with air flow(CPU,non VPU); -20°C~60°C,with air flow(CPU+2*VPU)
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
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	10~95%@40°C, Non-condensing	10~90%@40°C, Non-condensing	10~95%@40°C, No-condensation
Vibration	5 grms/5~500Hz/random/during operation(SSD)	5 grms/5~500Hz/random/during operation(SSD)	5 grms/5~500Hz/random/during operation(SSD)	5 grms/5~500Hz/random/during operation(SSD); 1 grms/5~500Hz/during operation(HDD)	5 grms/5~500Hz/random/during operation(SSD)	5 grms/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)	50g peak acceleration(duration:11ms)(SSD)	50g peak acceleration(duration:11ms)(SSD)	50g peak acceleration(duration:11ms)(SSD); 20g peak acceleration(duration:11ms)(HDD)	5grms/5~500Hz/random/in working (SSD)	5grms/5~500Hz/random/in working (SSD)	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	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	Linux Ubuntu 20.04 and 22.04 with JetPack	Linux Ubuntu 20.04 and 22.04 with JetPack	Linux Ubuntu 22.04 with JetPack	Windows 10, Windows 11, Linux
Windows 7, Windows 10, Windows 11, Linux							

     						
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 4800/5600 MHz, 64/96 GB max.	2*262-Pin SODIMM, DDR5 4800/5600 MHz, 64/96 GB max.	2*262-Pin SODIMM, DDR5 4800/5600 MHz, 64/96 GB 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	2*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*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*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*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 Consum	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-WP  BRAV-7722  BRAV-7821  CNTI-D2K1/S001  CNTI-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		Phytium D2000, 8-core, 2.3GHz clock speed
RAM	2*262-Pin SODIMM, DDR5 4800/5600 MHz, 64/96 GB max.		4*DDR5 UDIMM ,4800/5600MHz,192GBmax.		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. DP: 7680 x 4320 @ 60Hz (DP 2.1)		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)		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)		6*USB3.0:2*USB2.0
Display	1* DP+1*HDMI+1* VGA		3*HDMI+1*DP		1*VGA+1*HDMI
Audio	/		1*Line out,RealtekALC897 chip		1*Line Out,1*Mic
Serial Port	2*RS232/422/485		Front 2*RS232/422/485; Built-in 1*RS232		8*RS232
DIO	Optional 16bit DIO, TTL signal, programmable input/output		/		8*DI (opto-isolated) + 8*DO (relay-isolated)
Storage					
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)		1*SATA3, 1*M.2 2280 B-key (SATA signal)
Expansion					
Expansion Port	1*Mini PCIe(PCIeX1/USB+SIM),4G LTE/PCIe; 1*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*PCIe 3.0 (x16)
Power Supply					
Pwr Consump Input Voltage	DC 9-55V , 1000W max. ; TDP: 12V/7.73A 92.8W (i7-12700T CPU, 32GB DDR4, 128G SSD)		DC 19V power supply interface 5-pin 7.62mm, output power 500W TDP:19V/6.48A(i7-12700 CPU, 8G, 128G SSD)		DC 12V (3-pin, 3.81mm pitch) 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 profile, SGCC enclosure
Dimension (W*H*D)	230*350*210mm		362*240*115mm		258*137*273mm(including mounting bracket)
Net Weight	9.70kg		6.70kg		4kg
Environmental					
Operating Temp	-20~60°C, SSD, with air flow		-20°C~60°C,airflow		0~55°C (excluding external dedicated graphics)
Storage Temp	- 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%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)
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)
Certification/ EMC	CE/FCC Class A		CE/FCC Class A		CE/FCC Class A
OS	Windows 10, Windows 11,Linux		Windows 10, Windows 11,Linux		Kylin V10

AI card/GPU

Arc A750E ECM 16G



Port Type	MXM 3.1 (PCIe 4.0 X16)
RAM	16GB GDDR6, 17.5Gbps, 256bit, 560GB/s
AI Comp Pwr	229 TOPS
Xe Core	28
Surface temp	-10°C ~ 60°C
Pwr Cosumption	190W
Dimension	105*82mm



KMDA

Embedded Box Computer

Product Listing

				
	KMDA-2602	KMDA-2602/T002	KMDA-2630-S	KMDA-2630-T
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
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.
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
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;
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)
Display	1*HDMI+ 1*VGA	1*HDMI+ 1*VGA	1*HDMI+1*VGA	1*HDMI+1*VGA
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
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
DIO	8-bit TTL, Programmed input-output	8-bit TTL, Programmed input-output	8 bit DIO(DB9)	8 bit DIO(DB9)
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
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*PcieX1, 4*USB2.0, Front-Audio; 1*PS/2, Front-Panel, 1*Sm bus, 1*eSPI
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
Mechanical				
Structure	Top/Bottom Aluminum Chassis, SGCC frame	Top/Bottom Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame
Color	Silver gray	Silver gray	Silver white+Aquamarine	Silver white+Aquamarine
Installation	desktop mounting & VESA 100*100mm	desktop mounting &VESA 100*100mm	desktop mounting	desktop mounting
Dimension	155*111.8*65mm	155*111.6*49mm	162*111.8*65mm	162*111.8*65mm
Net Weight	1.30KG	1.05KG	1.32KG	1.30KG
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
Storage Temp	-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
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)
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)
Certificate/ EMC	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

