Advantech SKY Series Industrial Server Solutions

Powerful, Reliable, and Flexible with Longevity Support

- GPU Servers
- HCI Servers
- Short-Depth Servers
- Carrier-Grade Servers
- Multi-Node Servers
- Industrial Server Boards
- Industrial Server Chassis
- Ethernet Adapters and Accelerators
- Application Cases
- Product Selection Guide

ADVANTECH

Enabling an Intelligent Planet

intel. partner Titanium

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Product Highlights

GPU Servers

SKY-620V3

- Dual 4th Gen Intel® Xeon® Scalable Processors
- Supports 6 x PCIe x16 double-deck cards plus 2 x PCIe x8 single-deck cards
- 16 x DDR5 slots support Intel® Optane™ persistent memory, 300 series
- 6 x PCIe 5.0 x16, 6 x PCIe 5.0 x8
- Supports up to 6 U.2 NVMe drives and up to 8 x SASA/SATA drives

SKY-640V3

- Dual 4th Gen Intel® Xeon® Scalable Processors
- Supports 4 x PCIe x16 double-deck cards plus 3 x PCIe x8 single-deck cards
- 16 x DDR5 slots support Intel® Optane™ persistent memory, 300 series
- 4 x PCIe 5.0 x16, 3 x PCIe 5.0 x8

Short-Depth Servers

SKY-721E3

- Dual AMD EPYC™ 9004 Series Processors, TDP up to 360W
- 2 x PCIe 5.0 x16 (FHFL), 2 x PCIe 5.0 x8 (FHFL), 2 x PCIe 5.0 x8 (FHHL), 2 x PCIe 5.0 x8 (low profile), 2 x PCIe 5.0 x8 (low profile, optional), 1 x OCP 3.0 PCIe 5.0 x16
- 24 x DDR5 4800Mhz, RDIMM, up to 3TB

SKY-820V3

- Dual 4th Gen Intel® Xeon® Scalable Processors
- 2 x 1GbE RJ-45, 2x 10GbE SFP+
- Support 2 x PCIe 5.0 x16 double-deck cards (FHFL) plus 2 x PCIe 5.0 x16 single-deck cards (FHHL)
- Front I/O access, wide operating temperature

Workstation and Storage Workstation

ASMB-788+HPC-7442

- Supports Intel® 12/13th Gen Core™ i9/i7/i5/i3 Processors
- DDR5 & PCIe Gen5 Ready
- Up to eight hot-swap HDD trays for higher storage capacity requirements
- Whole system fan control and remote manageability

ASMB-831+HPC-7485

- ATX server board with AMD EPYC™ 9004 Series Processors
- 5 x PCIe 5.0 x16 and 2 x PCIe 5.0 x8 for four double-deck cards
- DDR5 4800 MHz RDIMM up to 384GB (6 DIMMs)
- 9 x SATA3 and 7 x USB 3.2 Gen1 ports

Edge Accelerator Servers

ASMB-610V3+HPC-6120

- Supports Intel® 12/13th Gen Core™ i9/i7/i5/i3 Processors
- DDR5 ECC/Non-ECC UDIMM up to 4400 MHz
- Flexible I/O module design and chassis depth <19"
- 1 x PCIe 5.0 x16/ 2 x PCIe 4.0 x8 for double deck cards
- 2 x PCIe 4.0 x4 for low-profile expansion slots

ASMB-622V3+HPC-6240

- 4th Gen Intel® Xeon® Scalable Processors
- DDR5 RDIMM up to 4400 MHz, Intel Optane DCPMM™
- Flexible I/O module design and chassis depth <21"
- 2 x PCIe 5.0 x16 and 4 x PCIe 5.0 x8
- 4 x hot-swappable 2.5" SATA/ SAS/SSD drive bays (2 x NVMe in option)
- 1 x Ultra Slim ODD bay in optional

ASMB-977+HPC-7420

- 4th Gen Intel® Xeon® Scalable Processors
- DDR5 ECC RDIMM up to 4800 MHz, Intel® Optane DCPMM™ 3TB
- Front access I/O and chassis depth < 18"
- 5 x PCIe 5.0 x16 and 5 x PCIe 4.0 x8
- 2 x hot-swappable 2.5" SATA/SAS/ SSD drive bays

Advantech SKY Series:

Industrial-Grade Servers

Advantech, a leading global provider of industrial intelligent system solutions, has been known for its industrial hardware design, product reliability, and integration services for more than 30 years. Now, Advantech has evolved from an embedded systems provider into an industrial IoT solution provider. All our products and services offer smart, secure, energy-efficient features, with remote manageability, Configure-to-Order Services (CTOS), and Design-to Order Services (DTOS).

Advantech SKY series industrial-grade server products include open-standard server products such as server chassis (HPC) and server boards (ASMB). Advantech also supplies industrial server products for critical applications: GPU Servers, HCI Servers, carrier-grade servers, and multi-node servers. From components to systems, Advantech solutions offer long-term support, revision control, design flexibility, and industrial-grade reliability. Advantech cooperates closely with our partners to help provide a multitude of solutions for a wide array of applications, such as AI solutions for smart city applications in transportation, medical, 5G communication, networking and security, IoT edge, and private cloud servers.

Assured reliability and performance - Industry is in our DNA

Maintaining Equipment Longevity

- Eliminates yearly system upgrades
- Low total cost of ownership, including system certification costs and RMA service preparation

Strict Revision Control for Consistency

- Reduces product validation during a product lifecycle
- Avoids compatibility issues resulting from engineering changes

Industrial-Grade Designs for Critical Applications

- Wide temperature tolerance
- Anti-vibration capability
- Dust prevention
- Redundant design
- Remote control

Customization to Meet Flexible Needs

- Reduces product validation during a product lifecycle
- Avoids compatibility issues resulting from engineering changes
- Professional AE support shortens development times

Worldwide Support and Local Services

- System engineering expert group
- 24/7 hotline AE and global RMA system
- Certified quality assurance systems

Designed for Industrial and Critical Application Environments

Advantech industrial-grade servers have better endurance and redundancy in critical application environments which commercial servers cannot operate in. Advantech servers have wider ambient temperature validation for greater reliability. They successfully reduce system shutdowns caused by high ambient temperatures. Strict vibration tests make our servers more durable, especially in higher shock and vibration environments like factory automation. Advantech servers feature filters in the front panel that block external dust ingress while easy filter installation and replacement ensures smooth continuous operation.

Characteristic	Advantech Industrial-Grade Servers	Commercial Servers
Temperature Tolerance	0°C ~ 40°C (Carrier-grade -5°C ~ 55°C)	10°C ~ 35°C
Vibration Duration	0.25~1G	0.25~0.5G
Dust Prevention	Dust Filter Support	-
Technical Support	High	Medium to Low
Longevity	5-10 years	2-3 years

To learn more about our servers, please visit our Industrial and Telecom Servers website.

Advantech Server Solutions

ASMB and HPC – Rich Industrial Server Portfolio

Advantech aims to provide the best solutions and fulfill the most complex requests from different industries. Our ASMB server boards and HPC server chassis enable various system configurations and diverse module options to fulfill a variety of field applications.

SKY Server – Designed for Critical Applications

SKY Servers are industrial server products with high reliability and performance designed for critical applications. We offer servers for high-density GPU, 5G infrastructure, and IoT private cloud applications. SKY Servers tightly integrate hardware, software, operating systems, databases, and other components needed for critical applications.

Build Your Dream System in 30 Days

With an increasingly diverse market and multiple vertical applications, the needs of customized systems for specific applications are in high demand. With customization, integration, validation, and certification, we are committed to providing a one-stop solution to worldwide customers who require a trusted partner to maximize their applications.

Alliance Partners

Premium Global Services

| Manufacturing | Logistics | Customer Support |

The foundation of our business is built on world-class manufacturing, quality, and integration processes that enable our customers to deploy reliable business-critical solutions worldwide with total confidence.

Deploying standardized products that enable our customers to create industry-leading solutions requires a full suite of high-quality products, advanced customization technology, an extensive ecosystem, and a full complement of lifecycle services. Advantech's platforms, customized COTS framework, Ecosystem Alliance Program, Remote Evaluation, and Global Services meet these requirements suitably. We provide a comprehensive service package that integrates our key service models into a complete transaction process, from the manufacturing and system integration phase to global logistics and after-sales support. In order to create the maximum value for our customers, Advantech Global Services has the ability to transform your projects into reality.

Manufacturing Capabilities

Our world-class manufacturing centers in Taiwan and China both maintain precise quality control and offer a full range of cost-effective, state-of-the-art production capabilities. To maximize the efficiency of operational procedures, we have implemented a cluster manufacturing system within our segmented manufacturing service units. This unique approach enables a direct, simplified, and highly streamlined design-to-manufacturing process. We pride ourselves on our:

• In-house board, chassis, and system production capabilities
• Dual world-class manufacturing centers
• Advanced production capabilities and customizable processes
• Rigid quality assurance system
• Complete ISO standard coverage

We Build It Exactly as You Imagine It

Advantech provides full customization and branding services to integrate our innovative platforms with existing product lines to maintain customers' "look and feel". With our Configure-to-Order Services, we provide cost-effective services to build different system SKUs in our logistics centers around the world. Through these services, we bring our clients the benefits of greater flexibility, lower inventory, shorter lead times, and global reach all with a local touch.

International Quality Standards

The Group Quality system is audited and compliant with ISO 9001. The system covers all aspects of product design,

component selection, design verification, manufacturing, quality control and customer satisfaction. From the board of directors on down, each member takes pride in providing our customers with the highest level of quality in products and services. We also hold global certifications for ISO 13485, TL 9000, ISO 14001, OHSAS 18001, and IECQ QC 080000.

Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our worldwide logistics network offers great flexibility for various delivery models including local and global solutions to meet your unique needs and budget requirements. Advantech's Logistics Service gives you the flexibility to simplify your logistics networks, bring your products to market on time, and enjoy a timely return on your investment.

Customer Support Services

Our global presence provides localizable, customizable, and reliable customer support services that can be leveraged to create an optimized maintenance and support plan that helps reduce costs and proactively mitigate business risks. In addition to our complete technical and repair support, we provide a variety of customizable after-sales services, including extended warranty, advance replacement, upgrades, fast repair, etc. Our knowledgeable local support groups enable a consistent support experience around the world and help keep your investment at peak performance and within your budget.

• 24/7 technical support: hotline AE & online chat support
• Global deployment with local full-line repair capability
• Easy-to-use web-based repair and tracking system
• Various other value-added after-sales support services

Global Operations Infrastructure and Logistics Network with Local Delivery

Advantech is located in 25 countries and 93 cities in each major operating region, offering a global reach. We support our customers through an extensive global network of offices and an industry-leading eBusiness infrastructure designed to provide responsive service that benefits clients anytime, anywhere.

Map labels: Amberg, Ústí nad Orlicí, Moscow, Eindhoven, Warsaw, Seoul, Munich, Istanbul, Beijing, Nohgata, Ottawa, Xi'an, Tokyo, Milpitas, Cincinnati, Kunshan, Taipei, Irvine, Hanoi, Monterrey, Bangalore, Bangkok, Penang, Singapore, Itajubá, Melbourne

Legend:
- **D** Design Centers
- **M** Manufacturing Centers
- **C** Configure-to-Order Service Centers
- **L** Logistics Centers
- **R2** System Repair Centers
- **R3** System & Board Repair Centers
- **O** Onsite Service
- **SI** System Integration
- **LS** Leasing Service

Americas
Brazil **Itajuba** | C L R3 O
Mexico **Monterrey** | R2
United States **Cincinnati** | D
United States **Irvine** | D
United States **Milpitas** | C L R3
Canada **Ottawa** | D C L R3

Middle East & Africa
Turkey **Istanbul** | C L R2

Europe
Czech Republic **Usti nad Orlici** | D L R3
Germany **Amberg** | D
Germany **Munich** | D C L
Netherlands **Eindhoven** | C L
Poland **Warsaw** | C L R3 O

Asia Pacific
Australia **Melbourne** | C L R2
China **Beijing** | L D O SI LS
China **Kunshan** | D M C L R3
China **Xi'an** | D
India **Bangalore** | C L R3
Japan **Nohgata** | D M C L R3
Japan **Tokyo** | SI
Korea **Seoul** | C L R3
Malaysia **Penang** | C L R3

Russia **Moscow** | C L R3
Singapore **Singapore** | C L R2
Taiwan **Taipei** | D M C L R3 O SI LS
Thailand **Bangkok** | C L
Vietnam **Hanoi** | L R2

Online Technical and Repair Services for Total Lifecycle Support

Our Post-Sales Repair Service is equal in importance to our Design and Manufacturing division. The service represents our commitment to comprehensive technical support after delivery of new products. The web-based eRMA System is a personalized portal which offers real-time RMA status tracking at all times, anywhere, via the Internet. Through Advantech's worldwide Customer Support Centers, our clients can get regional technical support and repair services along with a stringent, dependable quality standard.

Six Ready-to-Go AdvantechCare Service Packages

(1) Extended Warranty Service:
Advantech provides 3-month, 6-month, and 1-to-3-year extended warranty service.

(2) Onsite Service:
Defective parts will be replaced with components of the same or higher quality. Advantech also provides one-off onsite service by request.

(3) Fast Repair Service:
Commitment to repair the defective unit within 24 / 48 hours.

(4) Advanced Replacement Service:
Advantech provides an advance replacement service for 1-, 2-, and 3-year contracts and all parts are free of charge during the warranty period.

(5) Technology Update Service:
Upgrade, furnish, and refurbish your stock at a fraction of the new purchase cost. A customizable product revision management solution is available.
The service optimizes system performance and extends equipment life cycles.

(6) Preventive Maintenance Service:
Advantech Preventive Maintenance Service preserves and enhances equipment reliability by replacing worn components before they actually fail.

Ecosystem

Ecosystem Partnerships

Co-Creating the Future of the IoT World

To ensure functionality of business-critical solutions, Advantech has established a co-creation model that brings together industry leaders and innovators to foster technology teamwork, interoperability testing, and solution development. Proven product interoperability means service and solution providers can readily integrate tested combinations of hardware and software components with total confidence. In a fast-paced market, this allows them to evaluate and deliver innovative solutions more rapidly and respond more effectively to emerging customer needs.

Participating ecosystem partners collaborate to meet customers' application-specific needs by facilitating the transformation to leading-edge embedded technologies into readily available business solutions. Our partner ecosystem is made up of leaders in each of their respective areas of expertise. Together, these companies provide all the essential components for developing, verifying, integrating, and building high-performance products.

Choosing the Right Partners

Advantech works closely with leading silicon, virtualization, software, system integration, and service provider partners to jointly address the challenges of open and disaggregated solutions, bringing to market optimized solutions that have been certified to perform well together. Our verified platforms are capable of sustained processing for edge-to-cloud workloads spanning a wide range of industrial, communications, and enterprise applications. These pre-validated, pre-optimized solutions accelerate deployment and time to revenue while reducing integration risk for service and solution providers.

Transforming the Network Edge

The arrival of virtualization technologies and cloud-native architecture to the communications industry opens up new business models and no longer locks operators into fixed architectures. The new network infrastructure is flexible, modular, and open. At Advantech, we understand that a strong co-working ecosystem is required to ensure that white boxes, middleware, operating systems, orchestration, and network functions work together in this multi-vendor environment. We collaborate closely with hardware and software partners on different initiatives, from industry alliances such as Intel® Network Builders to Proofs of Concept, to ensure interoperability at the earliest possible stage in the development cycle and enable our customers with early access to the latest technology which accelerates the next generation product roll-outs.

If you'd like to join Advantech's Ecosystem Partner Program:

Please email us at
cloud.iot@advantech.com

or visit
www.advantech.com/Cloud-IoT
for further details.

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Value-Added Solution

Remote Evaluation Service (RES)

Advantech's Remote Evaluation Service (RES)

Advantech's Remote Evaluation Service (RES) is designed to help you get ahead of the technology curve and rapidly evaluate performance of the latest silicon from leading manufacturers on networking platforms within our Industrial Cloud & Video Group. You can load your software onto Advantech Carrier Grade and Edge Servers, Network Appliances, and Universal CPEs for:

Next-gen technology for early evaluation and benchmarking.

Functional testing and platform certification.

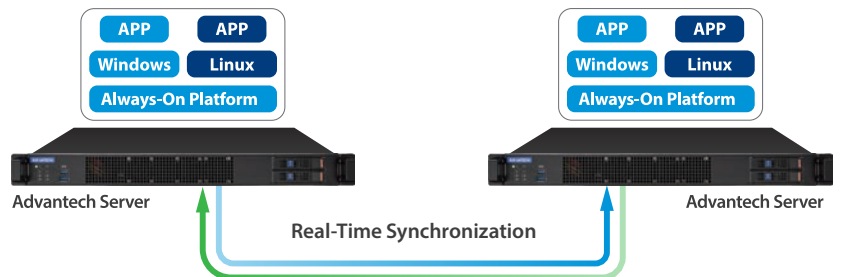**Get an early start on development while you wait for your first systems to be delivered.**

Learn More

Always-On Solution

Stratus

In today's business world, downtime of critical infrastructure applications such as industrial automation has wide-ranging economic impact, with security and legal consequences. For these applications, recovering from a failure, no matter how fast it may be, is simply not an option. This is where an always-on solution that proactively prevents application downtime and data loss is required. The collaboration between Advantech and Stratus has produced results that make applications available not just some of the time, but all of the time.

APP	APP
Windows	Linux
Always-On Platform	

Advantech Server

APP	APP
Windows	Linux
Always-On Platform	

Advantech Server

Real-Time Synchronization

Zero Downtime is Really Easy

Totally protecting your applications and systems requires just 30 minutes of your time.

Protection Across Sites

Data replication across multiple sites assures protection if disaster strikes in one location.

One-Console Management

One console interface allows you to perform setup and administration easily to configure network and storage settings.

Integrated Virtualization

Provides the highest level of availability for virtual environments.

Watch Video

Value-Added Solutions

Advantech Platform Management

To Improve Security, Reliability, and Productivity

Advantech offers an in-house baseboard management solution that provides secure in-band and out-of-band control functions. This fully integrated firmware solution performs a range of system security control functions that can improve system availability, simplify operations, and reduce time to market. Our field-proven modular server solutions have been widely deployed in telecommunications, industrial edge, network appliance, storage, and private cloud server applications.

System Management

Advantech platform management provides intensive system control through IPMI, Web, and RESTful API — alongside BIOS POST and sensor status monitoring. It also supports multiple alarm channels (e.g. SMTP, SNMP, LED, and Beep).

Digital Resource Inventory

Full-Time Hardware Monitoring

Remote Management

Advantech platform management can work independently from the OS and be achieved remotely from any location instead of time-consuming device management on-site. Remote functionality enables users to provide an efficient, multi-location service with lower maintenance and operation costs.

Remote Control

Remote Firmware Updates

High Availability

Advantech's integrated solution reduces overall operational costs and minimizes downtime by offering fast recovery mechanisms and fail-safe firmware updates (BIOS, BMC, etc.), thereby preventing single points of failure.

Redundant Firmware

Failsafe Updates

Application Flexibility

Advantech's in-house solution is fully featured to maintain all aspects of development and create flexible options for easy customization and quick response times within service level agreements. Our solution is verified across different platforms, helping service providers and businesses bridge the gap between ODMs and standard products to speed time to market.

Service-Friendly Design

Up-to-Date Standards

Platform Security

Advantech platform management increases security to reduce risk, impact on service, and maintenance cost by continuously developing up-to-date secure technology and following the latest specifications. For example, Redfish is the next-generation platform management alternative to IPMI. We also maintain vulnerability and patch management and make sure our solution passes security scans (e.g. Nessus, NMAP, etc.) and complies with common international laws and guidelines.

