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# High Performance Industrial Server & Storage Solutions

Committed Industrial Server and Storage Provider with Flexible, High-performance, Long-Lifespan Products

- ✓ Server Chassis
- ✓ Server Board
- ✓ GPU Server
- ✓ Video Wall Controller
- ✓ Industrial Storage



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With Innovative technologies for the IoT, Advantech has transformed embedded systems into intelligent systems with smart, secure, energy efficient features, with remote manageability, virtualization services, as well as professional system Configure-To-Order Services (CTOS) and Design-To Order Services (DTOS). Advantech HPC and storage products include Server-grade IPCs, Video Wall Controllers, GPU Servers, and Industrial Storage, from components to systems providing flexible assembly and longevity. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries, such as equipment building, transportation, surveillance, broadcasting, intelligent video, and industrial cloud.

## Alliance Partners:



# Railroad PSCADA System

## Maintaining Railroad Power Supply and Security from Minute to Minute

### Project

For modern railroad systems, a reliable supply of electrical power is a matter of life and death. Power substations along railroad systems transform voltage from the city grid into voltage suitable for trains. The equipment in these power substations requires close monitoring to ensure normal operations and security. One of our Chinese customers was in charge of building a Power Supervisory Control and Data Acquisition (PSCADA) system for a certain railroad system in China. They found Advantech's industrial server-grade computers the right choice for this mission.

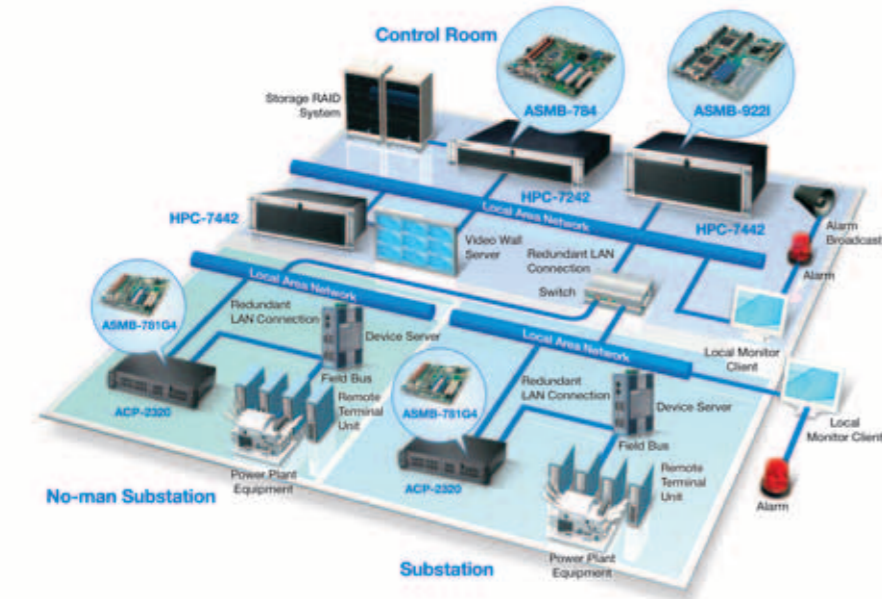


### System

Advantech's Industrial motherboard ASMB-310 was adopted for the central management server, which requires high computing power and reliable network connection. It is also suggested for the storage server which requires large storage capacity and data read/write reliability, while ASMB-781 motherboard is recommended for the front end IPC, that requires non-stop operation and remote manageability.

### Requirements

- High computing power
- Remote manageability
- Power and Ethernet redundancy
- Huge data storage capacity with hot swappable drive bays



### Conclusion

These Advantech industrial motherboards and chassis are ideal for PSCADA applications as they are particularly rugged and durable, delivering massive computing performance and data storage capacity with power and networking redundancy, and most importantly, supporting remote control and management. These features ensure the system can operate smoothly 24/7, with maximum security. This is important for monitoring railway power, where there is no room for error.

# Airport Video Wall Controller System

## Powerful Server-grade Computer for Multiple Displays

### Project

A Chinese international airport was seeking to replace its old LED flight summary boards with a state-of-the-art video wall that, in addition to the conventional flight details that keep passengers on time, would also display airport promotional materials, destination information and other vibrant content. As the airport accommodates millions of passengers each year, their system would have to be accurate, powerful, rugged and reliable enough for 24/7 non-stop operation, with no errors tolerated. These requirements add up to a perfect combination of displays, content, and connectivity.