       								
KMDA-2631 KMDA-2632/S002 KMDA-2701 KMDA-2702 KMDA-3201 KMDA-3202 KMDA-3212 KMDA-3230								
Processor								
CPU	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	Intel Skylake-U/Kabylake-U CPU Core i3/i5/i7	Intel Skylake-U/Kabylake-U CPU Core i3/i5/i7	Intel Skylake-U/Kabylake-U CPU Celeron/Core i3/i5/i7	Intel® Whiskey lake U Core i3/i5/i7
RAM	1*DDR4 3200 MHz SODIMM, 32GB max	1*DDR5 SO-DIMM, 4800MHz,16GB max	1*DDR3L, 1333MHz, SODIMM, 8GB max.	1*DDR3L, 1333MHz, SODIMM, 8GB max.	2*260-Pin SODIMM, DDR4,2133MHz, 32GB max.	2*260-Pin SODIMM, DDR4,2133MHz, 32GB max.	1*DDR4,SODIMM,2133MHz, 16GB max.	2*DDR4 SODIMM,2400MHz, 32GB max.
Graphics	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	Intel Gen. 9th HD Graphics, HEVC/H265 HW HD codec, HDMI: 3840*2160@30Hz, DP: 4096*2304@60Hz	Intel Gen. 9th HD Graphics, HEVC/H265 HW HD codec, HDMI: 3940*2160@30Hz, DP: 4096*2160@60Hz	Intel Gen. 9th HDGraphics, HEVC/H265 HW HD codec, HDMI: 4096*2304@24Hz, DP: 4096*2304@60Hz,VGA: 1920*1200@60Hz	Intel® Gen. 9 UHD Graphics,Support dual independent display HDMI: 4096*2304@24Hz DP: 4096*2304@60Hz
I/O Port								
LAN	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	2*Intel I211AT PCIe, 10-1000M 1*Intel I219 LM support Intel Vpro	2*Intel I211AT PCIe, 10-1000M, 1*Intel I219 LM support Intel Vpro, 4*Intel I211AT PCIe Full bandwidth POE	2*Intel I211AT PCIe, 10-1000M, 1*Intel I219 LM support Intel Vpro,	4*Intel I210AT PCIe, 10-1000M, 1*Intel®I219LM
USB	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)	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Build-in)	4* USB3.0, 4*USB2.0 , 1*USB2.0 (Build-in)	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Build-in)	4* USB3.1, 2*USB2.0
Display	1*HDMI	1*HDMI	1*VGA+1*HDMI	1*VGA+1*HDMI	1*DP+1*HDMI	1*DP+1*HDMI	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI
Audio	/	/	1*Line out+1*Mic, Realtek ALC662VD	1*Line out+1*Mic, Realtek ALC662VD	1*Line out , Realtek ALC662VD	1*Line out+1*Mic,Realtek ALC662VD	1*Line out+1*Mic, Realtek ALC662VD	1*Line out+1*Mic, Realtek ALC662VD
COM/ Others	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	2*RS232/422/485, 4*RS232, 1*2 pin terminal, Remote switch, USB mouse/keyboard	2*RS232/422/485, 4*RS232, 1*PS/2(mouse/keyboard)	2*RS232/422/485, 2*RS232, 1*PS/2(mouse/keyboard)	2*RS485, 3*RS232,
DIO	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	8-bit TTL, Programmed input-output	8- bit TTL, Programmable input and output 8-bit Iso. DI(High:5-24V,Low:0-1.5V) and 8-bit Iso. DO(100mA)	8-bit TTL, Programmed input-output	8-bit iso DIO(4-bit 2.5KV optical Iso. DO,4-bit 2.5KV optical Iso. DI)
Storage								
Storage	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	1/2*2.5" HDD SATA3 Bay, 6.0 Gbps, 1*mSATA Full-height card, support AHCI	1*2.5" SATA3 Bay, 6.0 Gbps, SSD/HDD, 1*mSATA Full-height card, support AHCI	1*2.5" SATA3 Bay, 6.0 Gbps, SSD/HDD, 1*mSATA Full-height card, support AHCI	1*2.5" SATA port, 1*mSATA Full-height card, support AHCI
Expansion								
Expansion Port	2*Mini-PCle (PCleX1+USB2.0) MiniPCle1 (SIM, 4G)	2*Mini-PCle (PCleX1+USB2.0) MiniPCle1 (SIM, 4G)	1*Mini PCle(PCle/USB+SIM), support 4G LTE/Wifi/BT	1*Mini PCle(PCle/USB+SIM), support 4G LTE/Wifi/BT	1*Mini PCle, with SIM slot, 1*M.2 B-key with PCIe+USB signal &SIM slot,support dual 4G/Wifi/BT, 1*I-port(LPT/USB2.0/Mini PCle)	1*Mini PCle, with SIM slot, 1*M.2 B-key with PCIe+USB signal &SIM slot,support dual 4G/Wifi/BT, 1*I-port(LPT/USB2.0/Mini PCle)	1*Mini PCle, with SIM slot, support 4G/Wifi/BT,	1*Mini PCle, with SIM slot, support 3G/4G/Wifi/ BT/ GPRS,1*M.2 E-key 2230 Wifi/BT module expansion, 1*I-Port(LPT/USB2.0/Mini PCle)
Power Supply								
Input voltage &TDP	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)	DC IN 9~30V, 3pin terminal, With reverse polarity protection, short circuit protection, OVP&OCP TDP: 27.72W(I5-7200U 8GB)	DC IN 9~30V, 3pin terminal, With reverse polarity protection, short circuit protection, OVP&OCP TDP: 27.72W(I5-7200U 8GB)	DC IN 12~24V, 3pin terminal(front panel), TDP: 58.56W(I5-7200U 16GB DDR4)	DC IN 9~36V, 3pin terminal, TDP: 30W (I5-8265U , 8GB DDR4, 128GB SSD)
Mechanical								
Structure	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	U-shaped Aluminum Chassis, SGCC frame	U-shaped Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame	Aluminum Chassis, SGCC frame
Color	Silver gray	Silver gray	Silver gray	Silver gray	Silver gray	Silver gray	Silver gray	Silver gray
Installation	Horizontal desktop installation	Horizontal desktop installation	desktop mounting	desktop mounting	desktop mounting	desktop mounting	desktop mounting	desktop mounting
Dimension	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	210*144.3*75.5mm	210*144.3*75.5mm	200*200*85.3mm	210*147*78mm
Net Weight	1.32kg	1.32kg	2.60KG	2.60KG	2.20KG	2.20KG	3.3KG	2.29KG
Environmental								
Operating Temp	-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	-20°C~70°C,SSD,with air flow -10°C~50°C,HDD,with air flow	-20°C~70°C,SSD,with air flow -10°C~50°C,HDD,with air flow	-20°C~70°C,SSD,with air flow -10°C~50°C,HDD,with air flow	-20°C~70°C,SSD,with air flow -10°C~50°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	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation
Vibration	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)	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);	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)	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								
OS	Windows 10, Windows 11 , Linux	Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	Windows 7,Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Linux Fedora,Ubuntu	Windows 7, Windows 10, Linux Fedora,Ubuntu	Windows 7, Windows 10, Linux Fedora,Ubuntu	Windows 10, SUSE, Ubuntu, Wind River, Red Hat Enterprise