NIST SP 900-193 increases the resiliency of our platforms against potentially destructive attacks, and is aimed at protecting each device from unauthorized changes to its firmware or critical data and restoring the platform to a state of integrity.

Advantech platform security also provides an efficient interface with the user experience in mind. Our sustainable firmware solution provides seamless default protection without additional hardware changes and security hardening necessary to fulfill different user scenarios.

To learn more about software support for a specific product, please contact us.

NIST
SP 800-193

DMTF

Technology

Advantech Platform Security

COST

CONVENIENCE
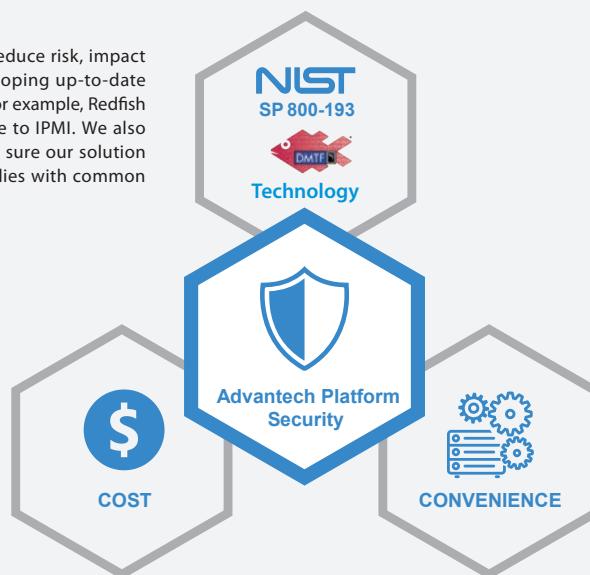
Learn more

Server Monitoring

Never Miss a Beat: Keep Your SKY Server Monitored Around the Clock

Server Monitoring works as a daily doctor to monitor Advantech SKY servers, streamlining all hardware information of different components into a user-friendly virtualized dashboard and enabling predictive alerting with corresponding operation guiding. It can provide early failure component prevention, improve business agility and reducing total cost of ownership (TCO). The turnkey software solution can be deployed in both Windows and Linux OS on individual or multiple SKY servers. It's also integrated with WISE-PaaS so you can use it directly on Advantech WISE-STACK.

Runtime Monitoring

- Centralized dashboard
- Health and asset information on system components
- System utilization
- Power consumption

Proactive Notifications

- Smart notifications when a hardware fault is detected
- Email warnings with operation guidance

Failure Identification

- Identify failed HDDs and NICs with blinking LEDs on site
- Clear failed component information on dashboard

Boost Your Business and IT/OT Maintenance with Server Monitoring

All-in-one inspection improves operation efficiency and saves cost

**Zero downtime server enhances serviceability**

Main dashboard provides maximum usability

Easy to deploy and use in a wide variety of environments

GPU Servers

Empowering AI and Visualization Computing

The Advantech SKY-6000 series GPU Servers are high-density GPU AI training platforms designed to meet the growing trend toward big data and analysis. The SKY-6000 series are powered by dual Intel® Xeon® scalable processors, and each of these highly scalable GPU-optimized servers supports up to 10 NVIDIA® GPUs. The servers feature IPMI management functions and smart fan control which leads to better acoustic and thermal management. Every GPU includes one Peripheral Component Interconnect (PCIe) slot for high-speed connection which maximizes the acceleration of parallel applications like artificial intelligence (AI), deep learning, self-driving cars, smart cities, medical technology, big data, high performance computing (HPC), virtual reality, and more.
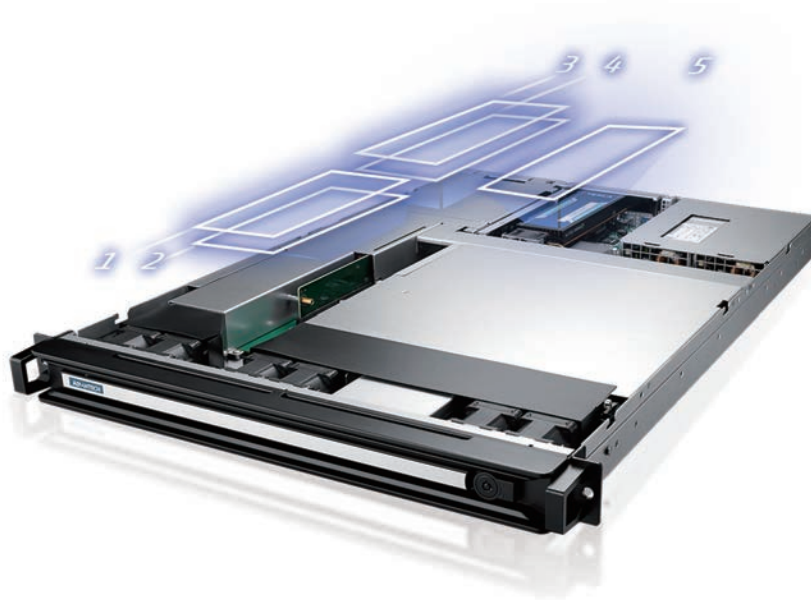
Thermal Management
A specially designed fan increases air flow and pressure for cooling the numerous GPU cards.

High-Density GPU Cards
Supports up to 5 GPUs in a 1U server and 10 GPUs in a 4U server, making it efficient both in space and performance.

Remote Management
An intelligent platform management interface enables users to monitor sensors and receive alerts in the event of failure.

Application-Ready, Visual Processing and AI Inference Solutions

The acquisition, processing, analysis, and rendering of visual information are data-intensive tasks. Advantech GPU servers are designed to deliver plenty of processing power for even the most computing-intensive applications. The high performance of GPU servers makes them ideal for AI inference, surveillance, video transcoding, and medical imaging.

AI Inference	Visualization Computing	Medical

Key Products

1U Rackmount System	2U Rackmount System	4U Rackmount System	
SKY-6100 1U 5 GPU Server	**SKY-6200** 2U 4 GPU Server	**SKY-6400** 4U 4 GPU Server	**SKY-640V2** 4U 4 GPU Server
	SKY-620V3 2U 6 GPU Server	**SKY-6420** 4U 10 GPU Server	**SKY-640V3** 4U 4 GPU Server

Wide Range of Accelerator Cards Supported

Whether you are looking for assistance in completing an integration project, or want to find a total GPU server solution with extended longevity, Advantech and partners will provide you the best GPU server solution in your specific region and market segment.

XILINX

ADVANTECH
Enabling an Intelligent Planet

NVIDIA.

Trusted
GPU Server
Solutions

Design and
Development
Expertise

Compile Time
Reduction

Long Lifecycle
Support
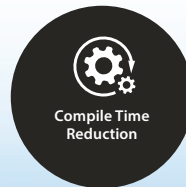
HCI Servers

Flexible and Scalable for Increasing Complexity

Advantech HCI series servers are high-performance, high capacity, cost-effective storage solutions that fulfill the requirements of industrial environments and mission-critical applications with security, connectivity, and availability. Advantech HCI servers have comprehensive fault-tolerant capabilities with H/W RAID and online expansion capability via JBOD to ensure the highest possible data availability. Redundant power supplies, the ability to withstand fan failures, redundant firmware images with failsafe upgrades, and hot-swappable field-replaceable units all make this server solution the platform of choice for critical applications with zero downtime. Interoperability is performed with a wide selection of PCIe cards in order to accelerate integration and shorten the time to deployment. The power and cooling options along with the streamlined mechanical design make them ideal for demanding applications requiring acceleration technologies such as GPU and FPGA cards.

Extreme Computing Performance
Latest Processor and technology

High Flexibility
Flexible PCIe configuration

High Serviceability
• Modular and tool-less design
• Tool-less HDD tray design

High Availability with Redundancies
• BIOS and BMC F/W image
• Redundant PSU

In-House Software & Integration
• Advantech BMC code for management
• Advantech Server iManager for diagnosis

Applications
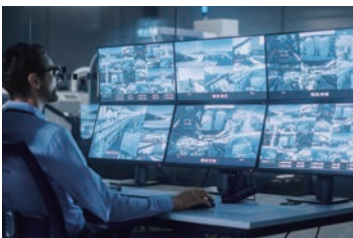
Video Monitoring	Smart City	Smart Manufacturing	Medical

Key Products

SKY-7260S	SKY-721E3	SKY-7232D	SKY-7232D3E
Dual AMD EPYC™ 7002/7003 Series	Dual AMD EPYC™ 9004 Series Processors	Dual 3rd Gen Intel® Xeon® Scalable Processors	Dual 3rd Gen Intel® Xeon® Scalable Processors

Short-Depth Servers

Short-Depth Design Overcomes Space Constraints

Advantech servers are tailored to meet the deployment requirements of edge computing devices, which are often constrained by space limitations. Our servers boast a compact, short-depth chassis that deviates from traditional rack-mounted servers, offering unparalleled flexibility in edge computing deployments. Specifically designed for demanding applications, our short-depth servers are optimized for performance and throughput, especially for broadcasting, video streaming, and IoT applications deployed at the network's edge.

- Latest CPU and GPU computing technology
- Short-depth design overcomes space constraints
- Stable operability in harsh environments of 45 °C or higher
- Plentiful expansion slots allow for future expandability or use in applications which require a large number of PCIe Cards

Applications

| 5G MEC | Video Streaming | Broadcasting | Edge Computing |
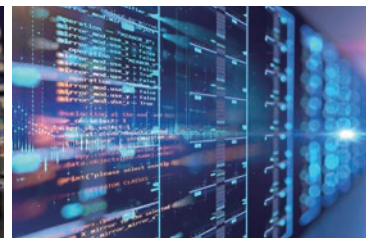
Key Products

HPC-6120+ASMB-610V3
12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series

HPC-6240+ASMB-622V3
4th Gen Intel® Xeon® Scalable Processor

HPC-7420+ASMB-977
Dual 4th Gen Intel® Xeon® Scalable Processors

SKY-7120S
Intel® Xeon D-2100 Processor

SKY-7632D
Dual 3rd Gen Intel® Xeon® Scalable Processors

SKY-820V3
4th Gen Intel® Xeon® Scalable Processors

Carrier-Grade Servers

Optimized Design for Superior Reliability in Critical Applications

The Advantech SKY-8000 series server is a highly configurable carrier-grade server designed to balance the best in x86 server-class processing performance with maximum I/O and offload density in a 20" depth chassis. The SKY-8000 series is a readily available platform optimized to meet the needs of next-generation networking applications with virtualization functions, edge computing, and private cloud services.

The SKY-8000 series caters to the high power and cooling requirements of cutting-edge networking equipment providers. For both SKY-8132S-11 and 8134S-11, the power and cooling options of the streamlined mechanical design make it ideal for demanding applications and operating environments of between 40˚C to 65˚C.

Beyond High Performance

High Reliability

Maximize Flexibility & Expandability

Applications

vRAN & Private 5G Infrastructure	Edge Computing	Genomics Analytics	AI-Assisted Video Analytics

Key Products

SKY-8132S-11
Single 3rd Gen Intel® Xeon® Scalable Processor

SKY-8134S-11
Single 4th Gen Intel® Xeon® Scalable Processor

SKY-8134DU
Dual 4th Gen Intel® Xeon® Scalable Processors

SKY-8132S
Single 3rd Gen Intel® Xeon® Scalable Processor

SKY-8232D
Dual 3rd Gen Intel® Xeon® Scalable Processors

SKY-8260S
Single AMD EPYC™ 7003/7002 Series

SKY-7120S
Intel® Xeon D-2100 Processor

SKY-7223D
Dual 2nd Gen Intel® Xeon® Scalable Processors

Multi-Node Servers

Superior Effective Density and Efficiency

The Advantech multi-node server is designed for hyper-converged infrastructures and storage in markets demanding enhanced solutions for applications such as hyper-converged secondary storage and high-density network gateways. The system delivers the highest density and efficiency in a 2U 4-node design — creating the flexibility to deploy independent workloads on a shared chassis infrastructure, including cooling and power. This significantly lowers the total cost of ownership (TCO) to less than the cost of four regular 1U or 2U servers.

Large Storage Capacity Design
Combined 3.5" HDD (large capacity) and 2.5" NVMe SSD (high IOPS) to improve storage performance

High Reliability
Redundant PSU & dual rotor cooling fans with Advantech-owned carrier-grade BMC firmware
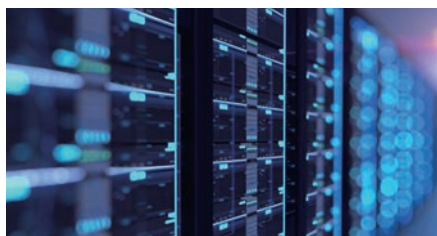
High Density
Each system supports 4 server nodes inside

Applications
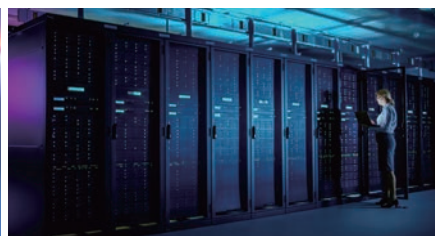
| Secondary Storage | High-Density Network Gateway | Software Defined Scale-Out Storage |

Key Products

SKY-9232D3
Single/Dual 3rd Gen Intel® Xeon® Scalable Processors

SKY-9234S3
Single 4th Gen Intel® Xeon® Scalable Processors

Industrial Server Boards

Enhance Your Scalability

Advantech ASMB series industrial server boards are based on Intel and AMD server processor technology and Intelligent Platform Management Interface (IPMI) technology and are ideal for demanding applications such as Automatic Optical Inspection (AOI), Vision Inspection, Video Transcoding, and Supervisory Control and Data Acquisition (SCADA). Aimed at diverse industrial applications, Advantech ASMB server boards are designed to provide turnkey solutions that accelerate deployment, ease management, and enhance virtualization to facilitate industrial edge computing. Advantech separates ASMB products into three categories based on their computing power: Workstation Server Boards, ATX Server Motherboards, and Dual Socket Server Motherboards.

ATX Server Motherboard, and Dual Socket Server Motherboard

Industrial-Grade Design

Designed for harsh environments, the motherboards perform with wide temperature tolerance and anti-vibration capabilities.

Interoperable and Optimized I/O

Specifically designed for high-density PCIe cards for the integration of leading offloading and acceleration technology.

High Network Bandwidth

The increase in bandwidth improves uptimes and adds DDOS mitigation technology to the security arsenal.

ASMB-200/500/700 Series-Workstation Motherboard

The latest ASMB workstation server board with single processor socket LGA1700 design that features the Intel® W series chipset which supports 12th/13th Generation Intel® Core™ i9 Processors.

ASMB-800 Series-ATX Server

The ASMB server board in ATX form factor supports the Intel® Xeon® Scalable processor and AMD EPYC 7002/7003 and 9004.

ASMB-900 Series-Dual Socket Server Motherboard

The ASMB advanced server board in EATX form factor supports dual Intel® Xeon® Scalable processors and larger memory capacity. The ASMB-900 series in proprietary form factor offers more than 7 expansion slots.

Key Products

ASMB-588
12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series

ASMB-788
12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series

ASMB-817
4th Gen Intel® Xeon® Scalable Series

ASMB-831
AMD EPYC™ 9004 Series

ASMB-927
4th Gen Intel® Xeon® Scalable Series

ASMB-977
4th Gen Intel® Xeon® Scalable Series

Industrial Server Chassis

Reliable and Durable for Machine and Equipment Builders

From 1U to 4U rackmount server chassis, Advantech HPC server chassis are designed for the most complex industrial applications. Advantech industrial server chassis give equipment developers high performance, efficiency, and redundancy for industrial environments and critical applications. This product line provides customers with a total solution and value-added services rather than just a regular server product.

Key Features

High Availability and Redundancy

Redundant power supply and hot-swappable design for hard drives and fans.

Industrial-Grade Design

Anti-vibration and wide temperature operation.

Product Lifecycle Management

Supports revision control, longevity management, and easy maintenance for non-stop operation.

Key Products

Advantech server-grade IPC chassis are targeted at a variety of applications such as AOI, transportation, medical equipment, and industrial equipment as high-end workstation servers. The HPC-7000 series supports multiple configurations that fulfill server-grade IPC standards to deliver non-stop operation.

1U Rackmount	2U Rackmount	3U Rackmount	4U Rackmount	4U Rackmount	Tower
HPC-7120S	**HPC-7242**	**HPC-7320**	**HPC-7442**	**HPC-7485**	**HPC-7000**

Key Products

The Advantech HPC-8000 series storage chassis are targeted at Industry 4.0 demands. They can support NVMe interfaces and fulfill a variety of application demands in surveillance, edge computing, network security, broadcasting, and factory automation.

1U Rackmount	2U Rackmount	3U Rackmount	4U Rackmount
HPC-8104 **HPC-8108**	**HPC-8208** **HPC-8212**	**HPC-8316**	**HPC-8424**

Accelerate your LAN with Advantech Ethernet Adapters

Advantech's portfolio covers a range of form factors specifically adapted for deployment in high-density network appliances and high-performance servers. Leveraging server-class Intel® and NVIDIA® Mellanox® Ethernet controller technology, Advantech gives you access to a full range of NICs with 1GbE, 10GbE, 25GbE, 40GbE, 100GbE, and 200GbE interfaces with industrial lifecycle and lifecycle management. In addition, our dual or single Intel® QuickAssist Acceleration Cards can supplement the CPU throughput for the termination of standard security protocols such as IPsec and SSL, freeing up valuable cores and CPU cycles for application processing. Advantech's range of Ethernet adapters and accelerators enables industrial OEMs, network equipment and cybersecurity vendors to integrate LAN access and acceleration devices with more robust and reliable feature sets into industrial PCs, high-performance servers, and high-end network appliances.

Enhanced Industrial Grade

• Enhanced thermal management for better reliability
• Broad choice of Advanced LAN bypass options
• Acceleration and offload features <25W

Comprehensive Product Portfolio

The Advantech Ethernet adapter family includes a variety of 1GbE, 10GbE, 25GbE, 40GbE, 100GbE, and 200GbE multi-port network interface cards.

Complete Technical Support

Beyond extended product longevity and the warranty, we provide support in all major countries worldwide.

Smart NICs (Ethernet I/O Expansion)
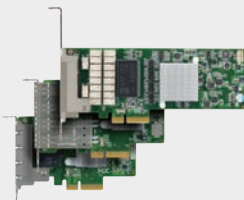
1 GbE

PCIE-1130PS
PCIE-1131PS
PCIE-2131BP

10 GbE

PCIE-1220PS
PCIE-1221PS
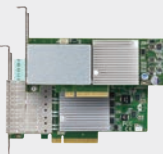
PCIE-2221BP
PCIE-2230NP

PCIE-2231NP
PCIE-2232BP

25 GbE

PCIE-2521NP
PCIE-2531NP
PCIE-5521N
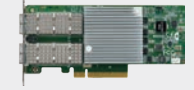
40 GbE

PCIE-2320NP
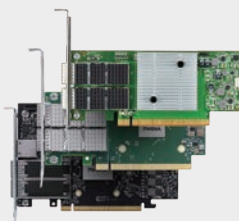
100 GbE

PCIE-2420NP
PCIE-2421NP
PCIE-5421NP
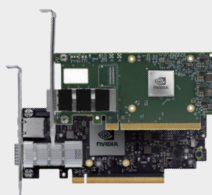
200 GbE

PCIE-2711NP
PCIE-5711NP

DPU

25 GbE

PCIE-5521NP

100 GbE

PCIE-5421NP

200 GbE

PCIE-5711NP

Application Cases
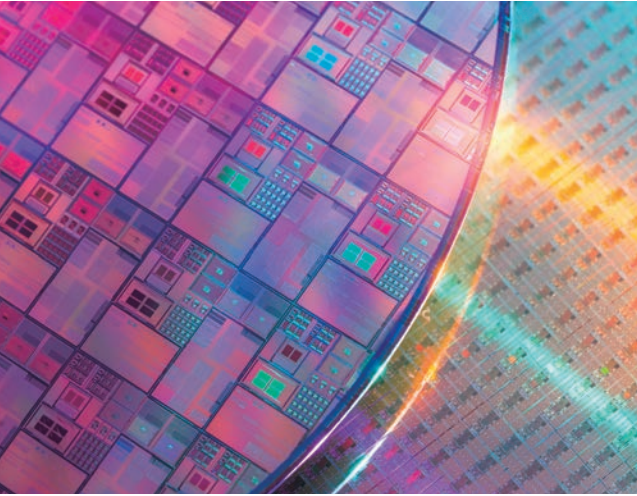
Wafer Inspection Solution for a Semiconductor Factory

Background Information

The impact of digital transformation on our lives and businesses has accelerated and semiconductor markets have boomed with sales growing by more than 20 percent to about US$600 billion in 2021. Analysis by McKinsey, based on a range of macroeconomic assumptions, suggests the industry's aggregate annual growth could average from 6 to 8 percent a year up to 2030.