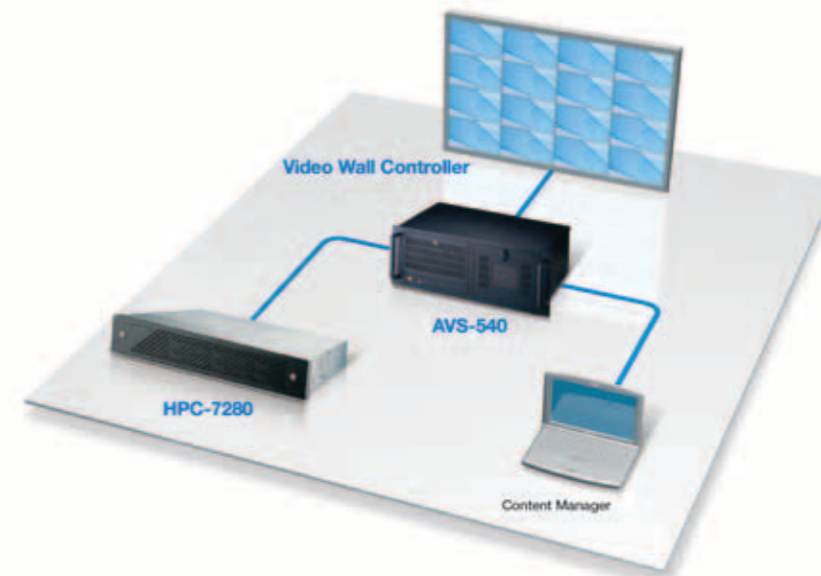


### System

Advantech's AVS-540 installing Five Matrox multi-display graphics cards. With the powerful Matrox graphics driver and utility, a system developer can easily configure and combine the displays to form a big video wall and the content manager can remotely manage it with a mobile device such as a pad or a laptop PC.

### Requirements

- Video Wall Controller required five Matrox Multi-display graphics cards to form a video wall
- Rugged and reliable for round-the-clock operation
- High resolution video quality
- Remote control and management
- Long product life and long RMA service guarantee



### Conclusion

Advantech's AVS-540 was ideal for this video wall controller system because of its strong expandability, durability and remote management functionality. Advantech's industrial server provides rich expansion slots to facilitate specialized purposes. In alliance with other companies, Advantech can deliver all-in-one solutions combining hardware, accessories and software tools for purposed applications. For example, we have a cooperative relationship with Matrox, the world's leading supplier of specialized graphics cards.

## Implemented Products



**HPC-7242**  
2U Rackmount Chassis for ATX Motherboard



**ASMB-784**  
LGA 1150 Intel® Xeon® E3 V3 ATX Server Board with 2 PCIe x16 slots (x8 link) or 1 PCIe x16 slot (x16 link), 3 PCI, USB 3.0, PCIe Gen III, Quad/Dual LANs



**HPC-7442**  
4U Rackmount/Tower Chassis for EATX/ATX Motherboard



**ASMB-9221**  
Dual LGA 2011 Intel® Xeon® E5-2600 (v2) EATX Server Board with DDR3, 3 PCIe x16 + 1 PCIe x8 (Gen 3.0), PME support

## Implemented Products



**AVS-540**  
4U Intel® Xeon® E5-2600 Video Wall Controller, Supporting 20-output Video Wall and Validating by Matrox and Datapath



**HPC-7280**  
2U Rackmount Chassis for EATX Serverboard with 8 Hot-swap Hard Drive Cages

# Video Transcoding System

## GPU Accelerated System for Video Processing and Transcoding

### Project

GPU servers accelerate compute-intensive image processing within Video Processing and Transcoding, including scaling, deinterlacing, frame rate conversion, motion vector calculation, and other tasks that require computation and analysis to modify or create new video frames. Faster video preprocessing acceleration benefits the output quality of all video output formats, for both transcoding and automated content assembly.



### System

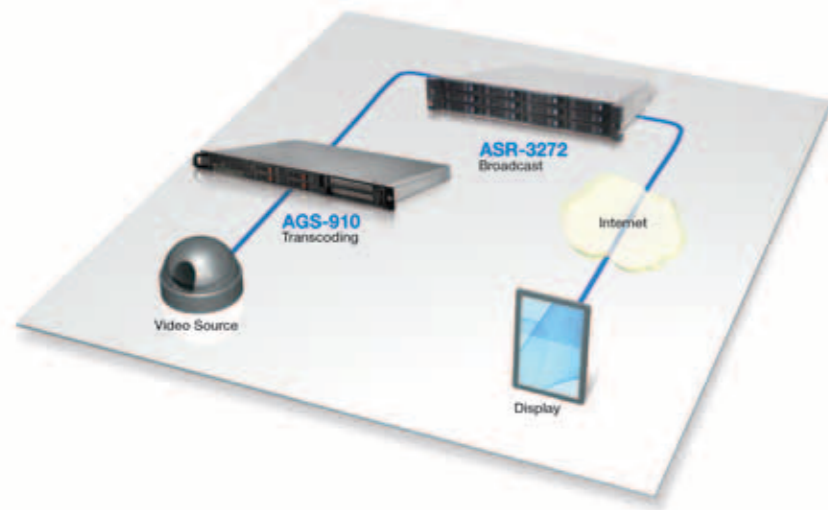
Advantech's industrial GPU server AGS-910 was adopted for streaming transcoding, which requires accelerated video processing and H.264 transcoding with GPUs and multicore CPUs. AGS-910 is also suggested for cloud gaming, medical imaging, and data analysis, all of which benefit from GPU acceleration.