																														
KMDA-3301			KMDA-3302			KMDA-3303			KMDA-3305			KMDA-3306			KMDA-3307															
Processor																														
CPU	Intel® Tiger lake U Soc CPU (core i3-1115G4/i5-1135G7/i7-1165G7)					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® 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® Xe 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® Xe 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-T001				
KMDA-3820				KMDA-3921				
KMDA-3920				KMDA-5610/S001				
KMDA-3920ETC				KMDA-5610/S002				
Processor								
CPU	Intel Skylake-S/Kabylake-S Celeron/ Pentium/Core i3/i5/i7, H110 Chipset	Intel Skylake-U 3855/Kabylake-U Core i3/i5/i7	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® Skylake-S 6th / Intel® Kabylake-S 7th Celeron/Pentium/Core i3/i5/i7 CPU, LGA 1151 Socket, H110 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
RAM	2*260-Pin ,DDR4,2133/2400MHz, 32GB max.	1*260-Pin ,DDR4,2133MHz, Max. 16GB	2*260-Pin ,DDR4,2133/2400MHz, 32GB max.	2*260-Pin ,DDR4,2133/2400MHz, 32GB max.	2*260-Pin SODIMM, DDR4,2400/2133MHz, 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.
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. 9th HD Graphics, HEVC/H265 HW HD codec, HDMI: 4096*2304@24Hz, DP:4096*2304@60Hz,VGA:1920*1200@60Hz	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:44096*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 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
I/O Port								
LAN	1*Intel I211AT PCIe ,10-1000M, 1*Intel I219 LM,support Intel Vpro,	2*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+1*Intel I219LM PCIe Gig. Ethernet, Intel iVpro(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;
USB	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Built-in)	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Build-in)	4* USB3.0, 2*USB2.0 , 1*USB2.0 (Built-in)	4* USB3.0, 1*USB2.0 (Built-in)	4*USB3.0 Type A; 4*USB2.0 Type A	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)
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	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	2*DP+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 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, 2*RS232, 1*PS/2(mouse/keyboard)	2*RS232/422/485, 8*RS232, 1*PS/2(mouse/keyboard)	4*RS232/422/485 DB9 4*RS232 DB9	2*RS232/422/485 , 2*RS232, 1*PS/2(mouse/keyboard)	2*RS232/422/485, 2*RS232,	2*RS232/422/485, 2*RS232;
DIO	8-bit TTL, Programmable DIO 16-bit TTL, Programmable DIO	8-bit TTL, Programmable DIO optional 16-bit TTL Programmable input and output	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)
Storage								
Storage	2*2.5" SATA3,HDD, 1*mSATA Full-height card,1*M.2 2242 B-key	1*2.5" SATA3,HDD/SSD, 1*mSATA Full-height card, support AHCI	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" HDD SATA3, RAID0,1(Intel Q170); 1*mSATA(SATA); 1*M.2 2242 B-key(SATA&USB)	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
Expansion								
Expansion Port	1*Mini PCIe, with SIM slot, support 4G/Wifi/BT	1*Mini PCIe, with SIM slot, support 4G/Wifi/BT,1* PCIe X4(X4 signal), 1*PCIe X4(X1signal),or 2*PCI 1*I-port(LPT/USB2.0/Mini PCIe...etc)	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 LTE/Wifi/BT, 1*PCIe X16, 1*PCIe X4, or 2*PCI, 1*I-port(LPT/USB2.0/Mini PCIe)	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)
Power Supply								
Input voltage &TDP	DC 12~24V input, TDP: 68.4W (I7-6700T CPU 16GB DDR4)	DC 12~24V input, TDP: 58.56W (I5-7200U 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: 19V/3.62A (I7-6700T CPU, 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)
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 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 gray	Silver gray	Silver white + Aquamarine	Silver white + Aquamarine
Installation	desktop mounting	desktop mounting	desktop mounting,wall-mount	desktop mounting,wall-mount	desktop mounting,wall-mount	desktop mounting,wall-mount	desktop mounting	desktop mounting
Dimension	221*251*88mm	200*200*128.3mm	220*250*131mm	220*250**131.5mm	210*250*120mm	220*250**172mm	230*267.3*92mm	230*267.3*92mm
Net Weight	4.84KG	3.65KG	5.27KG	5.45KG	5.45KG	5.58KG	5.1KG	5.1KG
Environmental								
Operating Temp	-20°C~65°C,SSD,with air flow -10°C~55°C,HDD,with air flow	-20°C~70°C,SSD,with air flow -10°C~50°C,HDD,with air flow	-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~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 -10°C~55°C,HDD,with air flow	-20°C~60°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	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@40°C, No- condensation	10~90%@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) 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)	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 B	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
OS	Windows 7,Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Linux Fedora,Ubuntu	Windows 7,Windows 10, Windows 11 , Linux	Windows 7,Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Linux Fedora Ubuntu (Intel® Kabylake-S 7th do not support Windows 7)	Windows 7,Windows 10, Windows 11 , Linux	Windows 7,Windows 10, Windows 11 , Linux	Windows 7,Windows 10, Windows 11 , Linux

Product Listing

																														
KMDA-5611/S001			KMDA-5612			KMDA-5920/S001			KMDA-5920/S002			KMDA-5921/S001			KMDA-5921/S002															
Processor																														
CPU	Intel® Coffee lake 9th/8th-Gen Core™i9/i7/i5/i3/Pentium /Celeron LGA1151 CPU,H310 chipset					Intel® Coffee lake 9th/8th-Gen Core™ i7/i5/i3/Pentium/Celeron LGA1151 CPU,Q370 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														
RAM	2*260-Pin SODIMM, DDR4 2666/2400MHz, 64GB max					2*260-Pin SODIMM, DDR4 2133MHz, 64GB max					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.				
Graphics	Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1, HDMI:4096*2160@24Hz, VGA:1920*1200@60Hz					Intel UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1, 3*HDMI 2.0 (2*HDMI: 4096*2160@24Hz +1*HDMI: 1920*1080@24Hz)					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				
I/O Port																														
LAN	1*Intel I210AT + 1*Intel I219LM, PCIe X1 4*Intel I210AT POE+ (at.), 10-1000M					1*Intel I210AT + 1*Intel I219LM 10/100/1000Mbps					1*Intel 1211AT/I210AT PCIe ,10-1000M, WOL 1*Intel I219 LM, 10-1000M, WOL					2*Intel 1211AT/I210AT PCIe, 10-1000M, WOL 1*Intel I219 LM, support Intel Vpro					1*Intel 1211AT/I210AT PCIe, 10-1000M, WOL 1*Intel I219 LM,10-1000M, WOL					2*Intel 1211AT/I210AT PCIe ,10-1000M, WOL 1*Intel I219 LM support Intel Vpro				
USB	2*USB2.0 ; 1*USB2.0(Built-in)					4*USB3.1(Type A); 6*USB2.0 (Type A)					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)				
Display	1*HDMI; 1*VGA					3*HDMI					1*DP+1*HDMI+1*VGA					2*DP+1*VGA					1*DP+1*HDMI+1*VGA					2*DP+1*VGA				
Audio	/					1*Line out+1*Mic, ALC897					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				
COM/ Others	1*RS232/422/485 1*RS232					2*RS232/422/485 +2*Full-Wiring RS232+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,				
DIO	32bit Iso. DIO(2*18-pin Phoenix terminal)					/					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)				
Storage																														
Storage	1*2.5" easy-plug SATA bay, SATA3.0 max 6Gbps; 1*full size mSATA, SATA3.0+USB2.0, max 6Gbps					1*2.5" SATA3 Hot-Swap Drive Caddy (max 6 Gbps) 1*Full-Length mSATA Module (SATA 3.0 & USB 2.0 , mSATA)					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				
Expansion																														
Expansion Port	1*Mini-PCle full size,SIM card slot, 4G/WIFI/PCle signal function module					1*Mini-PCle full size, USB2.0, 4G、5G、WiFi6/BT5.0 Wireless Modules, 1*SIM, 2*ANT					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				
Power Supply																														
Input voltage &TDP	DC IN 9-36V, 3-pin 5.0mm TDP : 73.15W					DC IN 12~24V, 3-pin 5.0mm					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)				
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				
Color	Silver gray					Silver gray					Silver white + Aquamarine					Silver white + Aquamarine					Silver white + Aquamarine					Silver white + Aquamarine				
Installation	Wall(default), Desktop(optional), DIN-Rail (optional)					Wall(default), Desktop(optional), DIN-Rail (optional)					desktop mounting					desktop mounting					desktop mounting					desktop mounting				
Dimension	225*154*75.6 mm					225*154*75.6 mm					230*273*143mm					230*273*143mm					230*273*204mm					230*273*204mm				
Net Weight	2.52KG					2.52KG					5.9KG					5.9KG					5.9KG					7.25KG				
Environmental																														
Operating Temp	-20℃~-60℃,SSD, with air flow; -10℃~-55℃,HDD, with air flow;					-20℃~-60℃, 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℃				
Storage Humidity	10~95%@40℃, No-condensation					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				
Vibration	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)					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);					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				
OS	Windows 7,Windows 10, Windows 11 , Linux					Windows 10 Enterprise & IOT Enterprise (64 位) (CFL-R) Ubuntu、SuSe. Redhat Enterprise 1,2 (Kernel 4.14) (CFL-R) Wind River VxWorks 7 (CFL-R)					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				