The client is a global semiconductor company that has been providing advanced surface defect inspection systems such as wafer inspection systems, optical surface analyzers, and HDD defect detection systems. The factory needed to upgrade its operating systems as well as its hardware for the new projects.

System Requirements

Semiconductor equipment has a lot of moving parts. From the equipment to the people managing it, a lot of things need to happen correctly for it to operate effectively. Due to space constraints and harsh environments, this customer was looking for a short-depth server that could provide high performance and also operate in an environment with a wide range of temperatures. Moreover, with wireless connected solutions and high-speed computers all demanding faster processing, high-performance (faster decision making) features in semiconductor manufacturing are a vital requirement. While not all silicon products are produced through this kind of high-speed processing, there are several application areas where quick decision making is still one of the most basic requirements. Lastly, as huge amounts of data also need to be processed, a greater number of PCIe slots are required for data acquisition and other types of cards. To sum up, what they needed was a high performance and flexible solution.

System Description

SKY-8201L is a highly configurable, high-performance server designed to balance the best in x86 server-class processing with maximum storage, I/O, and offload density in a 2U 27.5"-deep chassis. It is specifically designed for high-density PCIe card payloads where maximum I/O connectivity is needed or where the integration of offload and acceleration technology is essential. The power and cooling options along with the streamlined mechanical design make SKY-8201L ideal for demanding applications needing acceleration technologies such as those provided by GPU, DSP, and FPGA cards. The system scans partial wafers with a wide range of wafer thicknesses and detects defects such as particles, scratches, pits, bumps, and stains. Due to the large volume of data needed for processing, the solution comes with four data acquisition cards and an NVIDIA GPU card to achieve the best data processing performance. Advantech SKY-8201L pairs its Intel® Xeon® Scalable processor with 64GB Micron DDR4 ECC RDIMMs clocked at 2933 MHz and supports SATA SSDs such as the Micron 1300 in either 2.5" or M.2 form factors.

System Diagram

Data Acquisition Card

NVIDIA GPU Cards

Wafer Packing

Wafer Clearning
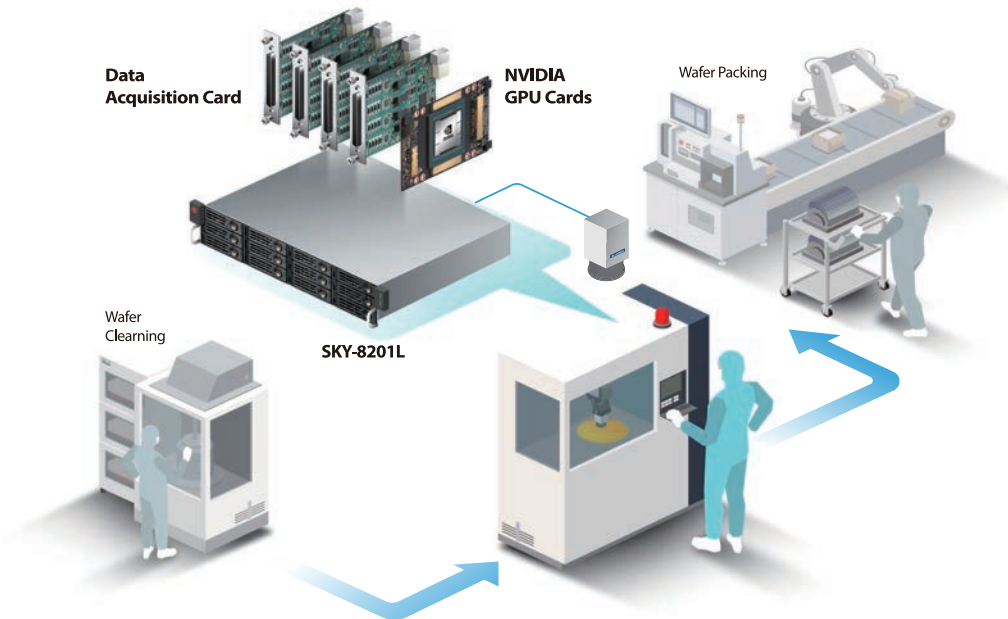
SKY-8201L

Learn More

Benefits

- Advantech SKY-8201L is a 2U high performance server with high density and rich PCIe extension slots, which can accommodate up to 8 x PCIe cards
- Four rear PCIe x8 (FHFL) + 2 x rear PCIe x8 (FHHL) + 2 x rear PCIe x8 (low profile) for an Advantech personalization card
- Window Server 2019

Multi-Node Server Boosts Secondary Storage Applications

Background Information

Data-centric services and applications are booming in all domains. Both end users and industrial players are seeking larger capacity and higher performance from their data services. These demands have increased the requirements of computing and storage of the servers.

Data service providers are always looking to get more out of their equipment. Storage is critical; however, performance, reliability, and scalability are the most important considerations. Therefore, the adoption of Hyper-Converged Infrastructure and a scale-out design that can expand the system according to the application is valued by the market. Also, to ensure the continuous operation of services, hot-swappable FRU and redundant design are also essential trends.

System Requirements

For data service providers, ensuring the quality of their services is a high priority. High-density and easy-to-maintain servers that are quick and easy to deploy are what they need. Systems must have high efficiency and reliable service quality as well as high scalability. Data service providers should be able to integrate their unique software and have flexibility for future upgrades.

Building redundancies into designs is an essential considerations when building a system, especially for crucial components such as the power supply, cooling fans, storage, and on-board firmware. Redundancies allow for a failover design to handle unforeseen situations.

System Description

Advantech SKY-9232D3 is a 2U 4-node rackmount server. It supports four independent systems, and each box can have multiple functions. The total configuration can have up to 8 CPUs, 4 PCIe cards, and 4 OCP Mezzanine cards. This offers excellent flexibility and scalability and offers a very reasonable total cost of ownership.

SKY-9232D3 is designed for Hyper-converged Infrastructure and high-performance computing applications. The hot-swapping capability allows HDD/SSD trays, cooling fans, MB/Node sleds, and the power supply to be replaced easily.

To provide 24-hour uninterrupted operation, SKY-9232D3 uses a redundant system design. This includes a redundant PSU and a redundant cooling fan (dual-rotor 8 cm) to achieve outstanding reliability. Furthermore, SKY-9232D3 is equipped with a Dual Fail-Over BIOS & BMC design. Advantech can also customize the BMC functions for service providers with specific needs so that they can better manage the overall system.

System Diagram

Data Protection	TestDeV	Analytics	File Services

Data Service Applications

Data Platform Software ⟷ **Public Cloud Storage**

| SKY-9232D | SKY-9232D | SKY-9232D | SKY-9232D |
| 2U 4-Node Server | 2U 4-Node Server | 2U 4-Node Server | 2U 4-Node Server |

Hyper-Converged Nodes
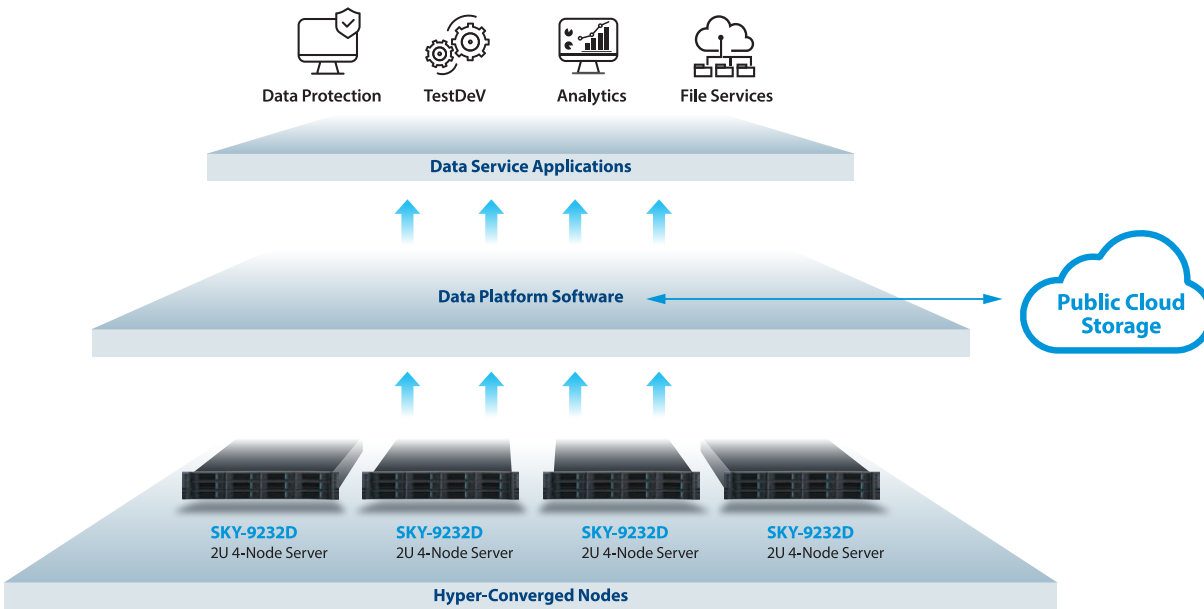
Learn More

Benefits

• **High-density server (4 systems in a 2U box)**
• **Hot-swappable and redundant design**
• **Complete hardware and software R&D resources for carrier-grade BMC & customization**
• **Extra U.2 NVMe SSD**
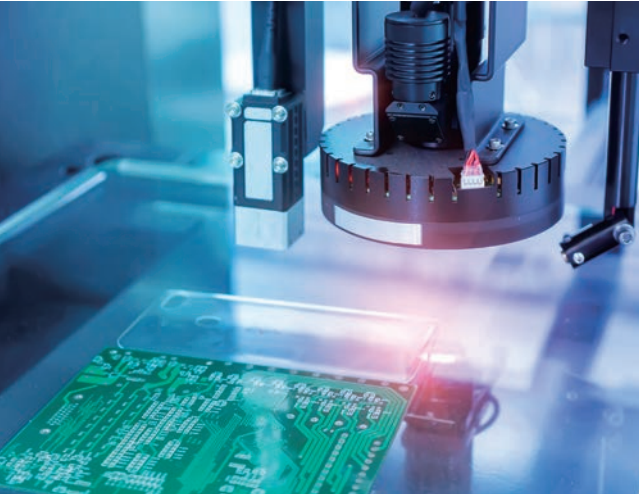
AOI Solution Enhances Competitiveness for LCD Panel Vendors

Background Information

With the continual advancement of display technology and processing capabilities, the global TFT LCD panel display industry is trending towards larger panel sizes. For panel vendors looking to edge out their competitors, establishing efficient, cost-effective strategies for product testing and quality control inspections is essential. In this project, a display manufacturer located in Korea wanted to upgrade their existing automated optical inspection (AOI) system to accommodate display panels of as large a size as possible. This meant the computing node inside the AOI needed to be miniaturized and boosted for accelerated performance.

System Requirements

The customer's existing AOI system featured two main computers, the Main computer & the Head computer, for processing all operations. After panel displays are produced, they are inspected by the AOI system. The Main computer is used to control the camera via PLC commands and capture numerous high-resolution images of every area of the panel display. Next, frame grabber cards installed on the Main computer collect and transfer the images to the Head computer for analysis. The Head computer then automatically compares the images with sample images stored in the product database to detect defects such as dark spots, light leakage, dark lines, and dead pixels. The customer required an AOI system that delivered high processing power to support image analysis and camera motion control. Moreover, the AOI system needed to be compact to save installation space and facilitate the inspection of ultra-large panel displays.

System Diagram

System Description

Advantech proposed a solution that comprised its HPC-7120S 1U short-depth server chassis, ASMB-587 Intel® Xeon® micro ATX server board, and PCIe-1674V CE frame grabber card. In addition to satisfying the customer's requirements, this solution enabled high volumes of data to be collected and analyzed to produce actionable insights. Furthermore, because PCIe-1674V CE is a 4-port frame grabber card, it can support four cameras. This meant that the Main computer only needed to be equipped with one PCIe card and a 1U chassis, effectively minimizing the size of the AOI system.

In regard to the hardware design, HPC-7120S features an anti-vibration fan and front access I/O that ensures easy maintenance for production line applications. Meanwhile, ASMB-587 is a server board with an embedded 10th Gen Intel® Xeon® (LGA1200) processor that provides the high frequency necessary to support AOI applications. ASMB-587 is also built with four Micron DDR memory modules (32 GB) and two LAN ports, which can be connected to the motion control hub and PLC hub simultaneously without necessitating another LAN card. Finally, because the PCIe-1674V CE frame grabber card is installed via a riser card, it can be installed in a half-height bracket in the HPC-7120S 1U chassis.

HPC-7120S ⊕ ASMB-587 ⊕ PCIE-1674V-CE

Learn More

Benefits

- **Advantech's solution successfully addressed the customer's need for a more powerful yet compact system. Their AOI infrastructure was transformed from a 4U system into a 1U system, saving up to 75% of installation space.**
- **The solution components, i.e., the frame grabber card, motherboard, and processor, are all compatible.**
- **The ASMB 587 server board with a high-frequency 10th Gen Intel® Xeon® processor facilitates accuracy and efficiency.**

Implementation of Energy Transformation with an Advantech Server Solution

Background Information

In recent years, escalating climate change and social instability has prompted more countries to recognize the urgent need for action on environmental protection. As a result, manufacturers, investors, asset managers, and system integrators are seeking new ways to leverage technology to reduce their environmental footprints.

From an environmental and economic point of view, upgrading existing infrastructure to support data-based processing is key to enabling a digital transformation toward smart factory operations.

System Requirements

For manufacturers, the current challenges to managing energy efficiency in factories include insufficient personnel, complex legacy equipment, large-scale infrastructure, independent equipment monitoring systems, and the need to maintain 24/7 operation. From an environmental and economic point of view, upgrading existing infrastructure to support data-based processing is key to enabling a digital transformation for smart factory operations.

Manufacturers must embrace more environmentally and ethically sound approaches if they are to remain competitive in today's global market. In addition to consumers, enterprises have begun to review ESG performance and sustainability when negotiating corporate partnerships.

System Description

Advantech's smart factory energy management solution powered by the Advantech WISE-STACK private cloud solution features an HPC-7320 3U rackmount server with ASMB-830 AMD® server board, as well as two M.2 22110 SSDs and two hot-swappable drive bays for data storage. This solution can be flexibly deployed for diverse data collection applications. Designed to help manufacturers control and track ESG data across processes and field locations, the ASMB-830 server board is powered by an AMD® EPYC® processor that supports up to five PCIe x16 and two PCIe x8 linkups to GPU cards, NIC cards, and/or RAID cards for diverse applications.

System Diagram

Edge

Connected Devices

Equipment Monitor

Environment Data Collector

HPC-7320 + ASMB-830

WISE-PaaS
AIoT Solutions & Marketplace

Data Analysis   Data Storage

GPU Card: 2*A2   RAID Card

Cloud Infra Edge

Cloud

ADVANTECH
WISE-PaaS
AIoT Solutions & Marketplace

Cloud

Data Center
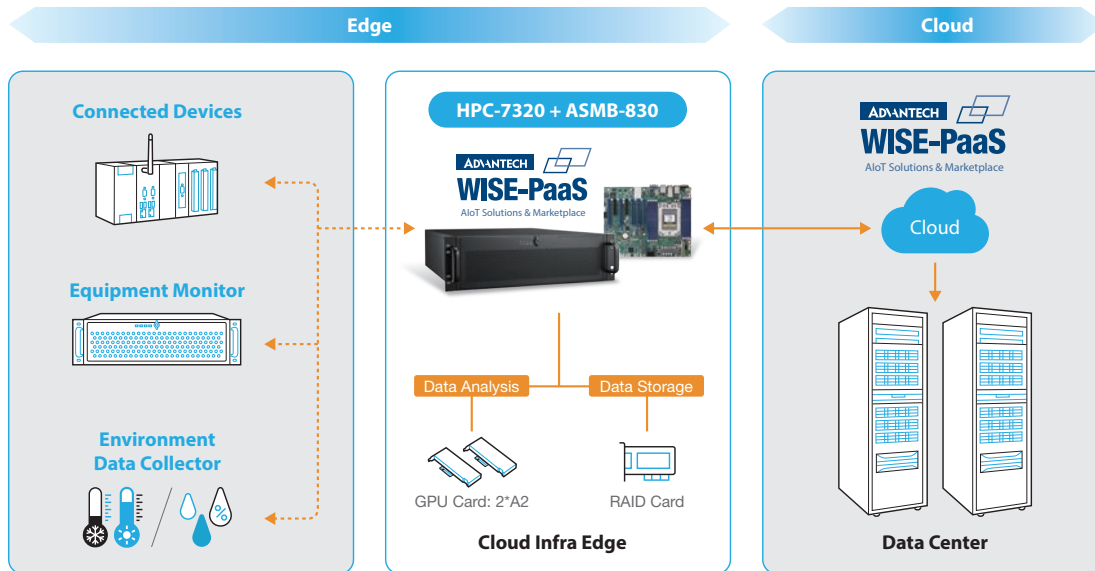
Learn More

Benefits

- Advantech's private cloud infra edge server with WISE-PaaS cloud service reduces development risks and costs for customers.
- Software and hardware are built to minimize energy consumption and wastage for improved energy efficiency.
- The server has passed hundreds of hours of quality assurance testing for security vulnerabilities to minimize any possible risk for customers.
- Easily installed on site, it supports remote maintenance, and can be flexibly upgraded according to customer requirements.

Building AOI Technology to Accelerate Yield in Precision Manufacturing

Background Information

A leading provider of image processing and automated inspection solutions required a high-performance platform to function as the server for AOI applications. In addition to AOI equipment for inspecting glass substrates, thin film, and silicon wafer surfaces, the company offers customization according to specific environments and production line types. For this reason, they needed a cost-effective platform that could be easily developed for diverse manufacturing sectors.

System Requirements

The development of AOI systems is a challenging process that depends on many variables, including the manufacturing process. Inspection machines capable of controlling the entire production line generally comprise image capture, fine-scale measurement, optical processing, and pattern analysis technologies. To integrate these technologies, a high-performance server with support for multiple expansion cards and flexible configuration is required for realizing AOI with AI machine vision.

For film inspection applications, AOI systems must perform high-speed, high-resolution image analysis and judgement during roll-to-roll transfer of sheets, films, and metal foils. This continuous capture, long-distance transfer, and processing of big data can significantly elevate system temperatures. Accordingly, the platform must be industrial grade and capable of withstanding long-duration operation at extreme temperatures.