### Requirements

- Deinterlacing
- Video Image Scaling
- Frame Rate Conversion
- Accelerated x264 Encoding

### Conclusion

Advantech's GPU server system was ideal for this GPU acceleration system. Its massive parallel processing power and unrivaled networking flexibility with three PCI-E 3.0 expansion slots, four Gigabit Ethernet, and IPMI remote management deliver the highest quality with extreme optimization for the computation-intensive applications.



# Road Security System

## Industrial Cloud Solution for the Surveillance Application

### Project

Traffic safety is a concern for governments worldwide, and a significant number of measures have been taken to enhance the security in the transportation system. One of our Italian customers, a professional transport solution provider, took charge of building a new-generation highway security system in the EU. Hundreds of vehicle scanning systems were to be placed in cabinets beside the highway. Each car in each lane would be photographed twice in passing and the images stored in the system for at least a month. Tens of thousands of vehicles pass the checkpoints every day, and each system had to provide for 24/7 operation without service disruption, yet with fault-tolerant data retention, plus easy maintenance.

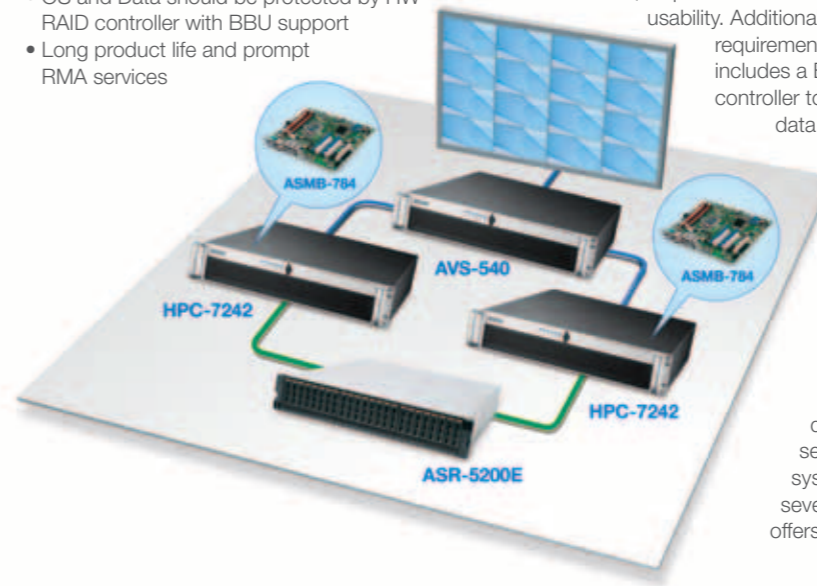


### Requirements

- Full redundancy with failover function, including host server and storage
- Full Remote management
- OS and Data should be protected by HW RAID controller with BBU support
- Long product life and prompt RMA services

### System

All Advantech Industrial Server solutions already have SUSIAccess value-added software built in, which gives capability for real time remote management, including system monitoring, automatic alerts via email and SMS, remote KVM, and power-on/off for easy maintenance and updates for hard-to-reach devices. Additionally, with its dual redundant controller configuration, ASR-5200E is a highly reliable storage system with comprehensive functions; its protected OS and databases stay safe and greatly raise system usability. Additionally, the centralized storage architecture decreases HDD requirements and increases capacity utilization rate. The storage includes a BBU (battery backup unit) and flash module inside each controller to provide enough power for metadata saving; this ensures data integrity even during a power outage.



### Conclusion

Road surveillance is an important safety mechanism that helps governments to enhance citizen security against various hazards that exist today. However, in view of the complex HW combinations, various SW compatibility issues, and diverse installations and setup, who can offer a total solution, and then handle the details of system deployment, from front-end IP-cam, networking, host server, to back-end storage, and also make sure that system integration works well? Whether it's an SMB with several IP-Cams, or a full-on road security system, Advantech offers a total solution that is 100% reliable.