      							
	KMDA-6610	KMDA-6611/S001	KMDA-6920	KMDA-6921	KMDA-7610	KMDA-7611/S001	KMDA-7611/T001
Processor							
CPU	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	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, H610 PCH	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
RAM	2*260-Pin ,DDR4,2933MHz, 64GB Max.	2*260-Pin SODIMM, DDR4 2933MHz,64GB max	2*260-Pin ,DDR4,2933MHz, 64GB Max.	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.
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, 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)	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,
I/O Port							
LAN	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, 2*USB2.0; 1*USB2.0(Built-in)	1*Intel I226V, PCIe X1, 10M-2.5G, WOL; 1*Intel I219 LM, 10-1000M, WOL	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
USB	4* USB3.2 Gen1, 2*USB2.0, 2*USB2.0(Built-in)		4* USB3.2 Gen1, 2*USB2.0, 2*USB2.0(Built-in)	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
Display	1*DP+1*HDMI+1*VGA	1*HDMI; 1*VGA	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	1*HDMI	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 ALC 897	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic,Realtek ALC897	/
COM/ Others	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	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
DIO	8-bit DIO,TTL 16-bit DIO(2*10 pin)	32bit Iso. DIO	8-bit DIO,TTL 16-bit DIO(2*10 pin)	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)
Storage							
Storage	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)	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
Expansion							
Expansion Port	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;	1*PCle3.0 X16(X16)+ 1*PCle3.0 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), PCle module; 1*M.2 3052/3042 B-Key (PCle X1/USB2.0+SIM),5G NR;	2*Mini PCIe(PCle X1/USB2.0), PCle module; 1*M.2 3052/3042 B-Key (PCle X1/USB2.0+SIM),5G NR;
Power Supply							
Input voltage &TDP	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)	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)
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 gray	Silver white + Aquamarine	Silver white + Aquamarine	Silver white+Aquamarine	Silver gray	Silver gray
Installation	desktop mounting	Wall(default), Desktop(optional), DIN-Rail(optional)	desktop mounting	desktop mounting	desktop mounting	desktop/Wall/Din-Rail mounting	desktop/Wall/Din-Rail mounting
Dimension	230*267.3*92mm	225*154*75.6 mm	230*273*143mm	230*273*204mm	256.68*267.3*99mm	238*169*75.6mm	238*169*61.8mm
Net Weight	5.12KG	2.52KG	5.9KG	6.84KG	5.12KG	2.55KG	2.32KG
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℃~-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	10~95%@40℃, No- condensation	10~90%@40℃, No- condensation	10~90%@40℃, No- condensation	10~95%@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)	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)	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); 20gpeak acceleration(duration 11ms,HDD)	50g peak acceleration(duration 11ms,SSD); 20gpeak 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 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 10, Windows 11 , Linux

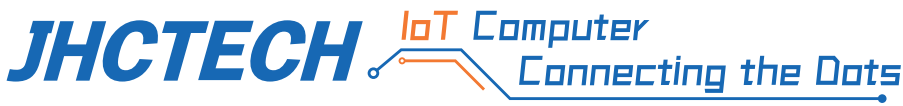
  			
KMDA-7920KMDA-7921ECC-U5000			
Processor			
CPU	Intel® 12th/13th/14th Gen Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh LGA1700 Series CPU,H610 PCH	Intel® 12th/13th/14th Gen Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh LGA1700 Series CPU,H610 PCH	Intel® Elkhart lake SoC CPU: Celeron J6412 2.0-2.6GHz
RAM	2*262-Pin, DDR5,4800MHz, 64GB max.	2*262-Pin, DDR5,4800MHz, 64GB max.	1*DDR4, 3200MHz SODIMM, 32GB max.
Graphics	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 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, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, WOL	1*Intel I226V, 10-1000M, WOL; 1*Intel I219 LM, 10-1000M, WOL	3*RTL811H-VB, 10-1000M
USB	2* USB3.2(10G),2*USB3.2(5G),2*USB2.0	2* USB3.2(10G),2*USB3.2(5G),2*USB2.0	2* USB3.1; 2*USB2.0
Display	1*DP+1*HDMI+1*VGA	1*DP+1*HDMI+1*VGA	1*HDMI
Audio	1*Line out+1*Mic, Realtek ALC 897	1*Line out+1*Mic, Realtek ALC 897	/
COM/ Others	2*RS232/422/485, 2*RS232; 1*SM Bus	2*RS232/422/485, 2*RS232; 1*SM Bus	2*RS232/485, 6*RS485; 2*CAN
DIO	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)	8*DI+6*DO
Storage			
Storage	2*2.5" SATA3, 15mm; 1*mSATA(SATA3)	2*2.5" SATA3, 15mm; 1*mSATA(SATA3)	1*mSATA, 6Gbps
Expansion			
Expansion Port	1*PCIe5.0X16(X16)+1*PCIe3.0X16(X4); or 1*PCIe5.0X16(X16)+1*32bit PCI; 1*Mini PCIe(PCIeX1/USB+SIM),4G LTE	1*PCIe5.0X16(X16)+1*PCIe3.0X4(X2)+ 2*32bit PCI; 1*Mini PCIe(PCIeX1/USB+SIM),4G LTE	1*Mini PCIe(+SIM),4G LTE/Wifi/BT; 1*Mini PCIe(PCIeX1+USB2.0)
Power Supply			
Input voltage &TDP	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 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
Color	Silver white+Aquamarine	Silver white+Aquamarine	Silver gray
Installation	desktop mounting	desktop mounting	desktop mounting
Dimension	256.68*312.7*149.9mm	256.68*312.7*210.9mm	222*140*45mm
Net Weight	6.31 KG	7.4KG	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
Storage Temp	-40℃~85℃	-40℃~85℃	-40℃~85℃
Storage Humidity	10~95%@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)
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)
Certificate /EMC	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



JHCTECH IoT Computer
Connecting the Dots

KGEC
Edge controller

    					
KGEC-6200 KGEC-6300 KGEC-6301 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 H110 PCH	6th/7th Gen Intel® Skylake-S/Kabylake-S Pentium/Core I3/I5/I7 CPU LGA 1151 socket,max support 65W H110 PCH	8th gen Intel Whiskeylake U ; Core U: I5-8265U;	Intel 10th Gen. Cometlake-S Core i9/i7/i5/i3/Celeron CPU,LGA 1200 Socket H420E PCH
RAM	1* DDR4 SODIMM 3200MHz, 32GB max.	1* DDR4 2400/2133MHz, 16GB 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	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	2*Intel I210AT, 10-1000M; 4*Intel I210AT(+POE),802.3af(15.4W)	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	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* 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 with isolated TVS	2*RS232/422/485	2*RS232/422/485
DIO	6 bit DIO(MI/O)		16-bit Isolator DIO(Phoenix terminal)	8-bit DIO(Phoenix terminal)	/
Storage					
Storage	1*mSATA Full Size,AHCI	1*mSATA full height card	1*2.5" SATA3.0 HDD/SSD 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*Mini PCIe(PCleX1/USB+SIM),4G/Wifi/BT; Optional 1*PCle3.0 X4(X1) + 2*32bit-PCI	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; S001(49.2W I7-6700T 4GB) / (52.8W I7-6700T 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	Aluminum chassis, SGCC frame
Dimension (W*H*D)	130*100*40mm	S001(202*151*57.8mm/ 202*151*109.8mm,+Expansion)	S001(202*151*80.8mm/ 202*151*151mm,+Expansion)	202*151*81mm	202*154*57.8mm/202*154*89.5mm(+Expansion)
Weight	750g	S001: 2.52KG/3.52KG(+Expansion)	S001: 3KG/4.4KG(+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	- 20°C~60°C , SSD
Storage temp	- 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	10~90%@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)	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)(with SSD); 20g peak acceleration(duration;11ms)(with 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	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,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,