System Description

Advantech's solution comprised its HPC-7485 4U rackmount server chassis with ASMB-830 AMD® EPYC™ ATX server board and Micron DDR4 DRAM memory. Designed to help manufacturers control and track data across processes, the ASMB-830 server board is powered by an AMD® EPYC™ 7003 series processor that supports up to five PCIe x16 and two PCIe x8 linkups to GPU cards, NIC cards, and/or RAID cards.

To facilitate the processing of high volumes of data, the platform was equipped with two NVIDIA RTX series double-stack graphics cards, two Advantech PCIe-1674E frame grabber cards, and one Advantech PCIe-2421 smart network interface (SmartNIC) card. The two double-stack GPU cards support video/image analysis and AI inference, while the two frame grabber cards facilitate image capture for in-line inspections and the SmartNIC card with dual-port 100GbE Ethernet ensures high-speed networking and data transfers.

System Diagram

Smart NIC card
PCIE-2421

Frame grabber cards
PCIE-1674E

HPC-7485 + ASMB-830

Dual-slot GPU cards
NVIDIA RTX series

Camera Unit
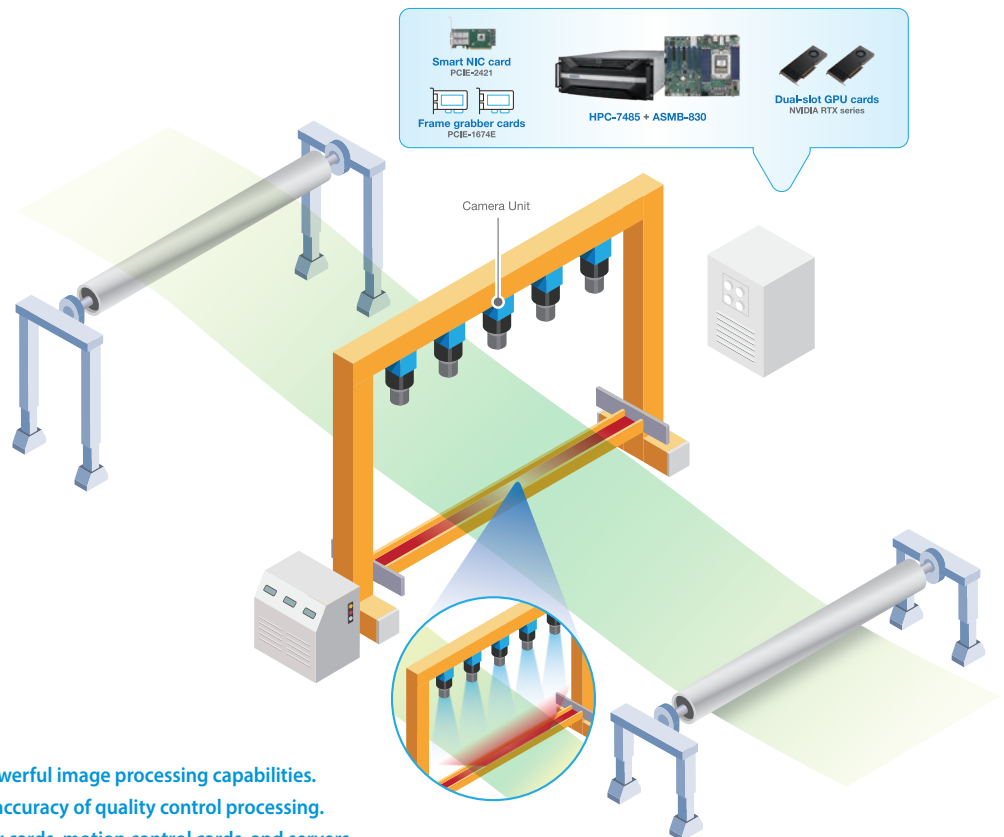
Learn More

Benefits

- Rugged, industrial-grade platform provides powerful image processing capabilities.
- AI machine vision increases the efficiency and accuracy of quality control processing.
- Compatible with a wide range of frame grabber cards, motion control cards, and servers.
- Samples can be tested before mass production, allowing customers to optimize products according to specific requirements.

Deliver Broadcast-Quality Live Video Streams with Advantech's Scalable Edge Accelerator Servers

Background Information

With the vast amount of network traffic, not to mention ever-increasing image quality and file sizes, video production environments need to leverage AI acceleration and inference technology for processing at the edge. Edge computing is performed as close to the data source as possible. For broadcasters, edge solutions for content production must be built to operate amongst the action. In edge-based workflows, the focus is on providing broadcast-quality 4K/UHD live video links from remote production racks to central distribution hubs, while using the least power and smallest footprint.

System Requirements

Although a high-performance CPU is sufficient for software-based transcoding, the ability to integrate a graphics card for hardware-based transcoding is necessary. Inclusion of a GPU enables accelerated encoding, decoding, and end-to-end transcoding of multiple high-resolution streams simultaneously, while increasing overall power efficiency. Another key aspect for a media server is storage as broadcasters can quickly end up with hundreds of gigabytes of media metadata. A separate drive for housing streaming software and media metadata can ensure easy access to server data and the media library.

System Description

HPC-6120+ASMB-610V3 is a 1U server that can be deployed by broadcasters throughout production and playout environments. The motherboard is powered by a 12/13th Gen Intel® Core™ processor that delivers increased performance, cores, and memory necessary to support demanding workloads at the edge.

Designed with an 18-inch chassis depth, the server features 4 x DIMM sockets (supporting up to 128 GB DDR5 memory), 4 x PCIe, 4 x SATA 3, 4 x GbE LAN, and 1 x dedicated IPMI NIC port — all in a compact 1u form factor. The low-profile riser slot can be equipped with high-speed NIC cards to deliver scalability, and advanced security. Meanwhile, the two full-height expansion slots can support one double-stack or two single-stack GPU cards for flexible configuration according to specific usage requirements.

System Diagram

DECODE & DISPLAY

TRANSCODE

Live Assets

ASMB-610V3+HPC-6120
VEGA-3318

ASMB-610V3+HPC-6120
VEGA-3321

Learn More
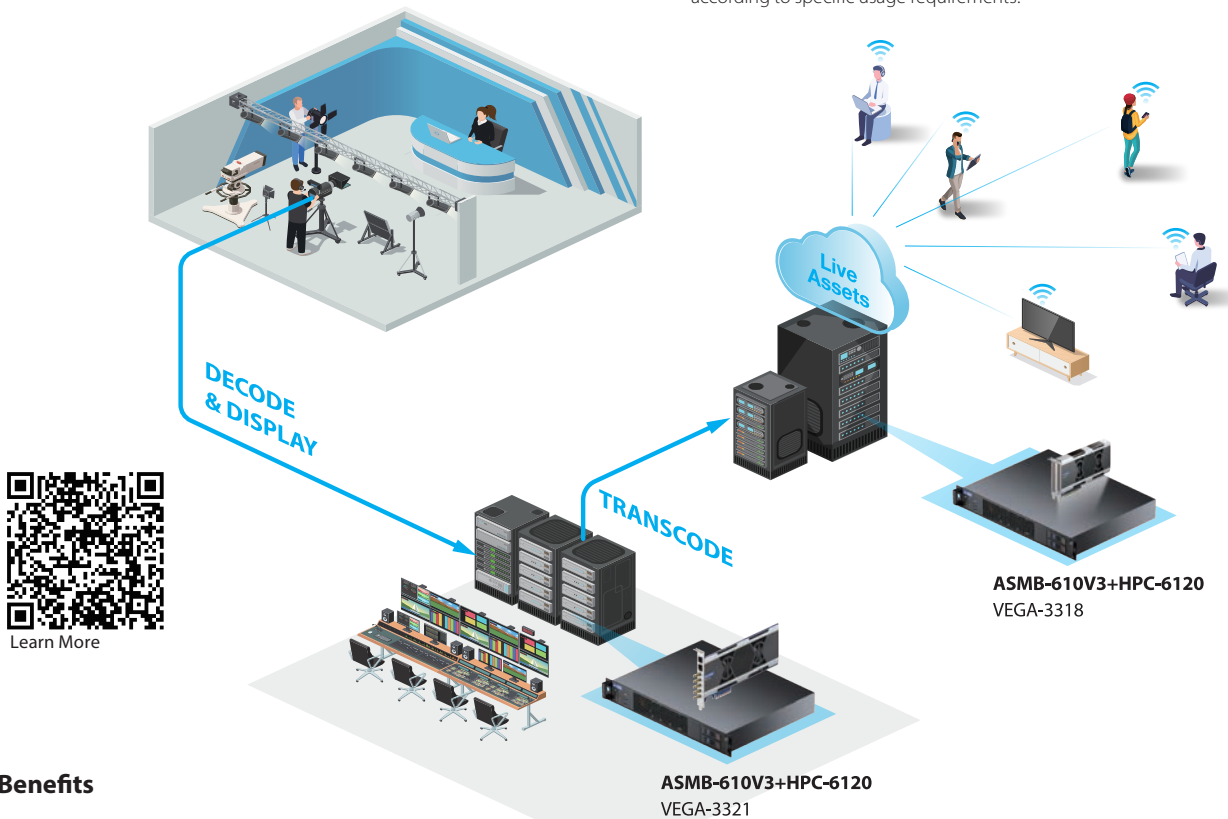
Benefits

• 8-inch short-depth chassis ensures space efficiency for 600 mm racks.
• Additional integration options support multi-channel 4K/UHD workflows.
• Flexible I/O for integrating optional GPU cards and high-speed NIC cards.
• One PCIe x16 or two x PCIe x8 slots that support full-height 10.5-inch cards.
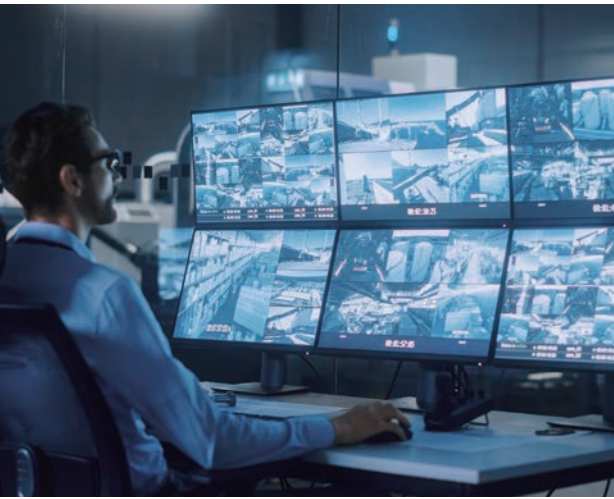
AMD EPYC NVR for Video Analysis and Monitoring

Background Information

Some organizations are seeking to establish their own on-premise data centers to serve all of their data processing needs in their own facilities. When x86 servers are integrated into this operation, they normally require higher-end computing power and storage capabilities to fulfill the needs of high-quality content production.

The video analysis server adopts video alarm technology and can realize intelligent analysis of 8-32 channels. Large-scale intelligent analysis requirements can be fulfilled through device stacking to meet the needs of large-scale application scenarios. Including face recognition, crowd counting, people tracking, virtual fence, car tracking and recognition and video anomaly detection, etc.

System Requirements

AI models and deep learning are key technologies for gaining insights from video-enabled applications. With the exponential increase in video streaming and the growing number of deployed cameras, the use of general-purpose CPUs that do all processing entirely in software has become a serious bottleneck. In addition, higher quality video comes with higher storage requirements for massive amounts of data.

System Description

Advantech SKY-7260S is a single AMD EPYC server solution that provides the maximum PCIe expansion capability and storage. The system is especially efficient and offers a balance in performance between the CPU, GPU or FPGA, and storage. It can also be scaled out for greater video analysis from a load balancing perspective. Since a single AMD processor can perform the work of what previously required a dual processor, this means there are extra energy savings.

System Diagram
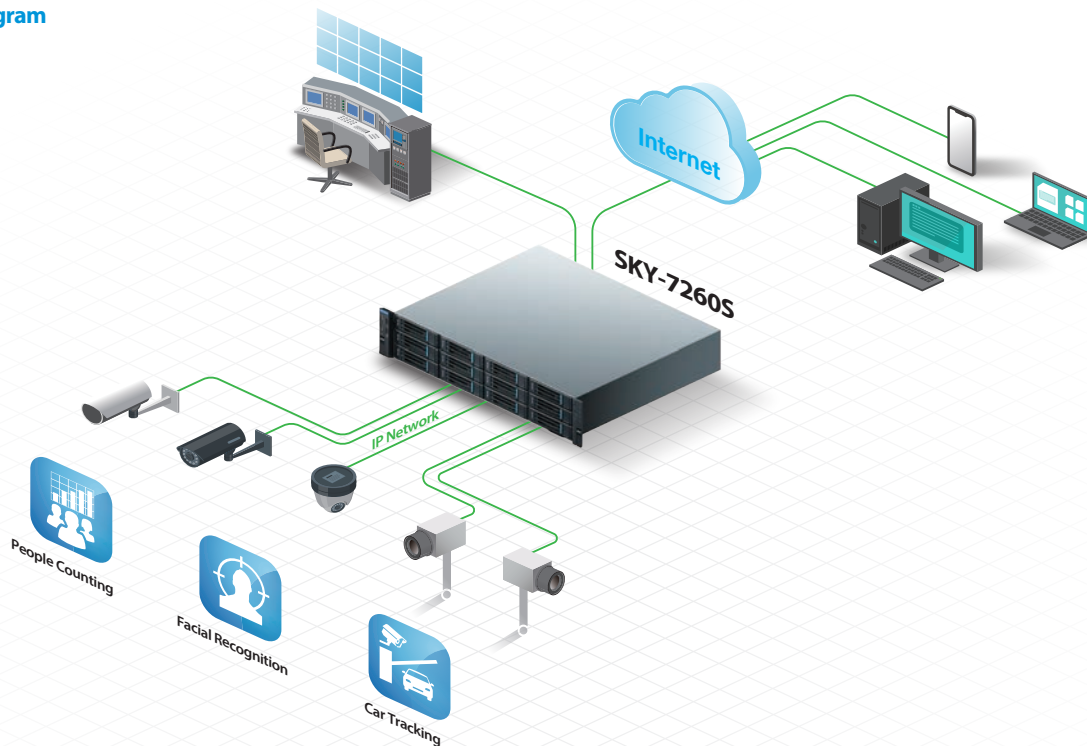
Benefits

- **The 2U system is equipped with an AMD EPYC MB with high scalability including 12-Bay 3.5" or 24-Bay 2.5" storage, two M.2 NVMe, and two dual-width PCIe 4.0 x16 card slots and four-to-six full-height or half-height PCIe x8 slots.**
- **Supports a single AMD EPCY Rome/Milan 8-to-64 core, CPU TDP up to 225W.**
- **Excellent system cooling design with a robust and user-friendly mechanism.**
- **Expandable RAID card and fiber network card, GPU card, or FPGA card.**

When Biology Meets Technology: Harnessing the Power of Bioinformatics

Background Information

Because developing unique bioinformatics tools in-house is costly, most laboratories prefer to adopt pre-existing, purpose-built solutions that can be flexibly integrated with their existing infrastructure and customized as required.

To meet this market demand, a leading provider of genome sequencing and secondary-analysis solutions wanted to build a comprehensive and scalable automated solution platform for efficient processing of NGS data.

System Requirements

To provide an NGS analysis platform capable of supporting a wide range of current and future bioinformatics operations, the customer needed an industrial-grade server with numerous expansion slots for installing multiple acceleration cards and high-speed network interface cards (NICs). When working with vast datasets, larger amounts of system memory can accelerate analysis speeds, while increasing the number of CPUs can reduce the time required for read mapping.

System Description

SKY-6200 servers feature dual sockets for second-generation Intel® Xeon® scalable processors, 24 x memory DIMMs, 9 x PCI Express expansion slots, 8 x hot-swappable SATA bays, and 4 x LAN ports, as well as industrial-grade vibration tolerance to increase operational stability. The integrated fiber cards enable reliable high-speed networking, while the field-programmable gate array (FPGA) PCI Express cards allow accelerated deep learning and data analytics.

System Diagram

PCIE-1220PS
Fiber Card

Micron 7400
NVMe

Micron 5400
SSD

SKY-6200
2U 4 GPU AI Hybrid Server

Accelerator Card   Accelerator Card

10 Gigabit link
400Mb/s sustained I/O

Whole Genome
Sequencing
(WGS)

Whole Exome
Sequencing
(WES)

RNA Sequencing
(RNA-seq)

Sequencing instrument   Local storage

Learn More
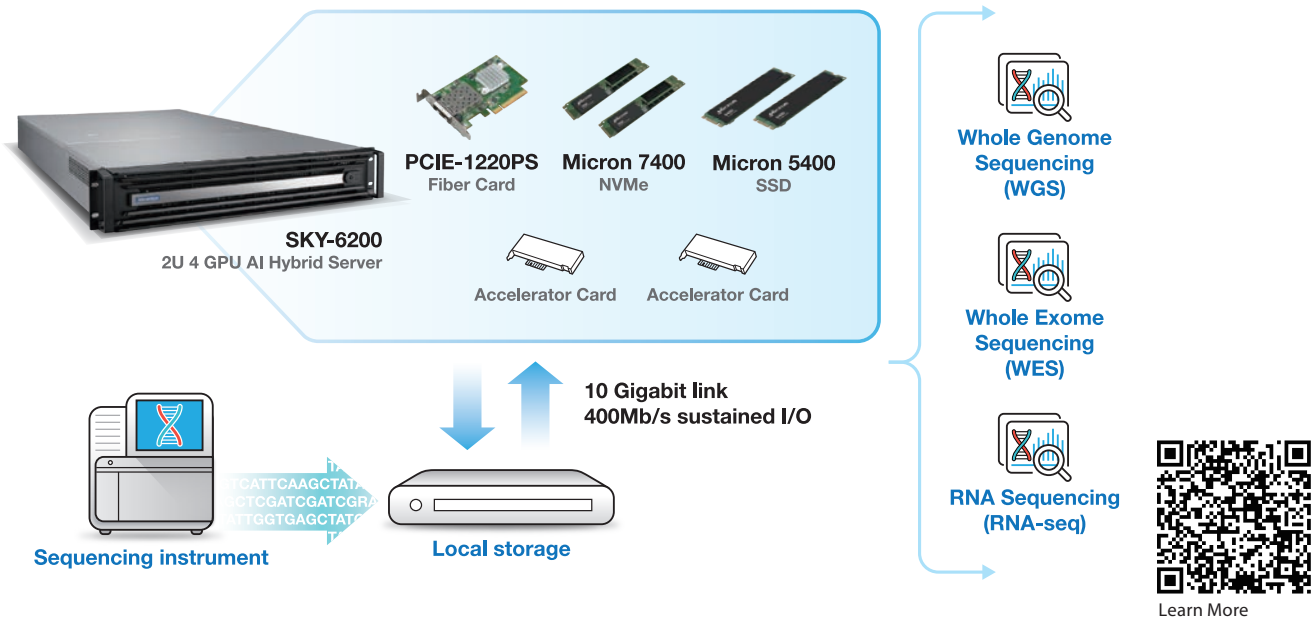
Benefits

• Innovative analysis software combined with industrial-grade server hardware provides a breakthrough secondary-analysis platform for genomic data sequencing and pattern referencing.
• The SKY-6200 server is equipped with dual second-generation Intel® Xeon® Scalable processors and 16 x Micron Technology 32-GB DDR4 RDIMM modules for high-performance computing.
• Ultra-efficient workflows with hardware acceleration boost overall performance by 15% for a shortened runtime of 30 minutes.
• Accelerated runtime offers 40% storage savings for processing joint genotyping pipelines.