## Implemented Products



### AGS-910

1U Rackmount Xeon E5-2600(v2) GPU server, Supporting 3 x PCIe x16 double-deck card + 1 x PCIe x8 single-deck FH/HL card



### ASR-3272

2U 12-bay Storage Appliance with Reliable Data Protection and Backup Solution

## Implemented Products



### HPC-7242

2U Rackmount Chassis for ATX Motherboard with 4 SAS/SATA HDD Trays



### ASMB-784

LGA 1150 Intel® Xeon® E3 V3 ATX Server Board with 2 PCIe x16 slots (x8 link) or 1 PCIe x16 slot (x16 link), 3 PCI, USB 3.0, PCIe Gen III, Quad/Dual LANs



### ASR-5200E

High-availability Disk Array Solution for Mission-critical Service with Zero Down Time

# Medical Image System

## CT Image Component

### Project

For modern healthcare, computed tomography (CT) is a big breakthrough that allows medical professionals to explore inside the human body without cutting it open. Thanks to advancements in computer technology, these medical images dramatically enhance diagnostic ability. One of our European customers supplies such medical imaging systems. These systems not only provide great image data transfer and storage, but also offer reduced chassis dimensions and reduced noise via smart fan control.



### System

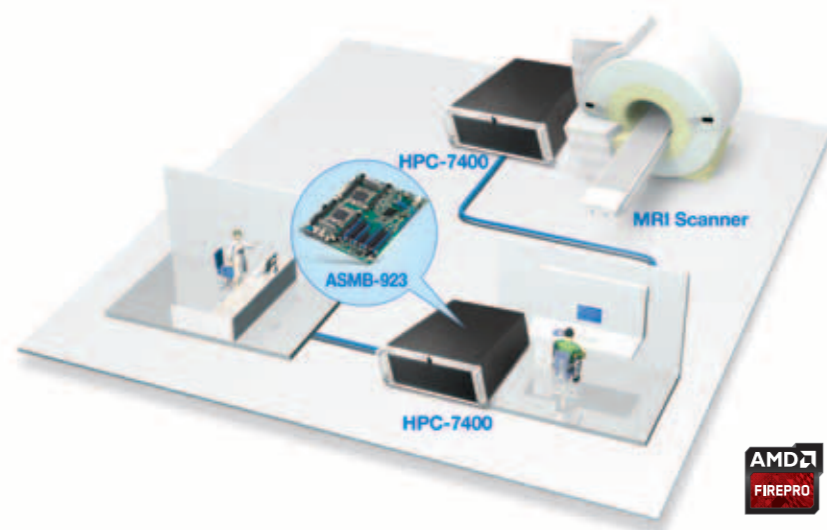
ASMB-923 is perfect as the imaging workstation in such an application, featuring Intel® Xeon® E5-2600 V3 series processors, 8 DIMMs up to 128 GB capacity, and rich expansion I/O interfaces. ASMB-923 offers extreme performance in computing speed, memory capacity and fast, reliable networking. To ensure the system operates reliably and smoothly, ASMB-923 has multiple built-in GbE LANs which support redundant networking. It also has 10 SATA ports supporting RAID 0, 1, 5, and 10, to offer high capacity, high performance, and high reliability for image data storage.

### Requirements

- Massive data storage capacity with hot swappable storage bays
- Short depth chassis with smart fan control
- GigaLAN with networking redundancy for reliable image data transmission

### Conclusion

For medical image systems, data storage and transfer ability are the most important things. Advantech's industrial ASMB-923 motherboard has a great CPU performance, massive data storage, remote management, and smart fan control. It delivers extreme performance at a low cost, and is available with a 5-year extended warranty and 7-year product supply, provided by Advantech's localized logistics support.



# Factory Automation (SCADA)

### Project

A certain factory needed a SCADA (Supervisory Control And Data Acquisition) Server that would enhance system performance and at the same time reduce infrastructure costs. In order to have a fully integrated system, our customer asked for a SCADA server with remote management, virtualization, and storage capacity.

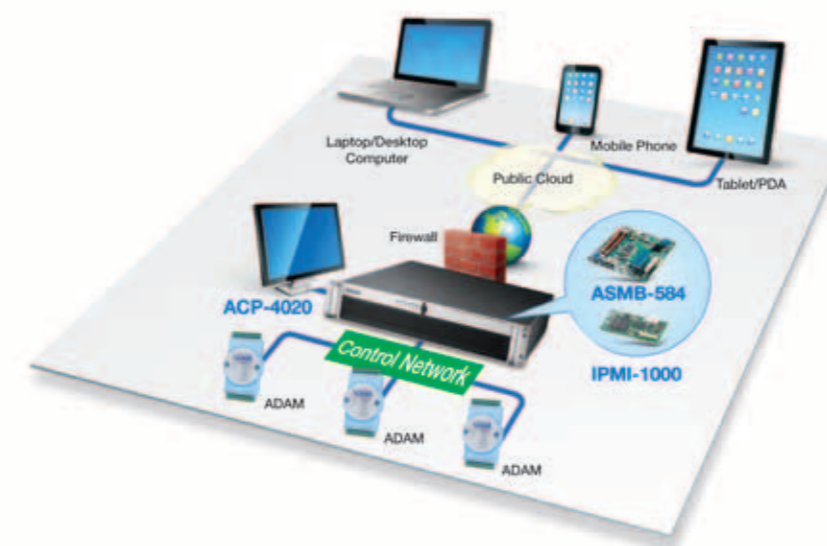


### Requirements

- Massive data storage capacity with hot swappable storage bays
- Full support for virtualization S/W, ex, VMware, etc.
- Out-of-band remote management, IPMI 2.0, supported.

