

High Performance Computing Solution

Lightning-fast, Real-time Analysis
& Extreme Reliability for the
Booming **IoT & AI** Applications

High Performance Computing Solution

HPC stands for High Performance Computing. Avalue's HPC products are with the highly ability to process data and perform complex calculations at high speed. HPC series are the next era of computing products that brings lightning-fast, real-time analysis & extreme reliability performance. And it's optimized for AI, 5G, IoT, ML (machine learning), edge computing, medical precision computing and other applications requiring real-time and faster performance and high reliability.



Time-to-solutions

Painless upgrades in the existing server rack, cabinet, or inside the system chassis with limited space



IPMI 2.0 Supported

With built-in onboard BMC/IPMI technology with real-time system monitoring and provide preventive maintenance to minimize system downtime and field service cost



Extended Lifecycle

Intel® extends the product availability for IOTG roadmap products to 15 years to respond to the IoT market demand. (Based on Intel® IOTG Roadmap)

Advantage of Avalue HPC Solutions



Product Reliability

- Up to 60 degree C operating temperature
- 50,000 hours system level MTBF
- Minimize system downtime



Product Quality

- Complete design verification including SI, power and thermal measurement
- 100% MP test coverage with traceability
- Customized manufacturing test service



Product Availability

- At least 7 years product longevity
- Minimize BOM change on passive EOL components on a yearly basis.
- Minimize development expenditure



Product Upgradability

- U.2 NVMe SSD ready
- PMBus PS2 PSU available
- Exactly same rackmount and tower chassis
- For C246, C621 and new platforms

All standard models for High Performance Computing



Mainboard

- System level design and testing capability.
- ISO certified manufacturing facility



Barebone system

- High speed I/O adapter and accessories sourcing capability.
- Basic system level integration and testing knowledge.



Fully-integrated system

- Fully tested system.
- No hardware related efforts or experience needed.

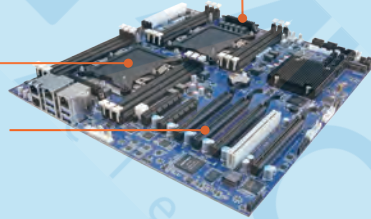
Key Features

HPM-621DE

2.0mm PCB thickness to improve robustness and signal integrity

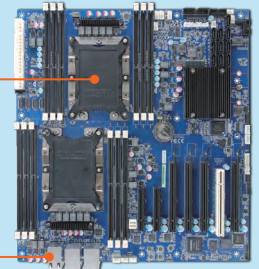
Double capacity RTC battery to minimize field maintenance

Up to three Full height/ Double-wide GPU card to tackle the compute-intensive tasks of tomorrow



Dual Xeon-XP processors support

Various high speed I/O expansion flexibility

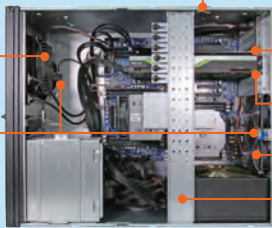


HPS-621D4A

1 x intrusion detector
It can detect and send out alerts or notifications when the upper cover is opened.

Front system fan

Inlet & Outlet Sensor Board
For real-time monitoring the environment temperature variation



1 x GPU Card (NVIDIA P2200)

1 x GPU Card (NVIDIA RTX5000)

Rear system fan

Center bar for fixing CPUs and PCIe cards

Tool-free removable front fan for easy maintenance

Lockable front door for better access control



Tool-free removable top cover for quick maintenance

3 x Front Accessible Storage Bay

Healthcare

- Precision Diagnosis/ Life Science

Medical

- Advanced Medical Imaging Technology

Communication

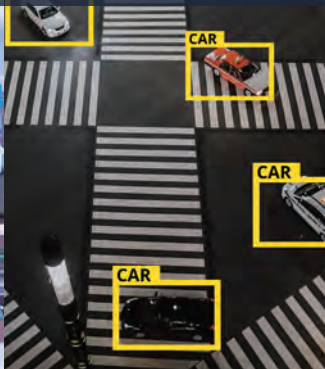
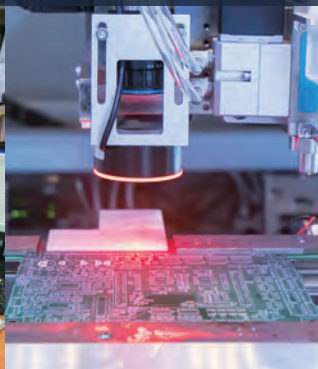
- Superior Accelerated Workstation