Product Selection Guide

GPU Servers

Model		SKY-6100	SKY-6200	SKY-620V3	SKY-6400
Form Factor		1U - Rackmount	2U - Rackmount	2U - Rackmount	4U - Rackmount
Processor System	Processor	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 140W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 140W	Dual 4th Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W
	Chipset	Intel® C622	Intel® C622	Intel® C741	Intel® C621
Memory	Memory Type	8 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 1TB	24 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 3TB	16 x DDR5 4800 MHz RDIMM Up to 2TB	12 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 1.5TB
Networking	Controller	Intel® X557 10G Base-T + 1 x Intel® I210 Gigabit Ethernet	Intel® X557 10G Base-T + 2 x Intel® I210 Gigabit Ethernet	Intel® X710 10G Base-T + 2 x Intel® I226 2.5Gigabit Ethernet + 1 x Realtek 8211F (dedicated IPMI)	2 x Intel® I210 Gigabit Ethernet
	Port	2 x 10GbE RJ-45 1 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 1GbE RJ-45 1 x RJ-45 for dedicated IPMI	2 x 1GbE RJ-45
Expansion	Expansion Slots	• 5 x PCIe 3.0 x16 (FHHL) • 1 x PCIe 3.0 x16 (FH, 10.5", dual slots) + 1 x PCIe 3.0 x16 (FHHL)	• 4 x PCIe 3.0 x16 (FH, 10.5", dual slots) or 8 x PCIe 3.0 x8 (FH, 10.5") • 1 x PCIe 3.0 x8 (FHHL)	• 4 x PCIe 5.0 x16 (FH, 10.5", dual slots) • 2 x PCIe 5.0 x16 (FH, 10.5", dual slots) or 4 x PCIe 5.0 x8 (FH, 10.5) • 2 x PCIe 5.0 x8 (FHHL)	• 4 x PCIe 3.0 x16 (FH, 10.5", dual slots) • 1 x PCIe 3.0 x8 (FHHL) • 1 x PCIe 3.0 x4 (FH, 10.5")
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable drives, 2 x SAS/SATA drive bays	8 x hot-swappable 2.5" SAS/SATA drive bays	8 x hot-swappable 2.5" SAS/SATA/NVMe drive bays	2 x 2.5" drives (internal)
	3.5" HDD	–	–	–	8 x 2.5/3.5" hot-swappable SAS/SATA drive bays
	M.2 SSD	1 x M.2 2242 slot (SATA)	1 x M.2 2280 slot (PCIe/SATA)	2 x M.2 2280/22110 slots (PCIe/SATA)	2 x M.2 2242 slots (SATA)
I/O Connectivity	Front	2 x USB 2.0	Optional ODD 2 x USB 2.0	2 x USB 2.0	2 x USB 3.2 Gen1
	Rear	• 2 x USB 3.2 Gen 1 • 1 x VGA	• 4 x USB 3.2 Gen 1 • 1 x VGA	• 2 x USB 3.2 Gen 1 • 1 x serial port • 1 x VGA	• 4 x USB 3.2 Gen 1 • 1 x serial port • 1 x VGA
	LED Indicator	Power, LAN, SYS_LED	Power, LAN, SYS_LED	Power, LAN, SYS_LED	Power, LAN, HDD, SYS_LED
	Button	Power, Reset	Power, Reset	Power, Reset	Power, Reset
Power Supply		1200W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply	2700W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply
Environment	Operating	0 ~ 35 ℃ (32 ~ 95 °F)	0 ~ 35 ℃ (32 ~ 95 °F)	0 ~ 35 ℃ (32 ~ 95 °F)	0 ~ 35 ℃ (32 ~ 85 °F) 0 ~ 30 ℃ (32 ~ 85.9 °F) with NVIDIA Tesla P100/V100
	Non-Operating	-40 ~ 60 ℃ (-40 ~ 140 °F)	-20 ~ 60 ℃ (-4 ~ 140 °F)	-20 ~ 60 ℃ (-4 ~ 140 °F)	-20 ~ 60 ℃ (-4 ~ 140 °F)
Cooling		6 x 4056 fan + 1 x 4028 fan + 1 x 4028 external fan (optional)	6 x 8038 fan	4 x 8038 fan + 2 x 6038 fan	2 x CPU fan + 3 x 12038 fan + 2 x 8038 external fan
Physical Charasteristics	Dimensions (W x H x D)	438 x 44 x 650 mm (17.2" x 1.7" x 25.6")	438 x 88 x 760 mm (17.24" x 3.46" x 29.92")	438 x 88 x 760 mm (17.24" x 3.46" x 29.92")	435 x 177 x 673 mm (17.12" x 6.96" x 26.49")
	Weight (N.W.)	16 kg	24 kg	24 kg	38 kg
OS Support		Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)
Platform Management		• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC	• ASPEED AST2600 BMC • IPMI 2.0, KVM with dedicated NIC	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • SUSI API, WISE-PaaS/RMM
Security		TPM 2.0, chassis intrusion, bezel Lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel lock	TPM 2.0, chassis intrusion, bezel lock, HDD tray lock

"-" denotes "Not Available"

GPU Servers

Model		SKY-6420	SKY-640V2	SKY-640V3
Form Factor		4U - Rackmount	4U - Rackmount	4U - Rackmount
Processor System	Processor	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 160W	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 4th Gen Intel® Xeon® Scalable processors , TDP up to 205W
	Chipset	Intel® C622	Intel® C621A	Intel® C741
Memory	Memory Type	24 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 3TB	16 x DDR4 3200 MHz ECC/RDIMM/LRDIMM Up to 2TB	16 x DDR5 4800 MHz RDIMM Up to 2TB
Networking	Controller	Intel® X557 10G Base-T + 1 x Realtek RTL8201EL-VC PHY (dedicated IPMI)	Intel® X550 10G Base-T + 2 x Intel® I210 Gigabit Ethernet + 1 x Realtek 8201F (dedicated IPMI)	Intel® X710 10G Base-T + 2 x Intel® I210 Gigabit Ethernet + 1 x Realtek 8211F (dedicated IPMI)
	Port	2 x 10GbE RJ-45 1 x RJ-45 for dedicated IPMI	2 x 10GbE RJ-45 2 x 1GbE RJ-45 1 x RJ-45 for dedicated IPMI	2 x 10GbE RJ-45 2 x 1GbE RJ-45 1 x RJ-45 for dedicated IPMI
Expansion	Expansion Slots	• 10 x PCIe 3.0 x16 (FH, 10.5", dual slots) • 1 x PCIe 3.0 x16 (FH, 10.5")	• 4 x PCIe 4.0 x16 (FH, 10.5", dual slots) • 3 x PCIe 4.0 x8 (FHHL)	• 4 x PCIe 5.0 x16 (FH, 10.5", dual slots) • 3 x PCIe 5.0 x8 (FHHL)
Storage	2.5" HDD/SSD	–	2 x 2.5" drives (internal)	2 x 2.5" drives (internal)
	3.5" HDD	12 x 2.5/3.5" hot-swappable SAS/SATA drive bays	8 x 2.5/3.5" hot-swappable SAS/SATA drive bays	8 x 2.5/3.5" hot-swappable SAS/SATA drive bays
	M.2 SSD	1 x M.2 2280 (SATA + PCIe x2) on board	2 x M.2 2280 (PCIe/SATA) on board	1 x M.2 2280 (PCIe/SATA) 1 x M.2 2280 (PCIe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	Optional ODD 2 x USB 3.2 Gen1	Optional ODD 2 x USB 3.2 Gen1
	Rear	• 4 x USB 3.2 Gen1 • 1 x VGA	• 2 x USB 3.2 Gen1 • 1 x Serial port • 1 x VGA	• 2 x USB 3.2 Gen1 • 1 x Serial port • 1 x VGA
	LED Indicator	Power, LAN, HDD, SYS_LED	Power, LAN, HDD, SYS_LED	Power, LAN, HDD, SYS_LED
	Button	Power, Reset, Alarm Reset	Power, Reset, Alarm Reset	Power, Reset, Alarm Reset
Power Supply		4800W 3+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply
Environment	Operating	0 ~ 35 ℃ (32 ~ 85 ℉) 0 ~ 30 ℃ (32 ~ 85.9 ℉) with NVIDIA Tesla V100)	0 ~ 35 ℃ (32 ~ 85 ℉) with NVIDIA A100/A30	0 ~ 35 ℃ (32 ~ 95 ℉)
	Non-Operating	-40 ~ 60 ℃ (-4 ~ 140 ℉)	-20 ~ 60 ℃ (-4 ~ 140 ℉)	-20 ~ 60 ℃ (-4 ~ 140 ℉)
Cooling		6 x 120 38 fans + 4 x 8038 external fans (optional)	2 x CPU fans + 3 x 12038 fans + 2 x 8038 external fans (optional)	2 x CPU fans + 3 x 12038 fans + 2 x 8038 external fans (optional)
Physical Charasteristics	Dimensions (W x H x D)	438 x 176 x 770 mm (17.24" x 6.93" x 30.31")	435 x 176 x 660 mm (17.12" x 6.9" x 25.9")	435 x 177 x 673 mm (17.12" x 6.96" x 26.49")
	Weight (N.W.)	39 kg	34 kg	34 kg
OS Support		Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)
Platform Management		• ASPEED AST2500 BMC • IPMI 2.0, KVM with dedicated LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with dedicated LAN • SUSI API, WISE-PaaS/RMM	• ASPEED AST2600 BMC • IPMI 2.0, KVM with dedicated NIC • SUSI API, WISE-PaaS/RMM
Security		TPM 2.0, chassis intrusion, HDD tray lock	TPM 2.0, chassis intrusion, bezel Lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel Lock, HDD tray Lock

"-" denotes "Not Available"

Edge Accelerator Servers

Model		HPC-6120+ ASMB-610	HPC-6120+ ASMB-610V3	HPC-6240+ ASMB-622	HPC-6240+ ASMB-622V3	HPC-7420+ ASMB-976	HPC-7420+ ASMB-977
Form Factor		1U - Rackmount	1U - Rackmount	2U - Rackmount	2U - Rackmount	4U - Rackmount	4U - Rackmount
Processor System	Processor	10th Gen Intel® Xeon® W Core™ i9/i7/i5/i3 Series	12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series	Dual 3rd Gen Intel® Xeon® Scalable processors	4th Gen Intel® Xeon® Scalable Series	Dual 3rd Gen Intel® Xeon® Scalable processors	Dual 4th Gen Intel® Xeon® Scalable Series
	Chipset	Intel® W480E	Intel® W680	Intel® C621	Intel® C741	Intel® C621	Intel® C741
Memory	Memory Type	4 x DDR4 up to 2933 MHz ECC/non-ECC UDIMM, up to 128GB	4 x DDR5 up to 4400 MHz ECC/non-ECC UDIMM, up to 128GB	16 x DDR4 up to 3200 MHz RDIMM, up to 1TB, Intel® Optane DCPMM	16 x DDR5 up to 4400 MHz RDIMM, up to 1TB, Intel® Optane DCPMM	16 x DDR4 up to 3200 MHz RDIMM, up to 2TB, Intel® Optane DCPMM	16 x DDR5 up to 4800 MHz RDIMM, up to 2TB, Intel® Optane DCPMM
Networking	Controller	1 x Intel® I350AM4	1 x Intel® I350AM4	1 x Intel® I350AM4	1 x Intel® I350AM4	2 x Intel® I210AT 1 x Intel® X550-AT2	2 x Intel® I210AT 1 x Intel® X710
	Port	4 x GbE RJ-45	4 x GbE RJ-45	4 x GbE RJ-45	4 x GbE RJ-45	4 x 10GbE RJ-45	4 x 10GbE RJ-45
Expansion	Expansion Slots	• 1 x PCIe 3.0 x16 or 2 x PCIe 3.0 x8 (FH, 10.5" L) • 2 x PCIe 3.0 x4 (LP)	• 1 x PCIe 5.0 x16 or 2 x PCIe 5.0 x8 (FH, 10.5" L) • 2 x PCIe 4.0 x4 (LP)	• 4 x PCIe 4.0 x16 (FH, 10.5" L) • 4 x PCIe 4.0 x8 (FHHL)	• 4 x PCIe 5.0 x8 or 2 x PCIe 5.0 x16 (FH, 10.5" L) • 4 x PCIe 5.0 x8 (FHHL)	• 4 x PCIe 4.0 x16 (FHFL) • 7 x PCIe 4.0 x8 (FHFL)	• 5 x PCIe 5.0 x16 (FHFL) • 5 x PCIe 4.0 x8 (FHFL)
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/SATA/SSD drive bays	2 x 2.5" hot-swappable SAS/SATA/SSD drive bays	4 x 2.5" hot-swappable SAS/SATA/SSD drive bays	4 x 2.5" hot-swappable SAS/SATA/SSD drive bays	2 x 2.5" SAS/SATA/SSD hot-swappable drive bays (optional)	2 x 2.5" SAS/SATA/SSD hot-swappable drive bays (optional)
	3.5" HDD	–	–	–	–	2 x 3.5" SATA drive	2 x 3.5" SATA drive
	M.2 SSD	1 x M.2 2280 slot (SATA/NVMe)	1 x M.2 2280/22110 slot (SATA/NVMe)	1 x M.2 2280 slot (SATA/NVMe)	2 x M.2 2280/22110 slots (SATA/NVMe)	1 x M.2 2280 slot (SATA/NVMe) 1 x M.2 2280 slot (NVMe)	1 x M.2 2280 slot (SATA/NVMe) 1 x M.2 2280 slot (NVMe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1	4 x 10GbE RJ-45 2 x USB 3.2 Gen1 1 x RS-232	4 x 10GbE RJ-45 2 x USB 3.2 Gen1 1 x RS-232
	Rear	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	–	–
	LED Indicator	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power LAN1, LAN2, System temperature System fan. HDD Power HDD Activity LED	System Power LAN1, LAN2, System temperature System fan. HDD Power HDD Activity LED
	Button	Power	Power	Power	Power	–	–
Power Supply		500W Single PSU 650W 1+0 non-redundant PSU	500W Single PSU 650W 1+0 non-redundant PSU	1200W 1+1 redundant or 1200W 1+0 non-redundant PSU	1200W 1+1 redundant or 1200W 1+0 non-redundant PSU	850W single PSU or 1200W 1+0 non-redundant PSU	850W single PSU or 1200W 1+0 non-redundant PSU
Environment	Operating	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 50 ℃ (32 ~ 122 ℉)	0 ~ 50 ℃ (32 ~ 122 ℉)
	Non-Operating	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)
Cooling		3 x 4056 and 2 x 4028 Fan with Smart FAN Control	3 x 4056 and x 4028 Fan with Smart FAN Control	3 x 8038 and 1 x 6038 Fan with Smart Fan Control	3 x 8038 and 1 x 6038 Fan with Smart Fan Control	3 x 12038 or 3 x 8025 Fan with Smart Fan Control	3 x 12038 or 3 x 8025 Fan with Smart Fan Control
Physical Characteristics	Dimensions (W x H x D)	438 x 44 x 480 mm (17.24" x 1.73" x 18.9")	438 x 44 x 480 mm (17.24" x 1.73" x 18.9")	438 x 88 x 523 mm (17.24" x 3.46" x 20.59")	438 x 88 x 523 mm (17.24" x 3.46" x 20.59")	438 x 177 x 450 mm (17.24" x 6.97" x 17.7")	438 x 177 x 450 mm (17.24" x 6.97" x 17.7")
	Weight (N.W.)	8.5 kg	8.5 kg	12.4 kg	12.4 kg	16 kg	16 kg
OS Support		10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing
Platform Management		• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0

"-" denotes "Not Available"

SKY Servers

Model		SKY-7120S	SKY-721E3	SKY-7210L	SKY-7221	SKY-7232DV2
Form Factor		1U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Intel® Xeon D-2100 Processors, TDP up to 110W	Dual AMD EPYC™ 9004 Series Processors, TDP up to 360W	Dual 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 205W	Dual 3rd Gen Intel® Xeon® Scalable Processors, TDP up to 250W
	Chipset	–	-	Intel® C621	Intel® C621/C622/C624	Intel® C621A
Memory	Memory Type	4 x DDR4 2666MHZ ECC RDIMM/LRDIMM, Up to 512GB (128GB x 4)	24 x DDR5 4800Mhz, ECC/RDIMM/ LRDIMM, Up to 3TB (128GB x 24)	24 x DDR4 2600Mhz ECC RDIMM/LRDIMM Up to 3TB (128GB x 24)	24 x DDR4 2933Mhz ECC RDIMM/LRDIMM Up to 3TB (128GB x 24)	32 x DDR4 3200Mhz ECC RDIMM/LRDIMM Up to 4TB (128GB x 32)
Networking	Controller	Intel® XL722 (integrated into D-2100 CPU) 10GbE SFP+ 1 x Intel® i350 Gigabit Ethernet	Intel® XL710 10G Base-T + 2 x Intel® i210 Gigabit Ethernet	Intel® C622 10G SFP + 3 x Intel® i210 Gigabit Ethernet	Intel® C622/C624 10GbE SFP+ (optional) + 3 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet
	Port	4 x 10GbE SFP+ 4 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 1GbE RJ-45	2 x 10GbE SFP+ (optional) 2 x 1GbE RJ-45	2 x 1GbE RJ-45
Expansion	Expansion Slots	2 x PCIe 3.0 x16 (FHFL, 10.5")	• 2 x PCIe 5.0 x16 (FHFL) • 2 x PCIe 5.0 x8 (FHFL) • 2 x PCIe 5.0 x8 (FHHL) • 2 x PCIe 5.0 x8 (LP) • 2 x PCIe 4.0 x8 (LP,optional) • 1 x PCIe 5.0 x16 OCP 3.0	[SKU1] 3 x PCIe 3.0 x16 (FHFL) [SKU2] 6 x PCIe 3.0 x8 (FHFL) 3 x NMC slots	• 1 x PCIe 3.0 x16 (FHFL) • 4 x PCIe 3.0 x8 (LP) or 2 x PCIe 3.0 x16 (FHFL), • 2 x PCIe 3.0 x8 (LP) • 1 x PCIe 3.0 x16 • OCP 2.0 NIC	• 2 x PCIe 4.0 x16 (FHFL) • 2 x PCIe 4.0 x8 (FHFL) • 2 x PCIe 4.0 x8 (FHHL) • 2 x PCIe 4.0 x8 (LP) • 2 x PCIe 4.0 x8 (LP,optional) • 1 x PCIe 4.0 x16 OCP 3.0
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/ SATA drive bays	[SKY-721E3-E24] 24 x 2.5" hot-swappable SAS/ SATA drive bays 2 x 2.5" SAS/SATA drive bays (optional)	–	24 x 2.5" hot-swappable SAS/SATA drive bays	[SKY-7232D2] 24 x 2.5" hot-swappable SAS/SATA drive bays 2 x 2.5" SAS/SATA drive bays (optional)
	3.5" HDD	–	[SKY-721E3-S12] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 2 x 2.5" NVMe drive bays (optional)	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays	[SKY-7232D3] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 2 x 2.5" NVMe drive bays (optional)
	M.2 SSD	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slot (PCIe)	1 x M.2 2280 slot (SATA)	2 x M.2 2280 slots (SATA)	2 x M.2 2280 slots (SATA)
I/O Connectivity	Front	USB3.2 Gen1, 1 x VGA, 1 x GbE management port, 1 x console port	1 x USB3.2 Gen1 (upper), 1 x USB2.0 (lower), 1 x VGA,	2 x USB 2.0	2 x USB 2.0	1 x USB 3.2 Gen1 (upper) 1 x USB 2.0 (lower), 1 x VGA
	Rear	–	2 x USB3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 3.2 Gen1 1 x VGA, 1 x console	2 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port	2 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port
	LED Indicator	Power, Status, UID	Power, ID, Status, HDD activity, Network activity	Power, ID, Info, HDD, 2 x LAN	Power, ID, Info, HDD, 2 x LAN	Power, ID, Status, HDD activity, Network activity
	Button	Power, ID	Power, ID	Power, ID, Reset	Power, ID, Reset	Power, ID
Power Supply		AC 550w 1+1 redundant PSU / DC 800w 1+1 redundant PSU	1200W/1600W/2000W 1+1 platinum redundant power supply with PMBus	850W/1200W 1+1 platinum redundant power supply with PMBus	850W/1200W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus
Environment	Operating	-5 ~ 55 ℃ (23 ~ 131 °F) 95% @ 60 ℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 °F) 50% @25℃ to 95%@40℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 °F) 50% @25℃ to 95%@40℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 °F) 50% @25℃ to 95%@40℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 °F) 50% @25℃ to 95%@40℃ (non-condensing)
	Non-Operating	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)
	Cooling	4 x 4056 fan with smart fan control	4 x 8038 fan with smart fan control	6 x 6056 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control
Physical Charasteristics	Dimensions (W x H x D)	438 x 44 x 420 mm (17.2" x 1.73" x 16.5")	438 x 88 x 797 mm (17.2" x 3.46" x 31.3")	438 x 88 x 730 mm (17.24" x 3.46" x 28.74")	448 x 88.4 x 760 mm (17.6" x 3.48" x 30")	438 x 88 x 797 mm (17.2" x 3.46" x 31.3")
	Weight (N.W.)	13 kg	25 kg	26 kg	25 kg	25 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu), Windows Server
Platform Management		• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish
Security		TPM2.0, Chassis intrusion	TPM 2.0, Chassis intrusion	TPM 1.2	TPM 2.0	TPM 2.0