### System

ASMB-584 was a perfect solution, with uATX form factor, it easily fitted into the shorter-depth server chassis ACP-4020. For optional IPMI-1000, it can upgrade to IPMI remote management to ensure reliability and accessibility even if the operating system crashes. At the same time, ASMB-584 is an industrial serverboard, featuring an Intel® Xeon® E3 V3 series CPU, C226 chipset, and built-in Intel® Gb LAN chips, which makes it an optimized solution that can operate in a virtualized system environment.



### Conclusion

For a SCADA server system, computing power, reliability, and management are major considerations. Advantech's ASMB-584 serverboard, and ACP-4020 industrial chassis made an ideal choice. They are also available with a 5-year extended warranty and 7-year product supply, provided by Advantech's localized logistics support.

## Implemented Products



### HPC-7400

Compact 4U workstation / tower short depth chassis with smart fan control.

COMING SOON



### ASMB-923

Dual LGA 2011-R3 Intel Xeon® E5-2600V3 EATX Server Board with DDR4, 4 PCIe x16+2 PCIe x8(Gen 3.0), 4 USB 3.0

## Implemented Products



### ACP-4020

Compact 4U rackmount short depth chassis with smart fan control.



### ASMB-584G2

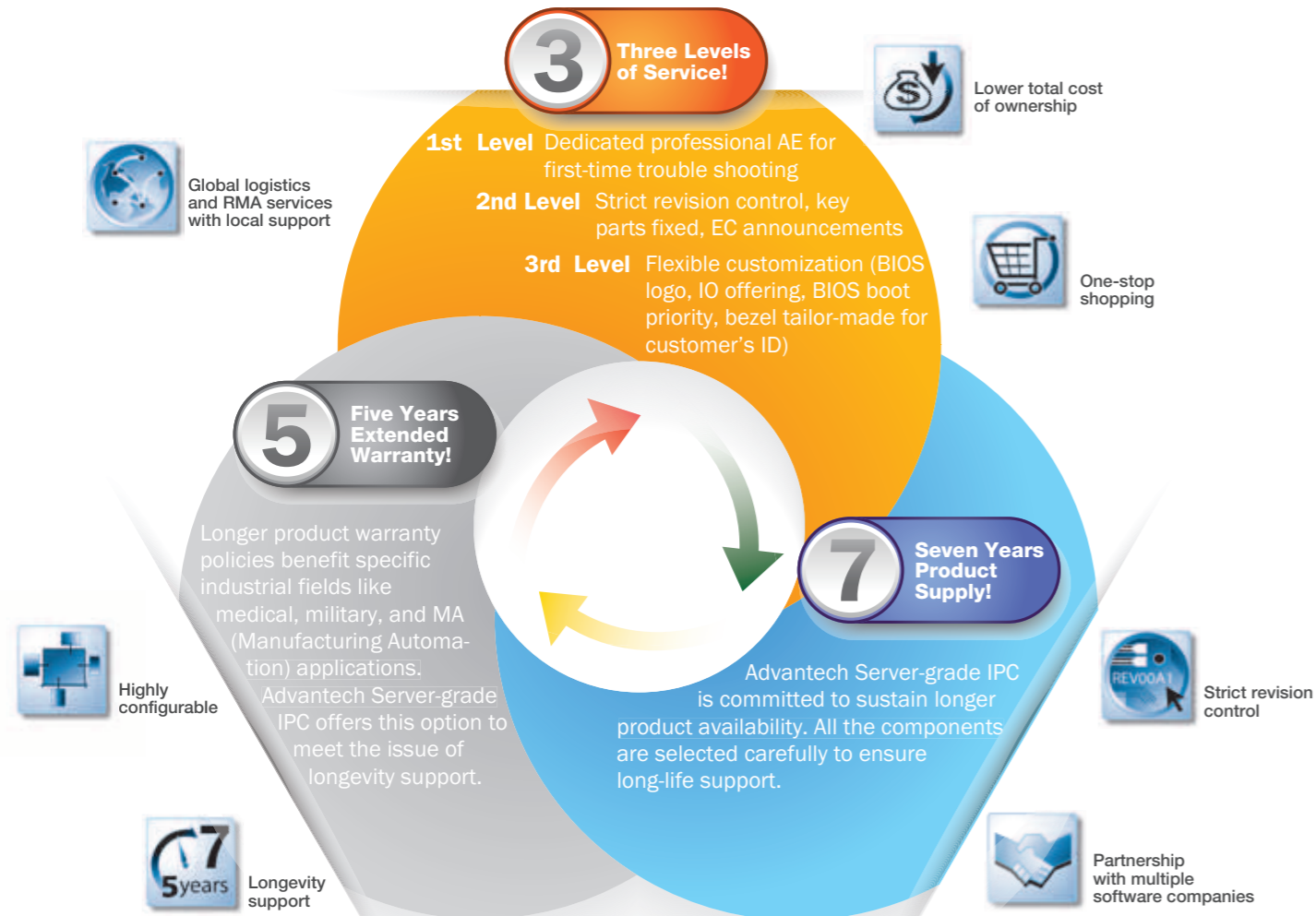
Intel® Xeon® E3-1200 V3 series Micro ATX server board with 32GB ECC DDR3 Three onboard graphic outputs