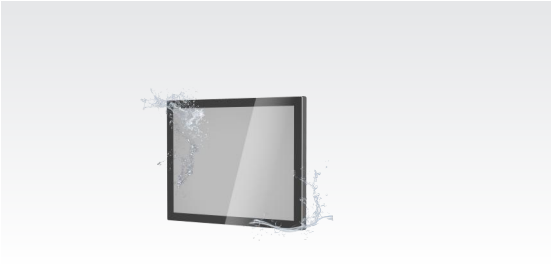
ALAD Panel PC Models and Key Differences

Model	CPU	Model	CPU	Model	CPU
A1010T/T(P)	Elkhart lake	K1020T/T(P)	Kaby lake-U	K1050T/T(P)	Tiger lake-U
A1210T/T(P)		K1220T/T(P)		K1250T/T(P)	
A1510T(P)		K1520T/T(P)		K1550T(P)	
A1710T/T(P)		K1720T/T(P)		K1750T/T(P)	
A1810T(P)		K1820T(P)		K1850T(P)	
A1910T/T(P)		K1920T/T(P)		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® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U Core I3/I5/I7 CPU, ULT SoC, TDP 12W/15W	Intel® Celeron/Tigerlake U 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	350	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, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto	Windows 11/10*IoT enterprise, SUSE, Ubuntu, Wind River, Red Hat*Enterprise, Wind River VxWorks*7, Yocto



System	
WPPC-H1520T(P)	
CPU	Intel Twin Lake N150 Intel@ Tiger lake-U 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	5.8KG	6.6kg	6.8KG	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		OFX-075	
			
PC interface	Mini PCIe,52Pin	Input	DC IN 9-36V
Ethernet	2*Intel I210AT,10-1000M	Output	DC OUT 12V
Operating Temp	-20°C~70°C	TDP	54W~78W(max.)
Dimension	30*50.9*6.0mm (ECB-246)	Operating Temp	0°C~60°C
	51*27*18mm (ECD-2460)	Dimension	53*38mm
ECB-260 CANBus		ECB-327	
			
PC interface	Mini PCIe,52Pin	BMC System	CSCB2400 IC, Meets IPMI specifications, Support FPU , MPU AES/HASH/TRNG
CAN interface	2*DB9	Interface	M.2 KEY-E Golden Finger
Application	FCANBus	Functional	Asset management, Remote control
CAN standard	CAN2.0A/CAN2.0B,ISO/DIS 11898-1/2/3		Fault diagnosis, System monitoring
Protocol support	VehicleDBC, CANopen, J1939		Event logsand alarms, Interface management
Operating Temp	-40°C~85°C	Operating Temp	0 ~ 60°C
Dimension	50.95*30*1.6mm	Dimension	30mm*22*0.8mm



					
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	CPU	Intel® Skylake/Kabylake-U Corei3/i5/i7 CPU; Optional MLU220T MXM 8G Ram 16TOPS(INT8)	Intel® Comet lake 10th-Gen Celeron/Pentium/Core™ i9/i7/i5/i3 CPU, Intel® Q470 PCH
RAM	1*DDR4 3200MHz SODIMM memory, up to 32GB	DDR4, 2133MHz, onboard 4GB+1*SODIMM, 4+16GB max.	RAM	Onboard 4GB +1*SODIMM, 4+16GB max.	2*DDR4 SO-DIMM, 2933MHz, 64GB 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	Graphics	Intel® Gen. 9 HD Graphics, DP:4096*2160@60Hz, Smart Display: 1920*1200@60Hz, VGA: 1920*1200@60Hz, 3 independent display	Intel® UHD Graphics, Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 ; DP:4096*2304@60Hz, HDMI:4096*2160@24Hz, 2 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)	LAN	2*Intel® I210AT 10M-1000M (M12)	3*Intel I226V, 10M-2.5G, iAMT 13.0,vPro(Core i5/i7/i9 CPU) 8*Intel I210AT(8*M12)
USB	4*USB3.1 (Type A) , 2*USB2.0	2* USB3.0; 1*USB2.0 ; 2*USB2.0 (M12)	USB	2* USB3.0; 1*USB2.0 ; 2*USB2.0 (M12)	4* USB3.2(10G)+2*USB3.0+2*USB2.0
Display	1*LVDS+3*VGA	1*DP+1*VGA+1*Smart Display	Display	1*DP+1*VGA+1*Smart Display	2*HDMI
Audio	Opt. Realtek ALC897 Audio, Audio out and MIC	Opt. Realtek ALC662VD audio, Audio outand MIC	Audio	/	(Opt.)Realtek ALC, 1*Line out+1*Mic
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)	Serial port	1*Console RS232 (RJ45)	2*RS232/422/485+2*RS485
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	/	8-bit DIO, TTL
Storage			Storage		
Storage	1↑128GB mSATA , 1↑2.5" 32GB SSD , dual storage	1*2.5" HDD SATA bay; 1*mSATA full height card(SATA+USB)	Storage	1*2.5" HDD SATA bay; 1*mSATA(SATA+USB)	1*2.5" HDD SATA3.0(RAID0/1); 1*M.2 2280 M-Key(PCIex4), NVMe
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	Expansion Port	2*Mini PCIe(+SIM), 4G/GSM/Wifi/BT/GPS 1*Mini PCIe(SATA+USB), mSATA 1*Mini PCIe(PCle X1/USB)	Slot7&8: 1*PCle3.0X8(CPU)+1*USB3.1+1*USB2.0+1*G-LAN; Slot6: 1*PCleX4+1*USB3.1+1*USB2.0, 1*G-LAN; Slot5: 1*PCleX4+1*USB3.1+1*USB2.0; Slot3&4: 1*PCleX1+SATA3.0+1*USB2.0; Slot1&2: 1*SATA3.0+1*USB2.0; Slot9(System): 2*PCleX8+2*PCleX4+2*PCleX1+4*USB3.1+ 4*SATA3.0+8*USB2.0+3*G-LAN
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)	Input voltage & TDP	Railway power:DC 110V(43-160V), 4-pin M12; 28W(Non. MLU220T)/44.5W(with MLU220T)	DC 16.6-160V(Rail-way,ultra-wide voltage,4-pin M12); TDP: 24V/2.08A(I3-9100HL, 16G DDR4, 128mSATA)
Mechanical			Mechanical		
Structure	Aluminum chassis, stainless steel frame	Aluminum chassis, stainless steel frame	Structure	Aluminum chassis, stainless steel frame	Aluminum alloy mold, conductive oxidation process
Dimension (W*H*D)	260*151*110.8mm (Without mounting kit) , 287*151*114.8mm (With mounting kit)	270*154*64.5mm	Dimension (W*H*D)	430*44.5*283mm	482.6*248.2*133mm(w/ kit) ,435.8*208.5*133mm(w/o kit)
Net weight	3.10KG	3.2KG	Net weight	4.69KG	8.7KG
Environmental			Environmental		
Operating temperature	-25~60°C	EN50155 TX: -40~70°C(Operating10min in 85°C)	Operating temperature	EN50155 TX: -40~70°C	EN50155 QT3: -25~70°C(25W CPU); QT1: -25~55°C(45W)
Storage temperature	-40°C~85°C	- 40°C~85°C	Storage temperature	-40°C~85°C	EN50155 QT1: -25~55°C(35W CPU)
Storage humidity	10~90%@40°C, Non-condensing	10~90%@40°C, non-condensing	Storage humidity	10~95%@40°C, Non-condensation	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	Vibration	MIL-STD-810G, EN50155	MIL-STD-810G, EN50155:2021
Shock	50g peak acceleration(11ms duration)(SSD); 20g peak acceleration(11ms duration)(HDD)	MIL-STD-801G, EN50155	Shock	MIL-STD-810G, EN50155	MIL-STD-810G, EN50155:2021
Certification /EMC	Chinese 3C	EN50155, E-Mark, CE/FCC Class A	Certification /EMC	EN50155: 2017 & E-Mark & CE & FCC Class A	EN50155: 2021 & CE/FCC Class A
OS			OS		
OS	Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux	OS	Windows 7Windows 10, Windows 11 , Linux	Windows 7, Windows 10, Windows 11 , Linux