"-" denotes "Not Available"

SKY Servers

Model		SKY-7232D3E	SKY-7223D	SKY-7260S	SKY-7632D	SKY-8101D
Form Factor		2U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount	1U - Rackmount
Processor System	Processor	Dual 3rd Gen Intel® Xeon® Scalable Processors, TDP u to 205W	Dual 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 205W	Single AMD EPYC™ 7003/7002 Series Processors, TDP up to 225W	Dual 3rd Gen Intel® Xeon® Scalable Processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable, TDP up to 205W
	Chipset	Intel® C621A	Intel® C622 / C626	–	Intel® C621A	Intel® C621/C622
Memory	Memory Type	16 x DDR4 3200Mhz ECC RDIMM/ LRDIMM Up to 2TB (128GB x 16)	16 x DDR4 2933Mhz, ECC RDIMM/ LRDIMM, Up to 2TB (128GB x 16)	16 x DDR4 3200Mhz, ECC RDIMM/ LRDIMM, up to 2TB (128GB x 16)	16 x DDR4 2933Mhz ECC RDIMM/ LRDIMM Up to 2TB (128GB x 16)	24 x DDR4 2933Mhz ECC RDIMM/ LRDIMM Up to 3TB (128GB x 24)
Networking	Controller	2 x Intel® i210 Gigabit Ethernet	Intel® C622 / XL710 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet
	Port	2 x 1GbE RJ-45	6 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 1GbE RJ-45	2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45
Expansion	Expansion Slots	3 x PCIe 4.0 x16 (LP) 2 x PCIe 4.0 x8 (LP)	[SKU1] 4 x PCIe 3.0 x16 (FHFL) [SKU2] 2 x PCIe 3.0 x16 (FHFL) + 4 x PCIe 3.0 x8 (FHHL) [SKU3] 2 x PCIe 3.0 x16 (FH,10.5",dual slots) + 2 x PCIe 3.0 x8 (FHHL)	[SKU1] 4 x PCIe 4.0 x16 (FHFL) PCIe x 4.0 x16 2 x PCIe 4.0 x8 (LP) [SKU2] 2 x PCIe 4.0 x16 (FHFL) 2 x PCIe 4.0 x8 (FHHL) 2 x PCIe 4.0 x8 (FHHL) 2 x PCIe 4.0 x8 (LP) 1 x OCP 3.0 PCIe 4.0 x16	[SKU1] 3 x PCIe 4.0 x16 (LP) 2 x PCIe 4.0 x8 (LP) [SKU2] 2 x PCIe 4.0 x16 (FHFL, dual slots)	4 x PCIe 3.0 x16 (FH/¾L)
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/SATA/NVMe drive bays (rear, optional)	6 x 2.5" hot-swappable SAS/SATA drive bays	–	6 x 2.5" hot-swappable SAS/SATA drive bays	4 x 2.5" hot-swappable, SAS/SATA drive bays 4 x 2.5" hot-swappable NVMe SSD (Optional)
	3.5" HDD	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays	–	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 2 x 2.5" NVMe drive bays (optional)	–	–
	M.2 SSD	2 x M.2 2280 slots (NVMe)	2 x M.2 2280 slots (SATA/ NVMe)	2 x M.2 2280 slots (SATA)	2 x M.2 2280 slots (NVMe)	2 x M.2 2280 slots (SATA)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	1 x USB 3.2 Gen1 (upper), 1 x USB2.0 (lower), 1 x VGA	5 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 3.2 Gen1, 1 x VGA, 1 x console
	Rear	4 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port	–	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	–	–
	LED Indicator	Power, ID, Status, HDD activity, LAN1/LAN2 activity	Power, ID, Status	Power, ID, Status, HDD activity, Network activity	Power, ID, Status, HDD activity, LAN1/LAN2 activity	Power, ID, 3 x SW definable LEDs
	Button	Power, ID, Reset	Power, ID	Power, ID	Power, ID, Reset	Power, ID
Power Supply		800W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus	Redundant AC 800W / 1200W / 1600W
Environment	Operating	0 ~ 40 ℃ (32 ~ 104 ℉) 50% @25℃ to 95%@40℃ (non-condensing)	-5 ~ 45 ℃ (23 ~ 113 ℉) 50% @25℃ to 95%@40℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 ℉) 95% @ 60 ℃ (non-condensing)	-5 ~ 45 ℃ (23 ~ 113 ℉) 50% @25℃ to 95%@40℃ (non-condensing)	0 ~ 40 ℃ (32 ~ 104 ℉) 50% @25℃ to 95%@40℃ (non-condensing)
	Non-Operating	-40 ~ 70 ℃ (-40 ~ 158 ℉) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 ℉) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 ℉) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 ℉) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 ℉) 95% @ 60 ℃ (non-condensing)
Cooling		3 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	6 x 4056 fan with smart fan control
Physical Characteristics	Dimensions (W x H x D)	438 x 87 x 658 mm (17.2" x 3.42" x 25.9")	438 x 88 x 440 mm (17.26" x 3.46" x 17.3")	438 x 88 x 797 mm (17.2" x 3.46" x 31.3")	438 x 87 x 450 mm (17.2" x 3.42" x 17.7")	438 x 44.2 x 749.7mm (17.25" x 1.74" x 29.5")
	Weight (N.W.)	25 kg	15 kg	22 kg	15 kg	20 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu)
Platform Management		• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0, Chassis intrusion	TPM 2.0	TPM 2.0	TPM 2.0, chassis intrusion	TPM 1.2/2.0

"-" denotes "Not Available"

SKY Servers

Model	SKY-8101L	SKY-8101	SKY-820V3	SKY-8201L	SKY-8201
Form Factor	1U - Rackmount	1U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System — Processor	Single 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 165W	Single 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 165W	Dual 4th Gen Intel® Xeon® Scalable Processors, TDP up to 250W	Dual 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable Processors, TDP up to 205W
Processor System — Chipset	Intel® C621/C622	Intel® C621/C622	Intel® C741	Intel® C621/C622	Intel® C621/C622
Memory — Memory Type	6 x DDR4 2933Mhz ECC/RDIMM/LRDIMM Up to 768G (128GB x 6)	6 x DDR4 2933Mhz ECC/RDIMM/LRDIMM Up to 768GB	16 x DDR5 4800Mhz ECC/RDIMM/LRDIMM Up to 2TB	16 x DDR4 2933 Mhz ECC/RDIMM/LRDIMM Up to 2TB	16 x DDR4 2933 Mhz E ECC/RDIMM/LRDIMM Up to 2TB
Networking — Controller	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	Intel® X710 10G SFP+ 2 x Intel® I210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet
Networking — Port	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45
Expansion — Expansion Slots	[SKU1] 2 x PCIe 3.0 x8 (FHFL) 1 x PCIe 3.0 x4 (for Advantech Personalization Card) [SKU2] 1 x PCIe 3.0 x16 (FHFL) 1 x PCIe Gen 3.0 x8 (LP) 1 x PCIe 3.0 x4 (for Advantech Personalization Card)	• 2 x PCIe 3.0 x8 (FHHL) or 1 x PCIe 3.0 x16 (FHFL) • 1 x PCIe 3.0 x8 (LP) • 1 x PCIe 3.0 x4 expansion slot for Advantech Personalization Card (PersCard)	2 x PCIe 5.0 x16 (FHFL) 2 x PCIe 5.0 x16 (FHHL)	[SKU1] 4 x PCIe 3.0 x8 (FHFL) 2 x PCIe 3.0 x8 (LP) [SKU2] 2 x PCIe 3.0 x16 (FHFL) 2 x PCIe 3.0 x8 (FHHL) 2 x PCIe 3.0 x8 (LP)	[SKU1] 4 x PCIe 3.0 x8 (FHFL) 2 x PCIe 3.0 x8 (FHHL) 2 x PCIe 3.0 x8 (LP) [SKU2] 2 x PCIe 3.0 x16 (FHFL) 2 x PCIe 3.0 x8 (LP)
Storage — 2.5" HDD/SSD	[SKY-8101L1/L2] 8 x 2.5" hot-swappable SAS/SATA drive bays	4 x 2.5" hot-swappable SAS/SATA drive bays	6 x 2.5" hot-swappable SAS/SATA drive bays	[SKY-8201L2] 24 x 2.5" hot-swappable SAS/SATA drive bays 4 x 2.5" hot-swappable NVMe SSD trays (optional)	4 x 2.5" SAS/SATA drive bays
Storage — 3.5" HDD	[SKY-8101L3] 4 x 3.5" hot-swappable SAS/SATA drive bays	–	–	[SKY-8201L1] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 4 x 2.5" hot-swappable NVMe SSD trays (optional)	–
Storage — M.2 SSD	1 x M.2 2280 slot (SATA/ PCIe)	1 x M.2 2280 slot (SATA/PCIe)	2 x M.2 2280 slots (SATA/NVMe)	1 x M.2 2280 slot (SATA/PCIe)	1 x M.2 2280 slot (SATA/PCIe)
I/O Connectivity — Front	1 x micro USB console, 1 x USB 3.2 Gen1	1x USB 3.2 Gen1 / USB 2.0, 1x micro USB console	3 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 2.0	2 x USB 2.0
I/O Connectivity — Rear	1 x DisplayPort, 2 x USB3.2 Gen1 / USB 2.0	1 x DisplayPort, 2 x USB 3.2 Gen1 / USB 2.0, 2 x grounding lugs	–	1 x DisplayPort, 1 x VGA, 2 x USB 3.2 Gen1, 1 x GbE management port	1 x VGA, 1 x DisplayPort, 2 x USB 3.2 Gen1
I/O Connectivity — LED Indicator	Power, ID, 3 x SW definable LEDs	Power, ID, 3 x SW definable LEDs	Power, ID, Status, HDD activity, LAN1/LAN2 activity	Power, Status	Power, ID, Status
I/O Connectivity — Button	Power, ID	Power, ID	Power, ID, Reset	Power	Power, ID
Power Supply	850W 1+1 platinum redundant power supply with PMBus	700W AC and 600W DC 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus	AC 1200W 1+1 platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 redundant power supply with PMBus
Environment — Operating	0 ~ 40 ℃ (32 ~ 104 °F) 50% @25℃ to 95%@40℃ (non-condensing)	-5 ~ 55 ℃ (23 ~ 131 °F) 50% @25℃ to 95%@40℃ (non-condensing)	-5 ~ 45 ℃ (23 ~ 113 °F) 50% @25℃ to 95%@40 ℃ (non-condensing)	0 ~ 40 ℃ (32~104 °F) 0% @25℃ to 95%@40 ℃ (non-condensing)	-5 ~ 55 ℃ (23 ~ 131 °F) 50% @25℃ to 95%@40℃ (non-condensing)
Environment — Non-Operating	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)	-40 ~ 70 ℃ (-40 ~ 158 °F) 95% @ 60 ℃ (non-condensing)
Cooling	6 x 4056 fan with smart fan control	5 x 4056 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	6 x 8038 fan with smart fan control
Physical Characteristics — Dimensions (W x H x D)	438 x 44 x 696 mm (17.26" x 1.74" x 27.41") with ear handle	438 x 44.20 x 506 mm (17.24" x 1.74" x 20")	438 x 87 x 450 mm (17.2" x 3.42" x 17.7")	438.4 x 88.1 x 699.8 mm (17.26" x 3.46" x 27.5")	430 x 88.6 x 508 mm (16.9" x 3.48" x 20")
Physical Characteristics — Weight (N.W.)	16 kg	15 kg	15 kg	25 kg	18 kg
OS Support	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server
Platform Management	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN
Security	TPM 1.2	–	TPM 2.0, chassis intrusion	TPM 1.2/2.0	TPM 1.2 / 2.0

"-" denotes "Not Available"

SKY Servers

Model		SKY-8232DV2	SKY-8260SV2	SKY-8132S	SKY-8132S-11	SKY-8134S-11
Form Factor		2U - Rackmount	2U - Rackmount	1U - Rackmount	1U - Rackmount	1U - Rackmount
Processor System	Processor	Dual 3rd Gen Intel® Xeon® Scalable Processors, TDP up to 250W	Single AMD EPYC™ 7003/7002 Series Processors, TDP up to 180W	Single 3rd Gen Intel® Scalable Processor supporting Platinum, Gold and Silver SKUs	Single 3rd Gen Intel® Xeon® Scalable Processor, TDP up to 225W	Single Intel® 4th & 5th Gen Intel® Scalable Processor, TDP up to 225W
	Chipset	Intel® C621A	–	Intel® C62xA series	Intel® C62xA series	Intel® C741
Memory	Memory Type	32 x DDR4 3200Mhz ECC/RDIMM/LRDIMM Up to 4TB	16 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 2TB	8 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 512G	8 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 512G	8 x DDR5 5600MHz RDIMM Up to 512G
Networking	Controller	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet	1 x Intel® i210 Gigabyte Ethernet	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabyte Ethernet
	Port	2 x 1GbE RJ-45	2 x 1GbE RJ-45	1 x GbE LAN RJ-45	2 x 1GbE SFP	up to 12 x SFP28 ports w/ timing sync support 2 x QSFP28 ports w/ timing sync support (Optional)
Expansion	Expansion Slots	• 4 x PCIe 4.0 x16 (FHFL) • 2 x PCIe 4.0 x8 (LP) • 1 x OCP 3.0 PCIe 4.0 x16	• 4 x PCIe 4.0 x16 (FHFL) • 2 x PCIe 4.0 x8 (LP) • 1 x OCP 3.0 PCIe 4.0 x16	2 x PCIe 4.0 x16 (FHFL) and 2 x PCIe 4.0 x16 slots (FHHL)	2 x PCIe 4.0 x16 (FHHL) 1 x PCIe 4.0 x16 (LP)	1 x PCIe 5.0 x16 (FHHL)
Storage	2.5" HDD/SSD	4 x 2.5" SAS/SATA drive bays	2 x 2.5" SATA SSD (Internal) 2 x 2.5" hot-swappable SATA /PCIe SSD (Rear)	4 x 2.5" SATA3/NVMe U.2 (Optional)	1 x 2.5" SATA3/NVMe U.2 SSD (depends on SKU)	–
	3.5" HDD	–	–	–	–	–
	M.2 SSD	2 x M.2 2280 slots (SATA/SSD)	2 x 2280 M.2 slots (SATA3/PCIe)	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (SATA/PCIe)
I/O Connectivity	Front	1 x USB 3.2 Gen1 (upper), 1 x USB 2.0 (lower), 1 x VGA	1 x USB 3.2 Gen1 (upper), 1 x USB 2.0 (lower), 1 x VGA	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1, 1 x console	2 x USB 3.2 Gen1, 1 x console
	Rear	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	1 x USB 3.2 Gen1	–	–
	LED Indicator	Power, ID, Status, HDD activity, Network activity	Power, ID, Status, HDD activity, Network activity	Power, ID, Critical, Major, Minor, status LEDs	Power, Status, Alarm	Power, Status, Alarm
	Button	Power, ID	Power, ID	Power, ID	–	–
Power Supply		AC 1200W / DC 800W 1+1 platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 platinum redundant power supply with PMBus	700W AC/DC	800W D/D power brick	800W D/D power brick
Environment	Operating	-5 ~ 55 °C (23 ~ 131 °F) 0% @25°C to 95%@40 °C (non-condensing)	-5 ~ 40 °C (23 ~ 104 °F) 50% @ 25 °C to 95% @ 40 °C (non condensing)	-5 ~ 55 °C (23 ~ 131 °F)	-40 ~ 65 °C (-40 ~ 149 °F) Depends on CPU model and configuration 50% @ 25 °C to 95% @ 40 °C (non-condensing)	-40 ~ 65 °C (-40 ~ 149 °F) Depends on CPU model and configuration 50% @ 25 °C to 95% @ 40 °C (non-condensing)
	Non-Operating	-40 ~ 70 °C (-40 ~ 158 °F) 95% @ 60 °C (non-condensing)	-40 ~ 70 °C (-40 ~ 158 °F) 95% @ 60 °C (non-condensing)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F) 95% @ 60 °C (non-condensing)	-40 ~ 70 °C (-40 ~ 158 °F) 95% @ 60 °C (non-condensing)
Cooling		6 x high speed fans (N+1 redundant)	6 x high speed fans (N+1 redundant)	5 x high speed fans with smart fan control	9 x high speed fans with smart fan control (N+1 redundant)	9 x high speed fans with smart fan control (N+1 redundant)
Physical Charasteristics	Dimensions (W x H x D)	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	438 x 43.5 x 517 mm (17.2" x 1.74" x 20.4")	445 x 43.8 x 292 mm (17.5" x 1.73" x 11.5")	443 x 44 x 290 mm (17.4" x 1.73" x 11.4")
	Weight (N.W.)	18 kg	18 kg	15 kg	8 kg	8 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server
Platform Management		• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN • Redfish	• ASPEED AST2500 BMCIPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0

"-" denotes "Not Available"