## About Server-grade IPC

The Advantech Server-grade IPC is designed to give equipment developers high performance, efficient and redundant solutions 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.

As a leading embedded platform provider, Advantech has in-depth knowledge of vertical markets, and has designed customized server-class products for specific purposes such as high-end applications in medical imaging, automated optical inspection (AOI), military simulators, and surveillance DVR/NVR that requires massive computing performance and storage capacity. Advantech has close relationships with developers throughout the world and offers a one-stop service to develop products and solutions that help enable an intelligent planet.

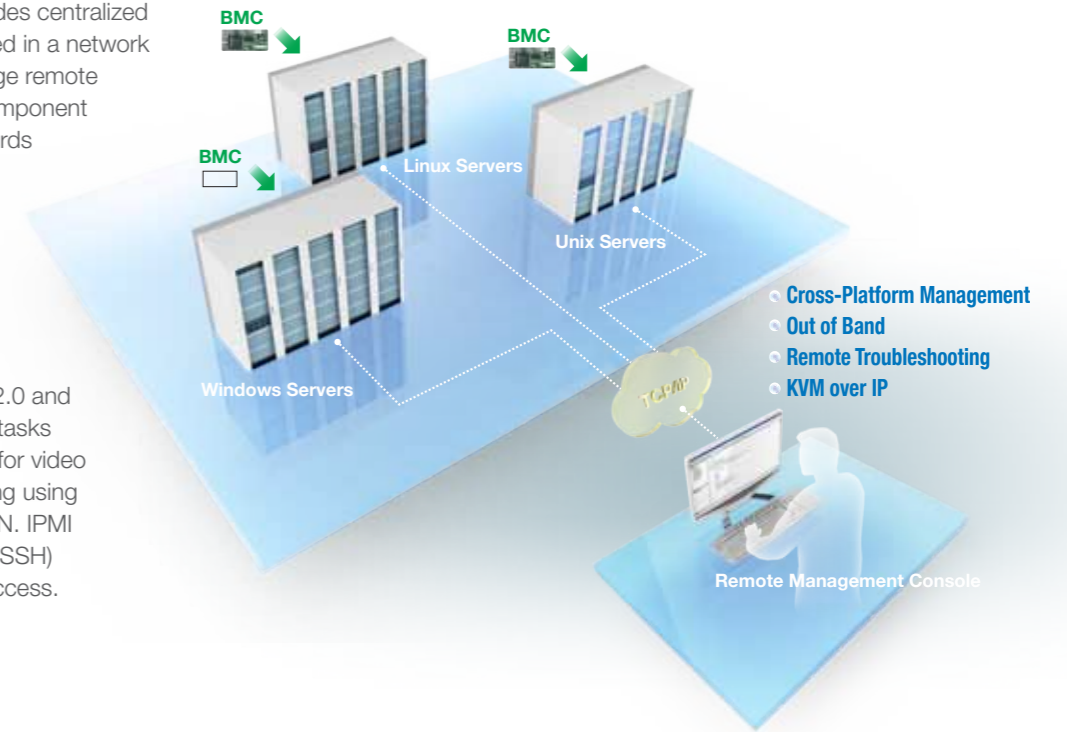
## Advantech 3 5 7 Service



## Advantech IPMI

Advantech IPMI solution is an Out-of-Band Management solution that provides centralized management of devices deployed in a network and offers to monitor and manage remote BMC devices as a pluggable component for Advantech ASMB server boards to monitor and report the health and performance of BMC devices.

Advantech IPMI solution helps save customer costs, and improves reliability of system management. The IPMI module (ASMB-BMC) implements IPMI 2.0 and KVM/IP, the BMC management tasks defined by IPMI 2.0, and allows for video redirection and remote monitoring using KVM over LAN or Serial over LAN. IPMI GUI also provides Secure-Shell (SSH) based SOL to provide remote access.