NODE&SBC&PADR

NODE Core Module & Single Board Computer & IPC-PADR Series

JHCTECH

Product Listing



EOM-I912



NODE-I719



NODE-I721



NODE-I914

Formfactor	INE Type F	NODE Type 1	NODE Type 1	NODE Type 1
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;
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.
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
Connector 1	eSPI and Fusa PCIe Gen3 X1*4/X4*1 PCIe 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 PCIe3.0 X1*4 PCIe3.0 X2*1	MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 PCIeX1 3 USB3.2/PCIeX1 4 USB2.0 8 SATA3.0/PCIeX1 2	MXM 3.1 Goldfinger(281-Pin) DDI 2 eDP 1 USB3.2 4 USB2.0 10 PCIe3.0 X1*4 PCIe3.0 X2*1 PCIe3.0 X4*1
Connector 2	PCIe3.0 X1*1 PCIe3.0 or USB3.1 X2*1 CPU PCIe Gen4 X1*2 HDA 1 USB2.0 5 SATA 1 DDI 1 COM 2 GPIO Up to 30 channels	SATA(PCIeX1) 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	SATA3.0/PCIeX1 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	SATA(PCIeX1) 2 LPC(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
Power& TDP	DC IN 12V;	DC IN 12V;	DC IN 12V;	DC IN 12V;
Dimension	133*95*16.6mm	95*82*6.4mm	95*82*6.4mm	95*82*6.4mm
Operating temp.	0~60°C(Standard); -40~85°C(Extend)	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
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
EMC/ Certification	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
OS Support	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux

  				
NODE-I916 NODE-I966 NODE-I973				
Formfactor	NODE Type 1	NODE Type 2	NODE Type 2	
CPU	Intel® Core™ Ultra 5 125U: 2*P Core + 8*E Core, 14, 1.3~4.3 GHz, 15W	Intel gen. 9th Coffee lake-s LGA1151	Intel® Comet lake-S CPU: Core i9/i7/i5/i3/Celeron	
	Intel® Core™ Ultra 5 225U: 2*P Core + 8*E Core, 14, 1.3~4.8 GHz, 15W			
DRAM	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.	
Graphics	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	
Connector	MXM 3.1 Goldfinger(281-Pin)	MXM 3.1 Goldfinger(281-Pin)	MXM 3.1 Goldfinger(281-Pin)	
	DDI	2	DDI	2
	eDP	1	eDP	1
	USB3.2	2	USB3.1	6
	USB2.0	10	USB2.0	10
	PCIeX1	4	PCIeX1	5
	PCIeX2	1	PCIeX2	1
	PCIeX4	1	PCIeX2	1
	eSPI	1	SATA	4
	SATA(PCIeX1)	2	LPC(eSPI)	1
	HDA	1	HDA	1
	SM BUS	1	SM BUS	1
	Legacy IO	1	Legacy IO	1
	RTC	1	RTC	1
	UART	4	UART	3
	GPIO	3	GPIO	3
F-Panel: Power SW/Reset/PW-LED/HDD-LED F-Panel: Power SW/Reset/PW-LED/HDD-LED F-Panel: Power SW/Reset/PW-LED/HDD-LED				
Power& TDP	DC IN 12V;	DC IN 12V;	DC IN 12V;	
Dimension	95*82*6.4mm	150*100*13mm	150*100*13mm	
Operating temp.	0~60℃	0~60℃	0~60℃	
Storage temp.	-40℃~85℃	-40℃~85℃	-40℃~85℃	
Storage Humidity	10~95%@40℃, Non-condensing	10~95%@40℃, Non-condensing	10~95%@40℃, Non-condensing	
EMC/ Certification	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	
OS Support	Windows 10, Windows 11,Linux	Windows7,Windows 10, Windows 11,Linux	Windows 10, Windows 11,Linux	

    					
EPI-I908 ECM-I718 ECM-I910 ECM-I913 PITX-I915					
System					
CPU	Intel® Skylake/Kabylake-U processor /Core i3/i5/i7	Intel® Elkhart lake SoC CPU: Celeron J6412 2.0-2.6GHz/	Intel Whiskey lake U Core i5	Intel® Tiger lake U Soc CPU (Core i3-1115G4/i5-1135G7/i7-1165G7,)	Intel® Tiger lake U Soc CPU (Core i3-1115G4/i5-1135G7/i7-1165G7)
RAM	1*DDR4,2133MHz,SODIMM, 16GB max.	1*DDR4 SODIMM,3200MHz, 32GB max.	2*DDR4 SODIMM,2400MHz, 32GB max.	2*DDR4 SODIMM,3200MHz, 64GB max.	LPDDR4x Onboard memory, 16GB max.
Graphics	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	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
I/O					
LAN	2*Intel® I210AT/I211AT, 10-1000 M	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
USB	4* USB3.0, 1*USB2.0(pin)	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)
Display	1*HDMI+1*LVDS(pin)	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
Audio	1*Line out+1*Mic, Realtek ALC662,1*Amplifier	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
Serial port &Others	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	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)
DIO	8-bit DIO,programmable TTL	8-bit DIO,programmable TTL	8-bit DIO,programmable TTL	8-bit DIO,programmable TTL	/
Storage					
storage	2*SATA3 6.0Gbps; 1*mSATA,support AHCI	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.)
Expansion					
Expansion	1*MiniPCIe(PCIeX1/USB+SIM), 4G/LTE/GSM/Wifi/BT/GPS; 1*80pin EIO:LPC、 SM Bus、2*PCIeX1	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,
Power Supply					
Power& TDP	DC 9~36V, 3-pin terminal; 45W(I7-7500U, 4GB, 64GB SSD, 1TB HDD)	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)
Environment					
Dimension (W*H)	190*115mm (Height: 27.4mm, 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)	146*102mm(Height: radiator with fan 37mm, fanless radiator 52mm; PCB:1.6mm)	100*72mm
Operating temp.	0~60℃	0~60℃	0~60℃	0~60℃	0~60℃
Storage temp.	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃	-40℃~85℃
Storage humidity	10~95%@40℃, No condensation	10~95%@40℃, No condensation	10~95%@40℃, No condensation	10~95%@40℃, No condensation	10~95%@40℃, Non condensation
Certification	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
OS					
OS	Windows 7,Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux	Windows7, Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux	Windows 10, Windows 11, Linux