SKY Servers

Model		SKY-8134DU	SKY-8232D	SKY-8234D	SKY-9232D3	SKY-9234S3
Form Factor		1U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Dual 4th Gen Intel® Xeon® Scalable Processors, TDP up to 185W	Dual 3rd Gen Intel® Xeon® Scalable Processors	Dual 4th Gen Intel® Xeon® Scalable Processors	Single/Dual 3rd Gen Intel® Xeon® Scalable Processors (per node)	Single 4th Gen Intel® Xeon® Scalable Processors (per node), TDP up to 250W
	Chipset	Intel® C741	Intel® PCH C62XA series	Intel® C741	Intel® C621A	Intel® C741
Memory	Memory Type	32 x DDR5 4800MHz RDIMM Up to 2TB	32 x DDR4 ECC/RDIMM/Intel® Optane	32 x DDR5 ECC/RDIMM/Intel® Optane	8 x DDR4 DIMM per CPU	8 x DDR5 4800MHz ECC/RDIMM/LRDIMM Up to 2TB
Networking	Controller	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210- Gigabyte Ethernet	2 x Intel® i210- Gigabyte Ethernet	–	–
	Port	2 x 1GbE RJ-45	2 x 1GbE ports + 1 x 1GbE Mgmt port, 1 x RJ-45 Console	2 x 1GbE/Mgmt ports, 1 x RJ-45 Console	1 x GbE Mgmt port per node	1 x GbE Mgmt port per node
Expansion	Expansion Slots	2 x PCIe 5.0 x16 (FH, 3/4L) 1 x OCP3.0	4 x PCIe 4.0 x16(FHFL) and 2 x PCIe 4.0 x8 (LP) Or 2 x PCIe 4.0 x16 (FHHL) and 2 x PCIe 4.0 x8 (FHFL) and 2 x PCIe 4.0 x 8 (FHHL) and 2 x PCIe 4.0 x8 (LP)	4 x PCIe x16 5.0 (FHFL) and 2 x PCIe 5.0 x8 (LP) Or 2 x PCIe 5.0 x16 (FHHL) and 2 x PCIe 5.0 x8 (FHFL) and 2 x PCIe 5.0 x 8 (FHHL) and 2 x PCIe 5.0 x8 (LP)	1 x PCIe 4.0 x16 (HHHL) (per node) 1 x PCIe 3.0 OCP 2.0 x8 (per node)	1 x PCIe 5.0 x16 (HHHL) (per node) 1 x PCIe 5.0 x16 OCP 3.0 (per node)
Storage	2.5" HDD/SSD	12 x 2.5" hot-swappable SATA/NVMe drive bays	4 x 2.5" SATA3	4 x 2.5" SATA3	1 x 2.5" NVMe SSD (per node)	1 x 2.5" NVMe SSD (per node)
	3.5" HDD	–	–	–	12 x Hot-Swappable 3.5" HDD trays (3 x HDD trays per Node)	12 x Hot-Swappable 3.5" HDD trays (3 x HDD trays per Node)
	M.2 SSD	2 x M.2 2280 slots (SATA/NVMe)	2 x M.2 2280 (SATA)	2 x M.2 2280 (NVMe/SATA)	2 x M.2 2280 (NVMe/SATA)	2 x M.2 2280 (NVMe/SATA)
I/O Connectivity	Front	1 x USB 3.2 Gen1	2 x USB 3.2 Gen1 1 x VGA	2 x USB 3.2 Gen1 1 x VGA	–	–
	Rear	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1 Rear 1 x OCP3.0	2 x USB 3.2 Gen1 Rear 1 x OCP3.0	1 x USB 3.2 Gen1 Type-A + 1 x VGA + 1 x Console (per node)	1 x USB 3.2 Gen1 Type-A + 1 x MiniDP + 1 x Console (per node)
	LED Indicator	Power, ID	Power, ID, Critical, Major, Minor, status LEDs	Power, ID, Critical, Major, Minor, status LEDs	Power status LED (integrated in Power button) HDD activity/status LED Network activity LEDs UID LED (integrated in UID button) Information LED	Power status LED (integrated in Power button) HDD activity/status LED Network activity LEDs UID LED (integrated in UID button) Information LED
	Button	Power, ID	Power, ID	Power, ID	Power, UID	Power, UID
Power Supply		1200W 1+1 platinum redundant power supply with PMBus	1200W AC / 800W DC PSU	1200W AC / 800W DC PSU	Redundant AC 2000W (Redundant power limitation for 100-127V$_{AC}$ is up to 1000W)	Redundant AC 2000W (Redundant power limitation for 100-127V$_{AC}$ is up to 1000W)
Environment	Operating	0 ~ 40 °C (32 ~ 104 °F) 50% @25°C to 95%@40°C (non-condensing)	-5 ~ 55 °C (23 ~ 131 °F)	-5 ~ 55 °C (23 ~ 131 °F)	5 ~ 35 °C (41 ~ 95 °F) / 5% to 95% @ 35 °C	5 ~ 35 °C (41 ~ 95 °F) / 5% to 95% @ 35 °C
	Non-Operating	-40 ~ 70 °C (-40 ~ 158 °F) 95% @ 60 °C (non-condensing)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 60 °C / 5% to 95% @ 60 °C	-40 ~ 60 °C / 5% to 95% @ 60 °C
Cooling		8 x 4056 fan with Smart FAN control	6 x 6056 N+1 redundant fan with smart fan control	6 x 6056 N+1 redundant fan with smart fan control	4 x 8 cm (8076) hot-swappable dual-rotor PWM fans with fan speed control	4 x 8 cm (8076) hot-swappable dual-rotor PWM fans with fan speed control
Physical Characteristics	Dimensions (W x H x D)	438 x 44 x 788 mm (17.26" x 1.74" x 31.02")	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	438 x 87.5 x 810 mm (172.4" x 34.4" x 318.9")	438 x 87.5 x 810 mm (172.4" x 34.4" x 318.9")
	Weight (N.W.)	20 kg	18 kg	18 kg	50 kg	30 kg (w/o peripherals)
OS Support		Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server	–	–
Platform Management		• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2500 BMC • IPMI 2.0, KVM with shared NIC LAN	• ASPEED AST2600 BMC • IPMI 2.0, KVM with shared NIC LAN	• Aspeed AST2500 Carrier Grade BMC (IPMI v2.0 compliant) with fail-safe updates, web Interface, KVM, Redfish (Advantech IPMI Core)	• Aspeed AST2600 Carrier Grade BMC (IPMI v2.0 compliant) with fail-safe updates, web Interface, KVM, Redfish (Advantech IPMI Core)
Security		TPM 2.0, chassis intrusion, bezel Lock	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0 on board

"-" denotes "Not Available"

Server Boards

Model Name		ASMB-585	ASMB-785	ASMB-586	ASMB-786	ASMB-587	ASMB-787
Form Factor		Micro ATX	ATX	MicroATX	ATX	MicroATX	ATX
Processor System	CPU	Intel® Xeon® E3 v5/v6 and 6th/7th Gen Core™ i7/i5/i3 Series	Intel® Xeon® E3 v5/v6 and 6th/7th Gen Core™ i7/i5/i3 Series	Intel® Xeon® E & 8th/9th Gen Core™ i7/i5/i3 Series	Intel® Xeon® E & 8th/9th Gen Core™ i7/i5/i3 Series	IntelR XeonR W & 10th Gen Core™ i9/i7/i5/i3 Series	IntelR XeonR W & 10th Gen Core™ i9/i7/i5/i3 Series
	Socket	1 x LGA 1151	1 x LGA 1151	1 x LGA 1151	1 x LGA 1151	1 x LGA 1200	1 x LGA 1200
	Max. Speed	3.9 GHz	3.9 GHz	3.7 GHz	3.7 GHz	3.7 GHz	3.7 GHz
	UPI	–	–	–	–	–	–
	Chipset	Intel® C236	Intel® C236	Intel® C246	Intel® C246	Intel® W480E	Intel® W480E
	BIOS	AMI 128Mbit	AMI 128Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit
Expansion Slots	PCI	–	3	–	–	–	2
	PCIe x16	1	1 Switchable to two x8	1	1 Switchable to two x8	1	1 Switchable to two x8
	PCIe x8	–	2 Switchable to one x16	–	2 Switchable to one x16	–	2 Switchable to one x16
	PCIe x4	2	2	2	2	2	2
	PCIe x1	1 (PCIe x4 slot)	–	1	3	–	1
Memory	Technology	DDR4 ECC/non-ECC UDIMM up to 2400 MHz	DDR4 ECC/non-ECC UDIMM up to 2400 MHz	DDR4 ECC/non-ECC UDIMM up to 2666 MHz	DDR4 ECC/non-ECC UDIMM up to 2666 MHz	DDR4 ECC/non-ECC UDIMM up to 2933 MHz	DDR4 ECC/non-ECC UDIMM up to 2933 MHz
	Max. Capacity	64 GB	64 GB	64 GB	64 GB	128 GB	128 GB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics
Ethernet	Controller	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)
TPM 2.0		Optional	Optional	Optional	Optional	Optional	Optional
Storage	SATA 3	7	6	8	8	5	5
	M.2	–	–	–	–	1 2280/22110 (PCIe/SATA)	1 2242/2280 (PCIe/SATA)
Rear I/O	VGA/DVI/ HDMI/DP	1 / 2 / – / –	1 / 2 / – / –	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / 1 / 1 / –
	Ethernet	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)
	USB	4 x USB 3.2 Gen1	4 x USB 3.2 Gen1	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232 via cable)

"-" denotes "Not Available"

Server Boards

Model Name		ASMB-588	ASMB-788	ASMB-610	ASMB-610V3	ASMB-622	ASMB-622V3
Form Factor		MicroATX	ATX	Proprietary	Proprietary	Proprietary	Proprietary
Processor System	**CPU**	12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series	12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series	Intel® Xeon® W & 10th Gen Core™ i9/i7/i5/i3 Series	12th/13th Gen Intel® Core™ i9/i7/i5/i3 Series	3rd Gen Intel® Xeon® Scalable Series	4th Gen Intel® Xeon® Scalable Series
	Socket	1 x LGA 1700	1 x LGA 1700	1 x LGA 1200	1 x LGA 1700	2 x LGA 4189-P+	1 x LGA 4677
	Max. Speed	3.9 GHz	3.9 GHz	3.7 GHz	3.9 GHz	3.6 GHz	3.7 GHz
	UPI	–	–	–	–	UPI 11.2 GT/s	–
	Chipset	Intel® W680	Intel® W680	Intel® W480E	Intel® W680	Intel® C621A	Intel® C741
	BIOS	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit
Expansion Slots	**PCI**	–	2	–	–	–	–
	PCIe x16	1 (Gen5)	1 (Gen5)	1 Switchable to two x8	1 (Gen5) Switchable to two x8	4 (Gen4)	2 (Gen5) Switchable to four x8
	PCIe x8	–	–	–	–	4 (3 x Gen4 x8, 1 x Gen3 x4)	4 (Gen5)
	PCIe x4	2 (Gen4)	4 (3 x Gen4, 1 x Gen3)	2	2 (Gen4)	–	–
	PCIe x1	–	–	–	–	–	–
Memory	**Technology**	DDR5 ECC/ non-ECC UDIMM up to 4400 MHz	DDR5 ECC/ non-ECC UDIMM up to 4400 MHz	DDR4 ECC/ non-ECC UDIMM up to 2933 MHz	DDR5 ECC/ non-ECC UDIMM up to 4400 MHz	DDR4 RDIMM up to 3200 MHz, Intel® Optane DCPMM	DDR5 RDIMM up to 4400 MHz, Intel® Optane DCPMM
	Max. Capacity	128 GB	128 GB	128 GB	128 GB	1 TB	2 TB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	16 x 288-pin DIMM	16 x 288-pin DIMM
Graphics	**Controller**	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	AST2600	AST2600	AST2510/AST2500	AST2600
Ethernet	**Controller**	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I350AM4	1 x Intel® I350AM4	1 x Intel® I350AM4	1 x Intel® I350AM4
TPM 2.0		Optional by SPI	Optional by SPI	Optional	Optional by SPI	Onboard	Onboard
Storage	**SATA 3**	5	4	3	4	4	5 (1 x SATA 7P, 1 x SFF-8643)
	M.2	1 2280 (PCIe)	1 2280 (PCIe)	1 2280 (PCIe/SATA)	1 2280/22110 (PCIe/SATA)	1 2280 (PCIe/SATA)	2 2280/22110 (PCIe/SATA)
Rear I/O	**VGA/DVI/ HDMI/ DP**	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 1 x IPMI RJ-45	4 x GbE RJ-45 1 x IPMI RJ-45	4 x GbE RJ-45 1 x IPMI RJ-45	4 x GbE RJ-45 1 x IPMI RJ-45
	USB	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2	2 x USB 3.2 Gen2	2 x USB 3.2 Gen2	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1
	Audio	Mic-in, Line-out	Mic-in, Line-out	–	–	–	–
	Serial	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)

"-" denotes "Not Available"

Server Boards

Model Name		ASMB-815	ASMB-825	ASMB-816	ASMB-817	ASMB-830	ASMB-831
Form Factor		ATX	ATX	ATX	ATX	ATX	ATX
Processor System	CPU	2nd Gen Intel® Xeon® Scalable Series	2nd Gen Intel® Xeon® Scalable Series	3rd Gen Intel® Xeon® Scalable Series	4th Gen Intel® Xeon® Scalable Series	AMD EPYC™ 7002/7003 Series	AMD EPYC™ 9004 Series
	Socket	1 x LGA 3647-P0	2 x LGA 3647-P0	1 x LGA 4189-P+	1 x LGA 4677	1 x LGA 4094	1 x LGA 6096
	Max. Speed	3.6 GHz	3.6 GHz	3.6 GHz	3.7 GHz	3.7 GHz	3.0 GHz
	UPI	–	–	–	–	–	–
	Chipset	Intel® C620	Intel® C620	Intel® C621A	Intel® C741	–	–
	BIOS	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 512Mbit	AMI 256Mbit	AMI 512Mbit
Expansion Slots	PCI	–	–	–	–	–	–
	PCIe x16	2 Switchable to four x8	4	3 (Gen4)	3 (Gen5)	5 (Gen4)	5 (Gen5)
	PCIe x8	1	2	1	2 (Gen5)	2 (Gen4)	2 (Gen5)
	PCIe x4	1	–	2	1 (Gen5)	–	–
	PCIe x1	1	–	1	1	–	–
Memory	Technology	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz, Intel® Optane DCPMM	DDR5 RDIMM up to 4800 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz	DDR5 RDIMM up to 4800 MHz
	Max. Capacity	768 GB	768 GB	1 TB	2 TB	1 TB	768 GB
	Socket	6 x 288-pin DIMM	6 x 288-pin DIMM	8 x 288-pin DIMM	8 x 288-pin DIMM	8 x 288-pin DIMM	6 x 288-pin DIMM
Graphics	Controller	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500	AST2600	AST2500	AST2600
Ethernet	Controller	2 x Intel® I210AT 1 x Intel® X557- AT2 1 x Realtek 8201EL	2 x Intel® I210AT 1 x Intel® X557- AT2	2 x Intel® I210AT 1 x Intel® X550- AT2 1 x Realtek 8201F	2 x Intel® I210AT 1 x Intel® X710 (T2 SKU) 1 x Realtek 8211F	2 x Intel® I210AT 1 x Intel® X550-AT2 (T2 SKU) 1 x Realtek 8201F	1 x Intel® X710- AT2 1 x Realtek 8211F
TPM 2.0		Optional	Optional	Optional	Optional by SPI	Optional	Onboard
Storage	SATA 3	9	9	8	8	9	9
	M.2	1 2280 (PCIe/SATA)	1 2280 (PCIe/SATA)	1 2280/22110 (PCIe/ SATA)	1 2280/22110 (PCIe/ SATA)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)
Rear I/O	VGA/DVI/ HDMI/ DP	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x 10GbE RJ-45
	USB	4 x USB 3.2 Gen1 2 x USB 2.0	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1 2 x USB 2.0	2 x USB 3.2 Gen1 4 x USB 2.0	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1
	Audio	–	–	–	–	–	–
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)

"-" denotes "Not Available"

Server Boards

Model Name		ASMB-925	ASMB-927	ASMB-935	ASMB-975	ASMB-976	ASMB-977
Form Factor		EATX	EATX	EATX	Proprietary	Proprietary	Proprietary
Processor System	**CPU**	2nd Gen Intel® Xeon® Scalable Series	4th Gen Intel® Xeon® Scalable Series	2nd Gen Intel® Xeon® Scalable Series	2nd Gen Intel® Xeon® Scalable Series	3rd Gen Intel® Xeon® Scalable Series	4th Gen Intel® Xeon® Scalable Series
	Socket	2 x LGA 3647-P0	2 x LGA 4677	2 x LGA 3647-P0	2 x LGA 3647-P0	2 x LGA 4189-P+	2 x LGA 4677
	Max. Speed	3.6 GHz	3.7 GHz	3.6 GHz	3.6 GHz	3.7 GHz	3.7 GHz
	UPI	UPI 10.4 GT/s	UPI 16 GT/s	UPI 10.4 GT/s	UPI 10.4 GT/s	UPI 11.2 GT/s	UPI 16 GT/s
	Chipset	Intel® C620	Intel® C741	Intel® C620	Intel® C620	Intel® C621A	Intel® C741
	BIOS	AMI 256Mbit	AMI 512Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 512Mbit
Expansion Slots	**PCI**	1	–	–	–	–	–
	PCIe x16	5	4 (Gen5)	5	4	4 (Gen4)	5 (Gen5)
	PCIe x8	1	2 (Gen5)	1	1	7 (Gen4)	5 (Gen5)
	PCIe x4	–	–	–	4	–	–
	PCIe x1	–	–	–	–	–	–
Memory	**Technology**	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 4800 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz, Intel® Optane DCPMM	DDR5 RDIMM up to 4800 MHz, Intel® Optane DCPMM
	Max. Capacity	1.5 TB	4 TB	3 TB	1.5 TB	2 TB	4 TB
	Socket	12 x 288-pin DIMM	16 x 288-pin DIMM	24 x 288-pin DIMM	12 x 288-pin DIMM	16 x 288-pin DIMM	16 x 288-pin DIMM
Graphics	**Controller**	AST2510/AST2500	AST2600	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500	AST2600
Ethernet	**Controller**	2 x Intel® I210AT 1 x Intel® X557-AT2	1 x Intel® X710	2 x Intel® I210AT 1 x Intel® X557-AT2	2 x Intel® I210AT 1 x Intel® X557-AT2	2 x Intel® I210AT 1 x Intel® X550-AT2	2 x Intel® I210AT 1 x Intel® X710
TPM 2.0		Optional	Onboard	Optional	Optional	Optional	Onboard
Storage	**SATA 3**	8	9	10	14	10	9
	M.2	–	1 2280 (PCIe/SATA)	1 2280 (PCIe/SATA)	2 2242 (SATA)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)
Rear I/O	**VGA/DVI/ HDMI/DP**	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x 10GbE RJ-45	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)
	USB	4 x USB 3.2 Gen1	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1	4 x USB 3.2 Gen1	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1
	Audio	–	–	–	–	–	–
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)

"-" denotes "Not Available"

Server Chassis

Height (1U = 1.75")		Tower		1U		
Model Name		**HPC-5000**	**HPC-7000**	**HPC-6120**	**HPC-7120S**	**HPC-7140**
Form Factor Support		Micro ATX	Micro ATX, ATX, EATX	Proprietary	Micro ATX, ATX	Micro ATX, ATX
No. of Slots / No. of Full-Height Cards		4/4	7/7	4/2 (10.5" L)	1/1	1/1
Drive Bay	**Slim ODD Bay**	1	1	–	–	1
	3.5" (hot-swappable)	–	–	–	–	4 (3.5" / 2.5")
	3.5" (internal)	2 x 3.5" or 1 x 3.5" + 1 x 2.5"	3	–	–	–
	2.5" (hot-swappable)	–	–	2	2 (HPC-7120S-35ZXE only)	–
	2.5" (internal)	–	–	–	2	–
	NVMe Support	–	–	–	–	–
Cooling	**Chassis Fan**	1 (12 cm / 82 CFM)	2 (12 cm / 150 CFM)	3 (4 cm / 34 CFM) 2 (4 cm / 28 CFM)	3 (4 cm / 23.1 CFM)	4 (4 cm / 23 CFM)
	Air Filter	Yes	–	–	–	–
Front I/O	**USB 3.2 Gen1**	2	2	2	2	-
	USB 2.0	2	–	-	-	2
Power Supply	**Single Power Supply**	300W/500W	500W/1200W	500W/650W	350W/850W	350W/500W
	Redundant Power Supply	–	–	650W (Optional)	–	–
LED Indicators	**System**	Power	Power	Power, Information LAN1~LAN4	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2
	HDD	–	–	Power Activity LED	Power Activity LED	Power Activity LED
Environment	**Operating Temperature**	0 ~ 40 ℃ (32 ~ 122 ℉)	0 ~ 40 ℃ (32 ~ 122 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 35 ℃ (32 ~ 95 ℉)
	Operating Humidity	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 85% @ 40 ℃, non-condensing
Physical Characteristics	**Dimensions (W x H x D)**	192 x 376.7 x 338.5 mm (7.56" x 14.83" x 13.33")	267.1 x 458 x 500 mm (10.52" x 18.03" x 19.69")	438 x 44 x 480 mm (17.24" x 1.73" x 18.9")	438 x 43 x 381 mm (17.24" x 1.7" x 15")	437 x 43 x 504mm (17.2" x 1.7" x 19.85")