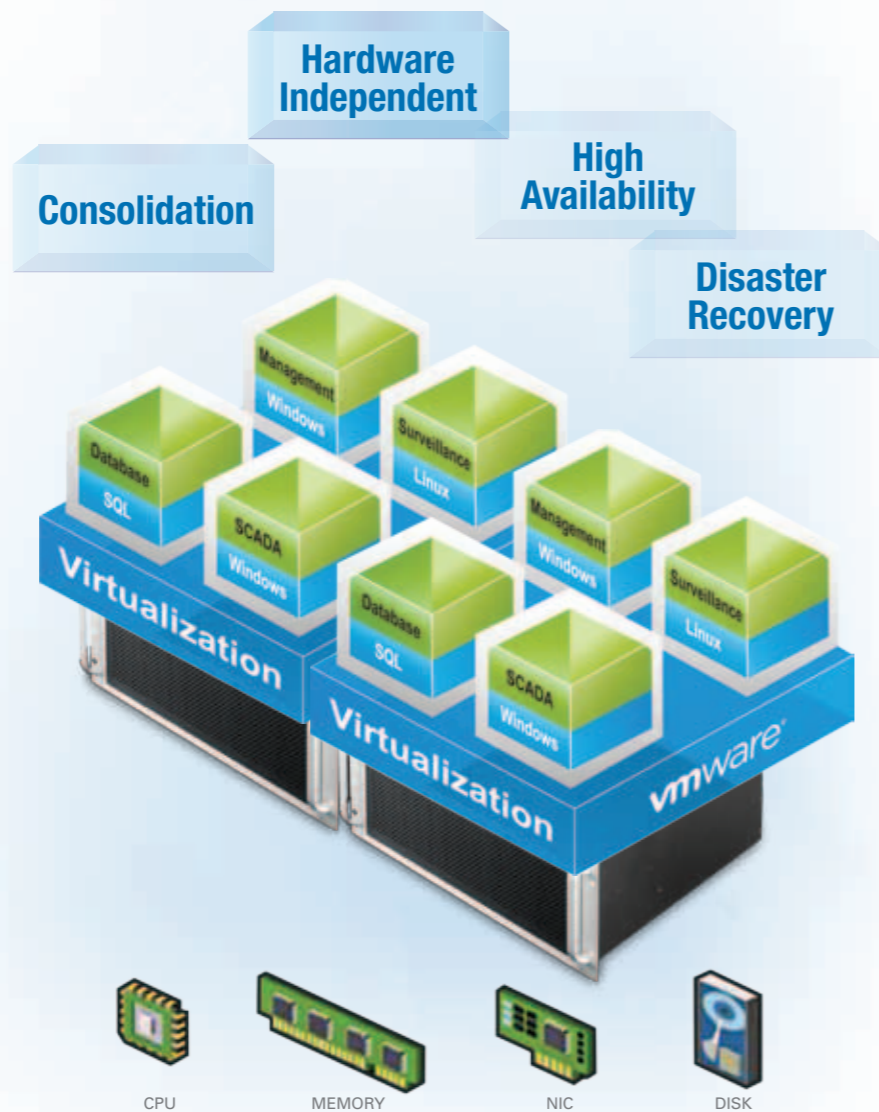
## Advantech IPMI Feature Support List

IPMI Message Interface Support	SSH Based SOL
<ul style="list-style-type: none"> <li>• KCS (System Interface Support)</li> <li>• LAN</li> </ul>	<ul style="list-style-type: none"> <li>• Power control of the server</li> <li>• Complete command support</li> </ul>
Media Redirection	Sophisticated User Remote Management
<ul style="list-style-type: none"> <li>• Simulates floppy, Hard disk or USB and CD/DVD redirection</li> <li>• Efficient USB 2.0 based CD/DVD redirection with typical speed of 20X CD.</li> <li>• Completely secured (Authenticated or Encrypted) remote KVM or virtual Media.</li> </ul>	<ul style="list-style-type: none"> <li>• IPMI based user management</li> <li>• Added security with SSL (HTTPS)</li> <li>• Multiple user permission level</li> <li>• Multi use profiles</li> <li>• Remote power control (Reset, shutdown and power up)</li> <li>• Remote system control through KVM and SOL</li> <li>• Firmware update</li> </ul>
Event Log and Alerting	LDAP, DCMI 1.0, RMCP & RMCP+ Protocols Support
<ul style="list-style-type: none"> <li>• Read Log events</li> <li>• Sensor readings</li> <li>• SNMP traps</li> <li>• E-Mail alerts</li> <li>• PMBus reading for power supply</li> </ul>	<ul style="list-style-type: none"> <li>• Direct LDAP support from the device</li> <li>• Open LDAP (Generic LDAP) supported</li> </ul>

# Virtualization

What is virtualization? There was once a one to one relationship between the physical server and the software, but recently the physical server can provide more and more computing power from CPU and memory, so IT people started thinking: Can we share computing power to run more than one operating system from the same physical server? The answer is YES, virtualization software vendors like VMware, Citrix and Microsoft have created software that lets one powerful server do the job of multiple computers by sharing resources across multiple environments. Virtualization helps companies save money through optimum use of IT resources by consolidating and reallocating them based on utilization and capacity. In contrast, traditional IT paradigms are inflexible and cannot respond to changing demands, thereby creating inefficiencies.