MATX-I953-T001		MATX-I961		MITX-I984	
ATX-I971		ATX-I980		ATX-I990	
System					
CPU	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	Intel® 12th/13/14th-Gen Alder lake-S /Raptor lake-S/Raptor lake-S RefreshCore™ i9/i7/i5/i3/Pentium/Celeron, LGA 1700 Socket, up to 65W	Intel 10th Gen Cometlake-S Core i9/i7/i5/i3/Pentium/Celeron CPU, LGA 1200 Socket,125W	Intel 12/13/14th Gen. Alder lake-S Core i9/i7/i5/i3/Pentium/Celeron CPU,LGA 1700 Socket,125W max.
RAM	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.	4* DDR4 288-Pin Non-ECC UDIMM, 3200MHz, 128GB max.
Graphics	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	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
I/O					
LAN	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	1*Intel® I226V, 10-1000M,WOL; 1*Intel® I219LM, 10-1000M, iAMT13.0,vPro
USB	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)	4*USB3.2(10G), 4*USB2.0 2*USB3.2(10G,pin), 3*USB2.0(pin)
Display	1*HDMI + 1*VGA+ 1*DVI-D	2*DP+1*HDMI	1*eDP, 2*HDMI, 1*LVDS	1*HDMI+1*VGA	1*HDMI+1*DP+1*VGA
Audio	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)	1*Line out+1*Mic,Realtek ALC897, Optional Amplifier
Serial port &Others	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)	1* RS232/422/485, 5* RS232(pin); 1*RS232/422; 1*SM Bus
DIO	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	8-bit DIO,programmable TTL
Storage					
storage	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	4*SATA 3.0 HDD/SSD, support RAID 0/1/5/10 , 1*M.2 2280 M-key(PCIeX4), NVMe or SATA
Expansion					
Expansion	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	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)
Power Supply					
Power& TDP	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)	24-Pin ATX+8-Pin ATX 12V 110W(I7-12700K CPU/16G D4/128G SSD)
Environment					
Dimension (W*H)	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)	305*244mm (Height :34.9mm,PCB: 1.6mm)
Operating temp.	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
Storage humidity	10~95%@40°C, Non condensation	10~95%@40°C, Non condensation	10~95%@40°C, Non-condensing	10~95%@40°C, Non condensation	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
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
OS					
os	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	Windows 10, Windows 11,Linux Ubuntu



	PADR-M102-718	PADR-M102-910	PADR-M102-913	PADR-S501-953-T001	PADR-S501-961	PADR-S501-971	PADR-S501-980
System							
CPU	Intel® Elkhart lake SoC CPU: Celeron J6412	Intel® Whiskey lake-U CPU, Core I5-8265U	Intel® Tiger lake U Soc CPU , core i3-1115G4/i5-1135G7/i7-1165G7,	Intel® 6/8/9th Gen Core i7/i5/i3/ Pentium/ Celeron LGA1151 CPU, TDP 65W Z390 Chipset	Intel® 8/9th Gen. Coffee-S Core i9/i7/i5/i3 LGA1151 CPU,up to 95W,Q370 Chipset	Intel 10th Gen. Cometlake-S Core i9/i7/i5/i3/Pentium/Celeron LGA1200 CPU, up to 125W, H420E Chipset	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	1*DDR4, 3200MHz, 32GB max.	2*DDR4, 2400MHz, 32GB max.	2*DDR4, 3200MHz, 64GB max.	2*288-pin DDR4 2133/2666MHz, 64 GB max.	4*288 pin DDR4, 2666MHz, 128GB max.	2*288 pin DDR4, 2933MHz, 64GB max.	4x288-pin Non-ECC UDIMM , Dual-Channel DDR4 3200MHz, 128GB max.
Graphics	Intel® Gen. 10 UHD Graphics, HDMI: 4096*2304@60Hz, DP: 4096*2160@60Hz, 2 independent Display	Intel® Gen. 9 UHD Graphics, HDMI: 4096*2304@24Hz, DP: 4096*2304@60Hz, 2 independent Display	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	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,DirectX12,OpenGL 4.5; HDMI: 4096*2304@24Hz, DP: 4096*2304@60Hz,3 independent display	Intel® UHD Graphics,DirectX12,OpenGL4.5; HDMI: 4096*2160@30Hz, VGA: 1920*1200@60Hz	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	2*Realtek 8111H,10-1000M,WOL	1*Intel I219LM,10-1000M,WOL; 1*Intel I226V,10-1000M,WOL	1*Intel I219LM,10-1000M,WOL,iAMT13.0; 1*Intel I226V,10-1000M,WOL	1*Intel I210AT,10-1000M,WOL; 1*Intel I219V 10-1000M, WOL	2*Intel I210AT/I211AT, 10-1000M,WOL; 1*Intel I219LM,10-1000M,WOL/AMT12.0/iVpro	1*Intel I226V, 10M-2.5G, WOL; 1*Intel I219LM, 10-1000M, WOL	1*Intel I226V,10-1000M, WOL 1*Intel I219LM, 10-1000M, iAMT13.0, paired with i5/i7/i9 CPU,supports vPro
USB	4*USB3.1 Gen1(5Gbps)	4*USB3.0(5G)	4*USB3.2	6*USB3.2, 5*USB2.0(1 inside)	4*USB3.1 Gen2(10Gbps), 7*USB2.0	4*USB3.2 Gen1(5Gbps), 5*USB2.0	4*USB3.2, 7*USB2.0
Display	1*DP+1*HDMI	1*DP+1*HDMI	1*DP+1*HDMI	1*HDMI+1*VGA+1*DVI-D	2*DP+1*HDMI	1*HDMI+1*VGA	VGA+HDMI+DP
Audio	1*Line out+1*Mic,Realtek ALC897	1*Line out+1*Mic,Realtek ALC897	1*Line out+1*Mic,Realtek ALC897	1*Line out+1*Line in+1*Mic, Realtek Audio HDA codec	1*Line out+1*Mic,Realtek ALC662VD	1*Line out+1*Mic,Realtek ALC897	1*Line out+1*Mic,Realtek ALC897
Serial port &Others	2*RS232/422/485, 1*RS232	2*RS232/422/485, 1*RS232	2*RS232/422/485, 1*RS232	1*RS232/422/485, 2*RS232; 1*PS/2	2*RS232/422/485	2*RS232/422/485, 2*RS232	2*RS232/422/485, 1*RS232
DIO	8bit DIO(OptionalRS232)programmable	8bit DIO(OptionalRS232)programmable	8bit DIO(OptionalRS232)programmable	8bit DIO(pin),programmable	8bit DIO(pin),programmable	8bit DIO(pin),programmable	8bit DIO(pin),programmable
Storage	1*2.5" SATA,15mm; 1*mSATA	1*2.5" SATA,15mm; 1*mSATA(Optional)	1*2.5" SATA,15mm; 1*mSATA(Optional)	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	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	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	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
Expansion	1*M.2 2230 B-Key,Wifi5/BT5.0, or 1*M.2 3052 E-Key,4G LTE/5G NR	1*Mini PCIe(+SIM),4G LTE/Wifi/BT/mSATA; 1*M.2 2230 E-Key,Wifi/BT	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	1*PCIeX16(3.0 X16);1*PCIeX4(3.0 X4), 1*Mini PCIe with SIM 2* 32-bit PCI	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)	1*PCIe3.0 X16(X16)+ 3*PCIe3.0 X4(X2+1+1 or Bios X4)+ 3*32 bit PCI	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)
Power Supply							
Power& TDP	DC 12V/DC 9~36V; TDP: 15.6W (J6412/32G DDR4/128 SSD)	DC 12V/DC 9~36V; TDP: 27.9W(I7-8565U,16GB DDR,1*4T SSD)	DC 12V/DC 9~36V; TDP: 45.36W (i7-1165 G7/4G DDR4/128G SSD)	AC100-240V,Standard ATXPower 300W, Optional 850W; TDP: 125W (i7-7700/16G DDR4/128GSSD)	AC100-240V,Standard ATXPower 300W, Optional 500W/750W/1000W; TDP: 374W (I7-8700, 16GB DDR , 2*4TB, GTX-1660)	AC100-240V,Standard ATXPower 300W, Optional 500W/750W; 184.85W(I7-10700K/16G DDR4/256G SSD)	AC100-240V,Standard ATXPower 300W, Optional 500W. 750W and 1000W; TDP: 232.3W (I7-12700K CPU/16G DDR4/256G SSD)
Mechanical							
Structure	SGCC	SGCC	SGCC	Door with lock, SGCC, metal mold molding	Door with lock, SGCC, metal mold molding	Door with lock, SGCC, metal mold molding	Door with lock, SGCC, metal mold molding
Color	Silk Grey+Pastel Blue	Silk Grey+Pastel Blue	Silk Grey+Pastel Blue	Granite grey	Granite grey	Granite grey	Granite grey
Installation	desktop mounting	desktop mounting	desktop mounting	Mounted on 19"rack, optional mounting rail set	Mounted on 19"rack, optional mounting rail set	Mounted on 19"rack, optional mounting rail set	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	204*148*70mm	204*148*70mm	204*148*70mm	430*470*173mm	430*470*173mm	430*470*173mm	430*470*173mm
Weight	1.55KG	1.55KG	1.55KG	14KG	14KG	14KG	14KG
Environment							
Operating temp.	0°C~50°C,SSD,with air flow;	0°C~50°C,SSD,with air flow;	0°C~50°C,SSD,with air flow;	0~50°C	0°C~50°C	0°C~50°C	0°C~50°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
Storage humidity	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-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)
Certification	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A, 3C	CE/FCC Class A, 3C	CE/FCC Class A, 3C	CE/FCC Class A, 3C
OS	Windows 10, Windows 11, Linux	Windows 7, 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
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