"-" denotes "Not Available"

Server Chassis

Height (1U = 1.75")		2U			3U/Tower	4U
Model Name		**HPC-6240**	**HPC-7242**	**HPC-7282**	**HPC-7320**	**HPC-7420**
Form Factor Support		Proprietary	Micro ATX, ATX	Micro ATX, ATX	Micro ATX, ATX, EATX	ATX, EATX, EE-ATX
No. of Slots / No. of Full-Height Cards		8/8	3/3, 7/0	7/0	7/7	11/11
Drive Bay	**Slim ODD Bay**	1 (Ultra Slim)	1	1	1	1
	3.5" (hot-swappable)	–	4 (3.5" / 2.5")	8 (3.5" / 2.5")	2 (3.5" / 2.5")	–
	3.5" (internal)	–	–	2	2	2
	2.5" (hot-swappable)	4	–	–	–	2 (Optional)
	2.5" (internal)	–	2	–	–	2 (Optional)
	NVMe Support	–	–	–	–	–
Cooling	**Chassis Fan**	3 (8 cm / 132 CFM) 1 (6 cm / 75 CFM)	1 (8 cm / 75.2 CFM) 2 (6 cm / 28 CFM)	3 (8 cm / 52.6 CFM)	2 (8 cm / 57 CFM) 1 (6 cm / 27.72 CFM)	3 (12 cm / 238 CFM) for HPC-7420-12ZX 3 (8 cm / 57 CFM) for HPC-7420-85ZX
	Air Filter	–	Yes	–	Yes	Yes
Front I/O	**USB 3.2 Gen1**	2	2	–	2	–
	USB 2.0	–	–	2	–	–
Power Supply	**Single Power Supply**	1200W	350W/500W	500W/850W	500W/850W	850W/1200W
	Redundant Power Supply	1200W	550W	550W/800W	550W/800W	1200W (Optional)
LED Indicators	**System**	Power, Information LAN1~LAN4	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2	Power LAN1, LAN2	Power, Information LAN1, LAN2
	HDD	Power Activity LED	Power Activity LED	Power Activity LED	Power Activity LED	Power Activity LED
Environment	**Operating Temperature**	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 50 °C (32 ~ 122 °F)
	Operating 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
Physical Characteristics	**Dimensions (W x H x D)**	438 x 88 x 523 mm (17.24" x 3.46" x 20.59")	426.4 x 88 x 525 mm (16.79" x 3.46" x 20.67")	437 x 88.9 x 533.4 mm (17.2" x 3.5" x 21")	426.4 x 132.2 x 480 mm (16.79" x 5.2" x 18.9")	438 x 177 x 450 mm (17.24" x 6.97" x 17.7")

"-" denotes "Not Available"

Server Chassis

Height (1U = 1.75")		4U			1U	
Model Name		**HPC-7442**	**HPC-7484**	**HPC-7485**	**HPC-8104**	**HPC-8108**
Form Factor Support		Micro ATX, ATX, EATX	Micro ATX, ATX, EATX	ATX, EATX, EE-ATX	Micro ATX, ATX	ATX, EATX
No. of Slots / No. of Full-Height Cards		7/7	7/7	11/11	1/1	1/1
Drive Bay	Slim ODD Bay	1	1	1	1 (Ultra Slim)	1
	3.5" (hot-swappable)	4, upgradable to 8 (3.5" / 2.5")	8 (3.5" / 2.5")	8 (3.5" / 2.5")	4 (3.5" / 2.5")	–
	3.5" (internal)	2	–	–	–	–
	2.5" (hot-swappable)	–	–	–	–	8 x SAS3 or SATA
	2.5" (internal)	–	1	2	2 or 3 (Optional)	–
	NVMe Support				–	–
Cooling	Chassis Fan	1 (12 cm / 114 CFM) 1 (8 cm / 55 CFM)	2 (12 cm / 150.33 CFM)	3 (12 cm / 238 CFM) for HPC-7485-20RX 3 (12 cm / 232 CFM) for HPC-7485-12RX	4 (4 cm / 34 CFM)	4 (4 cm / 34 CFM)
	Air Filter	Yes	Yes	–	–	–
Front I/O	USB 3.2 Gen1	–	2	2	2	–
	USB 2.0	2	–	–	–	1
Power Supply	Single Power Supply	500W/700W	700W/1200W	–	500W	800W
	Redundant Power Supply	500W	–	1200W/2000W	650W	650W
LED Indicators	System	Power LAN1, LAN2	Power LAN1, LAN2	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2
	HDD	Power Activity LED	Power Activity LED	Power Activity LED openings	–	–
Environment	Operating Temperature	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 35 ℃ (32 ~ 95 ℉)
	Operating Humidity	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 40 ℃, non-condensing	10 ~ 95% @ 35 ℃ non-condensing
Physical Characteristics	Dimensions (W x H x D)	426 x 177 x 600 mm (16.7" x 7.0" x 23.6")	426 x 177 x 630 mm (16.7" x 7.0" x 24.8")	435 x 176 x 660mm (17.1" x 6.9" x 25.9")	438 x 43.9 x 530 mm (17.24" x 1.73" x 20.9")	438 x 43.9 x 597 mm (17.24" x 1.73" x 23.5")

"-" denotes "Not Available"

Server Chassis

Height (1U = 1.75")		2U		3U	4U
Model Name		HPC-8208	HPC-8212	HPC-8316	HPC-8424
Form Factor Support		ATX, EATX	ATX, ATX, EATX	Micro ATX, ATX	ATX, EATX
No. of Slots / No. of Full-Height Cards		7/0, 3/3	7/0, 3/3 (1 for RAID Card)	7/7 (1 for RAID Card)	7/7 (1 for RAID Card)
Drive Bay	**Slim ODD Bay**	1	–	–	–
	3.5" (hot-swappable)	8 (3.5" / 2.5")	12 (3.5" / 2.5")	16 (3.5" / 2.5")	24 (3.5" / 2.5")
	3.5" (internal)	–	–	–	–
	2.5" (hot-swappable)	–	2 (Rear) only HPC-8212SE-65RB1	2 (Rear)	2 (Rear)
	2.5" (internal)	2	–	–	–
	NVMe Support	–	4 in 12 Hot-Swappable Drive Bays	–	4 in 24 Hot-Swappable Drive Bays
Cooling	**Chassis Fan**	3 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)
	Air Filter	–	–	–	–
Front I/O	**USB 3.2 Gen1**	2	–	2	–
	USB 2.0	–	2	–	2
Power Supply	**Single Power Supply**	850W	–	–	–
	Redundant Power Supply	550W, 800W	550W, 650W, 800W	550W	800W
LED Indicators	**System**	LAN1, LAN2, HDD, Power and Information LED	LAN1, LAN2, HDD, Power and Information LED	LAN1, LAN2, HDD, Power and Information LED	LAN1, LAN2, HDD, Power and Information LED
	HDD	–	–	–	–
Environment	**Operating Temperature**	0 ~ 40 ℃ (32 ~ 104 ℉)	0 ~ 35 ℃ (32 ~ 95 ℉)	0 ~ 35 ℃ (32 ~ 95 ℉)	0 ~ 35 ℃ (32 ~ 95 ℉)
	Operating Humidity	10 ~ 95% @ 40 ℃ non-condensing	10 ~ 95% @ 35 ℃ non-condensing	10 ~ 95% @ 35 ℃ non-condensing	10 ~ 95% @ 35 ℃ non-condensing
Physical Characteristics	**Dimensions (W x H x D)**	438 x 88 x 620 mm (17.25" x 3.46" x 24.4")	438 x 88.4 x 540 mm (17.24" x 3.48" x 21.26") 438 x 88.4 x 620 mm (17.24" x 3.48" x 24.41")	435 x 132 x 540 mm (17.13" x 5.2" x 21.26")	438 x 176 x 620 mm (17.24" x 6.93" x 24.41")

"-" denotes "Not Available"

WISE-STACK Private Cloud

Model		WISE-STACK200-BH (standard product)	WISE-STACK200-OH (including OpenStack)	WISE-STACK200-AS (Azure Stack HCI)		WISE-STACK200-DS (single node for Digital Twin)	WISE-STACK200-GS (single node for graphical AI)
Service	**WISE-PaaS Service**	WISE-PaaS/EnSaaS K8s Service (BI / Digital Twin, AI)	WISE-PaaS/EnSaaS K8s Service (BI / Digital Twin, AI)	WISE-PaaS/EnSaaS K8s Service (BI / Digital Twin, AI)		WISE-PaaS/EnSaaS K8s Service (BI / Digital Twin, AI)	WISE-PaaS/EnSaaS K8s Service (BI / Digital Twin, AI)
	IaaS Service	Kubernetes, supports RBAC model-based multi-tenancy, HA	OpenStack supports full function multi-tenancy, HA	Full MS Azure infra services		Kubernetes Bare metal	Kubernetes Bare metal
Computing Resources	**Processor**	vCPU: 120 cores	vCPU: 120 cores	64 vCPU per node		AMD EPYC 7313P x1	Intel® Xeon® Silver 4216 16Cx2
	GPU Card	–	–	Optional		Optional	Nvidia Quadro RTX A5000 x 2
	Memory	768 GB	768 GB	256 GB		128 GB	256 GB
	RAM	32G DDR4 ECC REG x 24	32G DDR4 ECC REG x 24	32G DDR4 ECC REG x 8		32G DDR4 ECC REG x 4	32G DDR4 2933 ECC REG x 8
	Storage	16 TB (Replica 3)	32 TB (Replica 3)	All Flash	Hybrid	4 TB x2	8 TB (Replica 2)
	OS Disk	Industrial SATA3 240GB SSD x 6	Enterprise SATA3 480GB SSD x 6	480GB x 2	480GB x 2	Enterprise SATA3 480GB SSD x 2	Industrial SATA3 240GB SSD x 2
	Cache	Industrial SATA3 240GB SSD x 6	Enterprise SATA3 480GB SSD x 6	–	960GB x 2	–	Industrial SATA3 240GB SSD x 2
	3.5" HDD	Enterprise SATA3 4TB 7200rpm HDD x 12	Enterprise SATA3 4TB 7200rpm HDD x 24	2.5" 960GB SSD x 4 instead	4TB x 8	Enterprise SATA3 6TB 7200rpm HDD x 2	Enterprise SATA3 4TB 7200rpm HDD x 4
	Server Configuration in Rack	All-in-one node x 3	OpenStack HCI node x 3	Single node	3-4 nodes in a cluster	All-in-one node x 1	All-in-one node x 1
OS Support in VM	**Windows**	–	Since Windows Server 2008, Support in VM	Since Windows Server 2008, Support in VM		–	–
	Linux	Native Debian 7	Since CentOS 5, Ubuntu 18.04, Supported in VM	Since CentOS 5, Ubuntu 18.04, Supported in VM		Native Debian 7	Native Debian 7
Security	**Anti-Virus**	Optional	Optional	Optional		Optional	Optional
Networking	**Networking**	10GbE SPF + x 12, 1GbE RJ-45 x 6, IPMI (1GbE RJ-45) x 3	10GbE SPF + x 12, 1GbE RJ-45 x 6, IPMI (1GbE RJ-45) x 3	10GbE SPF + x 4, 1GbE RJ-45 x 2, IPMI (1GbE RJ-45) x 1		10GbE SPF + x 4, 1GbE RJ-45 x 2, IPMI (1GbE RJ-45) x 1	10GbE SPF + x 4, 1GbE RJ-45 x 2, IPMI (1GbE RJ-45) x 1
	Network Switch	10GbE SPF + x 12, 10GbE RJ-45 x 12 (x2)	10GbE SPF + x 12, 10GbE RJ-45 x 12 (x2)	Optional		Optional	Optional
Server Selection	**Server in Rack**	SKY-7221 x 3	SKY-7221 x 3 and more	SKY-7221 x1~4		HPC-8208 x1	SKY-7221 x 1
	Server Product Photo						

"-" denotes "Not Available"

PCI Express Adapters

Model Name		PCIE- 1130PS	PCIE-1131PS	PCIE-1220PS	PCIE-1221PS	PCIE-2131BP
Description		Quad Port Copper GbE w/ Intel® I350	Quad Port Fiber GbE w/ Intel® I350	Dual Port Fiber 10GbE w/ Intel® X710-BM2	Dual Port Copper 10GbE w/ Intel® X550-AT2	Quad Port Copper LAN Bypass GbE w/ Intel® I350
Chipset		Intel® I350	Intel® I350	Intel® X710-BM2	Intel® X550-AT2	Intel® I350
Network Interfaces	Ports	4 x RJ-45	4 x SFP	2 x SFP+	2 x RJ-45	4 x RJ-45
	Media	GbE Copper	GbE Fiber	10GbE Fiber	10GBase-T Copper	GbE Copper
Form Type		Advantech form factor	Advantech form factor	Advantech form factor	Advantech form factor	Standard low profile
PCIe		PCIe Gen2 x4	PCIe Gen2 x4	PCIe Gen3 x8	PCIe Gen3 x4	PCIe Gen2 x4
Heatsink		Passive	Passive	Passive	Passive	Passive
LAN Bypass		Not supported	Not supported	Not supported	Not supported	Supported
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	5 W	5 W	8.5 W	12.5 W	5 W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)
	Storage Temperature	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimensions	110 x 68.9 mm	110 x 68.9 mm	110 x 68.9 mm	110 x 68.9 mm	167 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available

PCI Express Adapters

Model Name		PCIE-2221BP	PCIE-2230NP	PCIE-2231NP	PCIE-2232BP	PCIE-2320NP
Description		Dual Port LAN Bypass 10GbE w/ Intel® X710-BM2	Quad Port Fiber 10GbE w/ Intel® XL710-BM1	Quad Port Copper 10GBase-T w/ Intel® XL710-BM1 & X557-AT4	Quad Port Copper 10GBase-T LAN Bypass w/ Intel® XL710-BM1 & X557-AT4	Dual Port Fiber 40GbE w/ Intel® XL710-BM2
Chipset		Intel® X710-BM2	Intel® XL710-BM1	Intel® XL710-BM1 + X557-AT4	Intel® XL710-BM1 + X557-AT4	Intel® XL710-BM2
Network Interfaces	**Ports**	Fiber bypass module	4 x SFP+	4 x RJ-45	4 x RJ-45	2 x QSFP+
	Media	10GbE Fiber	10GbE Fiber	10GBase-T Copper	10GBase-T Copper	40GbE Fiber
Form Type		Standard low profile	Standard low profile	Standard low profile	Standard full height	Standard low profile
PCIe		PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8
Heatsink		Passive	Passive	Passive	Passive	Passive
LAN Bypass		Supported	Not supported	Not supported	Supported	Not supported
Power	**Voltage**	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	10 W	9 W	12.5 W	18 W	9 W
Environment	**Operating Temperature (air flow 0.7 m/sec)**	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 45 ℃ (32 ~ 113 ℉)	0 ~ 55 ℃ (32 ~ 131 ℉)
	Storage Temperature	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)	-40 ~ 65 ℃ (-40 ~ 149 ℉)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	**Dimensions**	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167.6 x 98.4 mm	167 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Standard full height	Full height and half height options available

PCI Express Adapters

Model Name		PCIE-2420NP	PCIE-2531NP	PCIE-2421NP	PCIE-2521NP
Description		Dual Port Fiber 100GbE w/ NVIDIA® ConnectX-5	Quad Port Fiber 25GbE w/ Intel® E810-CAM1	Dual Port Fiber 100GbE w/ NVIDIA® ConnectX-6	Dual Port Fiber 25GbE w/ NVIDIA® ConnectX-6
Chipset		NVIDIA® ConnectX-5	Intel® E810-CAM1	NVIDIA® ConnectX-6	NVIDIA® ConnectX-6
Network Interfaces	Ports	2 x QSFP28	2 x SFP28	2 x QSFP56	2 x SFP28
	Media	100GbE Fiber	25GbE Fiber	100GbE Fiber	25GbE Fiber
Form Type		Standard low profile	Standard low profile	Standard low profile	Standard low profile
PCIe		PCIe Gen3 x16	PCIe Gen4 x16	PCIe Gen4 x16	PCIe Gen4 x8
Heatsink		Passive	Passive	Passive	Passive
LAN Bypass		Not supported	Not supported	Not supported	Not supported
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	15 W	15 W	20W	12W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 45 °C (32 ~ 113 °F)	0 ~ 55 (32 ~ 131 °F)	0 ~ 55 (32 ~ 131 °F)	0 ~ 55 (32 ~ 131 °F)
	Storage Temperature	-40 ~ 65 °C (-40 ~ 149 °F)	-40 ~ 65 °C (-40 ~ 149 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimensions	167 x 68.9 mm	167 x 68.9 mm	142 x 68.9 mm	96.3 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available

PCI Express Adapters

Model Name		PCIE-2711NP	PCIE-5421NP	PCIE-5521NP	PCIE-5711NP
Description		Single Port Fiber 200GbE w/ NVIDIA® ConnectX-6	Dual Port Fiber 100GbE w/ NVIDIA® BlueField-2	Dual Port Fiber 25GbE w/ NVIDIA® BlueField-2	Single Port Fiber 200GbE w/ NVIDIA® BlueField-2
Chipset		NVIDIA® ConnectX-6	NVIDIA® BlueField-2	NVIDIA® BlueField-2	NVIDIA® BlueField-2
Network Interfaces	**Ports**	1 x QSFP56	2 x QSFP56	2 x SFP56	1 x QSFP56
	Media	200GbE Fiber	100GbE Fiber	25GbE Fiber	200GbE Fiber
Form Type		Standard low profile	Standard full height	Standard full height	Standard low profile
PCIe		PCIe Gen4 x16	PCIe Gen4 x16	PCIe Gen4 x8	PCIe Gen4 x16
Heatsink		Passive	Passive	Passive	Passive
LAN Bypass		Not supported	Not supported	Not supported	Not supported
Power	**Voltage**	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	17W	150W (75W PCIe golden fingers + 75W 6-pin ATX connector)	150W (75W PCIe golden fingers + 75W 6-pin ATX connector)	75W
Environment	**Operating Temperature (air flow 0.7 m/sec)**	0 ~ 55 ℃ (32 ~ 131 ℉)	0 ~ 45 ℃ (32 ~ 113 ℉)	0 ~ 45 ℃ (32 ~ 113 ℉)	0 ~ 45 ℃ (32 ~ 113 ℉)
	Storage Temperature	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)	-40 ~ 70 ℃ (-40 ~ 158 ℉)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	**Dimensions**	142 x 68.9 mm	167.65 x 68.9 mm	167.65 x 68.9 mm	167.65 x 68.9 mm
	Bracket	Full height and half height options available	Standard full height	Standard full height	Full height and half height options available

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