Smart Manufacturing

- Visualization Machine Vision/ Transformative Analytics

Smart City

- Smart Public Safety and Enforcement Technology





Motherboard			
Model Number	HPM-246UA	HPM-621DE	HPM-621UA
Processor	Intel® LGA1151 Socket supports 8/9th Gen. Intel® Xeon® E (Workstation)/Core™-i, Pentium®/Celeron® Processor (Max. TDP at 95W)	Dual Intel® FCLGA3647 sockets support 2nd Gen. Intel® Xeon® Scalable Processor (Max. TDP at 150W)	Intel® FCLGA3647 Socket supports 2nd Gen. Intel® Xeon® Scalable Processor (Max. TDP at 150W)
System Chipset	Intel® C246 Chipset	Intel® C621 Chipset	Intel® C621 Chipset
System Memory	4 x DDR4 2666/ 2400/ 2133 MHz DIMM supports up to 128 GB (ECC memory supported by CPU)	12 x DDR4 2933/ 2666/ 2400/ 2133 ECC RDIMM/ LRDIMM Up to 768GB	6 x DDR4 2933/ 2666/ 2400/ 2133 ECC RDIMM/ LRDIMM Up to 384GB
Expansion	1 x PCI-E Gen3 x16 slot 1 x PCI-E Gen2 x 8 slot 1 x PCI-E Gen3 x 4 slot 1 x PCI-E Gen3 x 1 slot 1 x PCI 3.0 slot	Slot 1, PCIe 3.0 x16 from CPU1 Slot 2, PCI 3.0 Slot 3, PCIe 3.0 x16 from CPU1 Slot 4, PCIe 3.0 x16 from CPU2 Slot 5, PCIe 3.0 x16 from CPU2 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)	Slot 1, PCI 3.0 slot Slot 2, PCIe 3.0 x8 Slot 3, PCIe 3.0 x16 Slot 4, PCIe 3.0 x8 Slot 5, PCIe 3.0 x16 Slot 6, PCIe 3.0 x8 Slot 7, PCIe 3.0 x16 (Slot 7 is the slot closest to CPU, x16 will switch to x8 automatically when Slot 6 is used)
Display	Intel® 8/9th Gen. CPU Integrated 3 x DP++ AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2500 BMC Controller
Resolution	DP: 4096 x 2304 @ 60Hz HDMI: 4096 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz 32bpp	VGA: 1920 x 1200 @ 60Hz 32bpp	VGA: 1920 x 1200 @ 60Hz 32bpp
Audio	Realtek Audio code Mic-in, Line-in, Line-out	NA	NA
Ethernet	7 x Intel® I210AT Gigabit Ethernet	4 x Intel® I210AT Gigabit Ethernet	4 x Intel® I210AT Gigabit Ethernet
USB/SATA/COM/LAN	8/4/2/7	8/10/2/4	8/9/2/4
Power Requirement	1 x Std. 24 Pin ATX Connector 1 x 8 Pin SSI 12V Connector	1 x Std. 24 Pin ATX Connector 2 x 8 Pin SSI 12V Connectors	1 x Std. 24 Pin ATX Connector 2 x 8 Pin SSI 12V Connectors
Power Type	ATX	ATX	ATX
IPMI	IPMI 2.0	IPMI 2.0	IPMI 2.0
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	12" x 9.6" (304.8 mm x 243.84 mm) PCB thickness is 2.0mm	12" x 13" (304.8mm x 330.2mm) PCB thickness is 2.0mm	12" x 9.6" (304.8mm x 243.84mm) PCB thickness is 2.0mm
Weight	1.54 lbs (0.7 kg)	3.96 lbs (1.8kg)	2.14 lbs (0.97 kg)

19-inch 4U Rackmount / Tower Workstation		
Model Number	HPS-246U4A	HPS-621D4A
Processor (CPU Type)	Intel® LGA1151 Socket supports 8/9th Gen. Intel® Xeon® E (Workstation)/Core™-i, Pentium®/Celeron® Processor (Max. TDP at 95W)	Dual Intel® FCLGA3647 Sockets support dual 2nd Gen. Intel® Xeon® Scalable Processor (Max. TDP at 150W)
Chipset	Intel® C246 Chipset	Intel® C621 Chipset
Memory	4 x DDR4 2666/ 2400/ 2133MHz DIMM supports up to 128 GB (ECC memory supported by CPU)	12 x DDR4 2933/ 2666/ 2400/ 2133 ECC RDIMM/ LRDIMM Up to 768GB
Storage	External: 1 x 5.25" Internal: 3 x 2.5" (HPM-246 supports up to 4 SATA ports)	External: 1 x 5.25" Internal: 3 x 2.5" (HPM-621DE supports up to 10 SATA ports, 4 x OCuLink ports from CPU 2)
IPMI	IPMI 2.0	IPMI 2.0
Expansion Slots	1 x PCI-E Gen3 x16 slot 1 x PCI-E Gen2 x 8 slot 1 x PCI-E Gen3 x 4 slot 1 x PCI-E Gen3 x 1 slot 1 x PCI 3.0 slot	Slot 1, PCIe 3.0 x16 from CPU1 Slot 2, PCI 3.0 Slot 3, PCIe 3.0 x16 from CPU1 Slot 4, PCIe 3.0 x16 from CPU2 Slot 5, PCIe 3.0 x16 from CPU2 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)
LAN	7 x RJ45 Gigabit Ethernet ports, IPMI shared LAN1 port	4 x RJ45 Gigabit Ethernet ports, IPMI shared LAN1 port
USB	Rear: 2 x USB 3.2 Gen1 Internal: 6 x USB 3.2 Gen1	Rear: 4 x USB 3.2 Gen1 Internal: 2 x USB 3.2 Gen1, 2 x USB 2.0 ports
Display	Intel® 8/9th Gen. CPU Integrated 3 x DP++ AST 2500 BMC Controller	AST 2500 BMC Controller
Display Resolution	DP: 4096 x 2304 @ 60Hz HDMI: 4096 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz 32bpp	VGA: 1920 x 1200 @ 60Hz 32bpp
Cooling Fan	80 x 25mm Rear Fan x 2	120 x 25mm Front Fan x 1 80 x 25mm Rear Fan x 2
Power Supply	500W	1300W
Power Mode	ATX	ATX
Operating Temp.	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 40°C (32°F ~ 104°F)
Dimension (L x W x H)	528 x 430 x 174.8 mm (20.7" x 16.9" x 6.9")	528 x 430 x 174.8 mm (20.7" x 16.9" x 6.9")
OS	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019 Ubuntu 18.04	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019 Ubuntu 18.04



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Solution Guide



Solution Video



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MPKT-20210831
2021 Vol.1.0