PADR-S501-990 PADR-S501-H801 PADR-S501-H802			
System			
CPU	Intel® Core™Ultra Processors (Series 2), LGA185, Support MAX CPU TDP: 125W,Q870 Chipset	HG-3350 3.0GHz, 8 Cores , 16 Threads BGA CPU TDP: 65W	HG-3350 3.0GHz, 8 Cores , 16 Threads BGA CPU TDP: 65W
RAM	4*288-pin DDR5 5600MHz, 192GB max.	4*288-pin DDR5 3200MHz, 256GB max.	2*288-pin DDR4,3200MHz,256GB max
Graphics	Intel® Graphics, DirectX 12, OpenGL 4.5 and OpenCL 3.0; HDMI:4096*2160@60Hz, DP:4096*2160@60Hz, VGA:1920*1200@60Hz	ASPEED AST2500 BMC VGA:1920*1200@60Hz	SM768-1GB DDR3 GPU, HDMI:3840*2160@60Hz, VGA:1920*1200@60Hz
I/O			
LAN	1*Intel I210AT,10-1000M, WOL 1*Intel I219V, 10-1000M, iAMT paired with U5/U7/U9 CPU,supports vPro	1*Muchuang N210L-X1, 10-1000M, WOL 1*RTL8211F-CG, 10-1000M, WOL 1*IPMI , AST2500 BMC	1*YT 8614C, 4*10-1000M, WOL;
USB	4*USB3.2, 2*USB3.2(10G), 4*USB2.0(2 inside)	4*USB3.0(2 inside), 3*USB2.0	5*USB3.0(1 inside), 2*USB2.0
Display	VGA+HDMI+DP	VGA	1*HDMI+1*VGA
Audio	1*Line out+1*Line in+1*Mic, Realtek Audio HDA codec	NON	1*Line out+1*Mic,Audio HDA codec
Serial port &Others	1*RS232/422/485, 2*RS232	2*RS232;	2*RS232/422/485, 2*RS232;
DIO	8bit DIO(pin),programmable	16bit DIO(8DI+8DO, Optional RS232)	8bit DIO(OptionalRS232)programmable
Storage			
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	3*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	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
Expansion			
Expansion	1*PCIeX16(5.0 X8), 1*PCIeX16(4.0 X8) 4*PCIeX4(4.0 X4), 1* 32-bit PCI 1*M.2 2280 M-Key (4.0 PCIe X4) or SATA SSD 1*M.2 2230 E-key,WiFi/BT,	2*PCIeX16(3.0 X8), 1*PCIeX8(3.0 X4) 1*PCIeX8(3.0 X4 colay with M.2) 1*M.2 2280 M-Key SATA SSD or 3.0 PCIe X4 1*Mini PCIe	2*PCIeX16(3.0, X8)+ 1*PCIeX8(3.0,X2), 1*PCIeX4(3.0,X1), 3*32 bit PCI; 1*M.2 2280 M-Key (3.0 PCIe X2)
Power Supply			
Power&TDP	AC100-240V,Standard ATXPower 300W, Optional 850W; TDP:355W (U9-285K CPU/32G DDR5/128G SSD)	AC100-240V,Standard ATXPower 300W, Optional 850W; TDP: 110W(HG3350,16G DDR4/256G SSD)	AC100-240V,Standard ATXPower 300W, Optional 850W; TDP: 110W(HG3350,16G DDR4/256G SSD)
Mechanical			
Structure	Door with lock, SGCC, metal mold molding	Door with lock, SGCC, metal mold molding	Door with lock, SGCC, metal mold molding
Color	Granite grey	Granite grey	Granite grey
Installation	Mounted on 19"rack, optional mounting rail set	Mounted on 19"rack, optional mounting rail set	Mounted on 19"rack, optional mounting rail set
Dimension (W*H*D)	430*470*173mm	430*470*173mm	430*470*173mm
Weight	14KG	14KG	14KG
Environment			
Operating temp.	0°C~50°C	0~50°C	0°C~50°C
Storage temp.	-40°C~85°C	-40°C~85°C	-40°C~85°C
Storage humidity	10~95%@40°C, Non-condensation	10~95%@40°C, Non-condensation	10~95%@40°C, Non-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)
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)
Certification	CE/FCC Class A, 3C	CE/FCC Class A, 3C	CE/FCC Class A, 3C
OS	Windows 10, Windows 11,Linux	Windows 7/Windows10/Windows 11 Linux, UOS, Kylin	Windows 7/Windows10/Windows 11 Linux, UOS, Kylin
Watchdog timer	programmable via software 1 to 255 second	programmable via software 1 to 255 second	programmable via software 1 to 255 second

