



**a**value  
Technology Inc.

# 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.

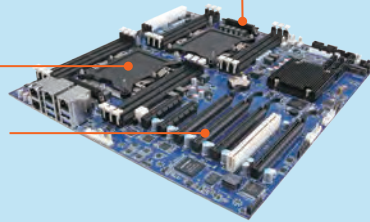
## Key Features

### HPM-621DE

2.0mm PCB thickness to improve robustness and signal integrity

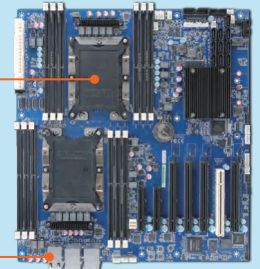
Double capacity RTC battery to minimize field maintenance

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

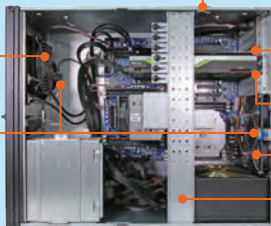


### HPS-621D4A

**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

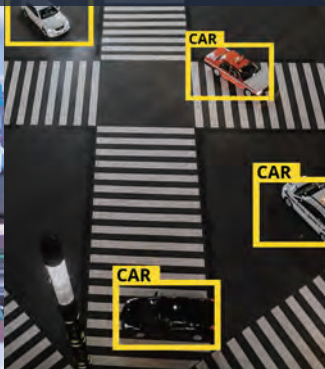
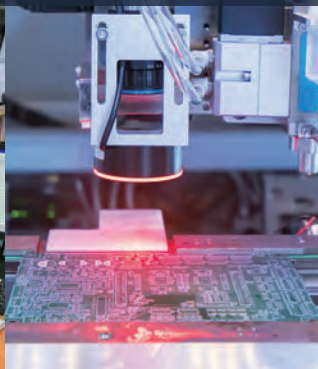
- Superior Accelerated Workstation

## Smart Manufacturing

- Visualization Machine Vision/ Transformative Analytics

## Smart City

- Smart Public Safety and Enforcement Technology





Motherboard			
Model Number	HPM-246UA	HPM-621DE	HPM-621UA
<b>Processor</b>	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)
<b>System Chipset</b>	Intel® C246 Chipset	Intel® C621 Chipset	Intel® C621 Chipset
<b>System Memory</b>	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
<b>Expansion</b>	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)
<b>Display</b>	Intel® 8/9th Gen. CPU Integrated 3 x DP++ AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2500 BMC Controller
<b>Resolution</b>	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
<b>Audio</b>	Realtek Audio code Mic-in, Line-in, Line-out	NA	NA
<b>Ethernet</b>	7 x Intel® I210AT Gigabit Ethernet	4 x Intel® I210AT Gigabit Ethernet	4 x Intel® I210AT Gigabit Ethernet
<b>USB/SATA/COM/LAN</b>	8/4/2/7	8/10/2/4	8/9/2/4
<b>Power Requirement</b>	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
<b>Power Type</b>	ATX	ATX	ATX
<b>IPMI</b>	IPMI 2.0	IPMI 2.0	IPMI 2.0
<b>Operating Temp.</b>	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	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
<b>Weight</b>	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
<b>Processor (CPU Type)</b>	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)
<b>Chipset</b>	Intel® C246 Chipset	Intel® C621 Chipset
<b>Memory</b>	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
<b>Storage</b>	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)
<b>IPMI</b>	IPMI 2.0	IPMI 2.0
<b>Expansion Slots</b>	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)
<b>LAN</b>	7 x RJ45 Gigabit Ethernet ports, IPMI shared LAN1 port	4 x RJ45 Gigabit Ethernet ports, IPMI shared LAN1 port
<b>USB</b>	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
<b>Display</b>	Intel® 8/9th Gen. CPU Integrated 3 x DP++ AST 2500 BMC Controller	AST 2500 BMC Controller
<b>Display Resolution</b>	DP: 4096 x 2304 @ 60Hz HDMI: 4096 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz 32bpp	VGA: 1920 x 1200 @ 60Hz 32bpp
<b>Cooling Fan</b>	80 x 25mm Rear Fan x 2	120 x 25mm Front Fan x 1 80 x 25mm Rear Fan x 2
<b>Power Supply</b>	500W	1300W
<b>Power Mode</b>	ATX	ATX
<b>Operating Temp.</b>	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 40°C (32°F ~ 104°F)
<b>Dimension (L x W x H)</b>	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")
<b>OS</b>	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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