Responding to customers' virtualization needs, Advantech provides different solutions to meet their virtualization hardware requirements. For example, ASMB-784 G4 motherboard provides 4 gigabit LAN ports to satisfy customers that need to focus on data transmission or LAN port teaming functions for each virtual machine. Now more and more customers use Intel® Hyper-Threading technology from hypervisor platform to increase virtual CPU cores! Advantech also provides the ASMB-922I serverboard that supports 2 Intel® Xeon® E5-2600 series CPUs to meet their needs.



Model Name	ASMB-922	ASMB-923	ASMB-584	ASMB-784	ASMB-822
Form Factor	EATX	EATX	Micro ATX	ATX	ATX
Serverboard with VMWare Ready	✓	✓	✓	✓	✓

# Server Chassis Selection Guide

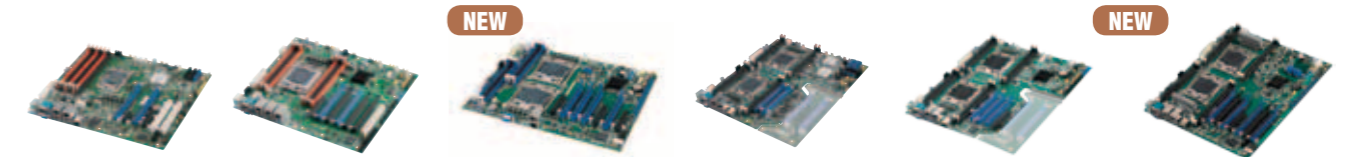


Height (1U=1.75")	1U Rackmount	2U Rackmount		3U Rackmount / Tower	4U Rackmount / Tower		4U Rackmount	
Model Name	HPC-7180	HPC-7280	HPC-7242	HPC-7320	HPC-7480	HPC-7400	HPC-7442	
Processor Support	Dual / single	Dual / single	Dual / single	Dual / single	Dual / single	Dual / single	Dual / single	
Form Factor Support	MicroATX / ATX / EATX	MicroATX / ATX / EATX	MicroATX / ATX	MicroATX / ATX / EATX	MicroATX / ATX / EATX	MicroATX / ATX / EATX	MicroATX / ATX / EATX	
Expansion Slots	PCIe x16 Full Height / Full Length x1	3 x Full-height, Full-length (with riser card) or 7 x low profile PCI expansion slots	3 x Full-height, Full-length (with riser card) or 7 x low profile PCI expansion slots	7 x Full-height, Full-length PCI expansion slot	7 x Full-height, Full-length PCI expansion slot	8 x Full-height, Full-length PCI expansion slot	7 x Full-height, Full-length PCI expansion slot	
Drive Bay	Slim ODD Bay	1	1	1	-	-	-	
	5.25" (front-accessible)	-	-	-	3	2	3	
	3.5" Hot Swap	-	8	4 (Compatible with 2.5" device)	2 (rear/internal)	8	2 (rear/internal) (4 (8 optional) (Compatible with 2.5" device))	
	2.5" (front-accessible)	8	-	-	-	-	-	
Cooling	Chassis Fan	5 (4 cm / 26.5 CFM)	3 (8 cm / 90.04 CFM)	1 (8 cm/47CFM) + 2 (6 cm/28CFM) for SAS/SATA storage unit	2 (9 cm / 57.92 CFM) + 2 (6 cm/ optional)	4 (8 cm / 68.15 CFM)	2 (12 cm / 114 CFM) + 2 (6 cm / CFM)	1 (12 cm /114 CFM) + 1/2 (8 cm/55 CFM) for SAS/SATA storage unit
	Air Filter	-	Yes	Yes	Yes	Yes	Yes	Yes
Chassis Intrusion Alarm	Yes	Yes	Yes	Yes	-	Yes	Yes	
Front USB	1	1	2	2	2	2	2	
Miscellaneous	LED Indicators	Power, LAN1, LAN2, HDD Tray; HDD Power and Activity LED	Power, HDD activity, LAN	Power, HDD, temperature, fan, LAN1, and LAN2	Power, HDD, temperature, fan, LAN1 and LAN2	Power, HDD activity, LAN	Power, HDD, temperature, fan, LAN1, and LAN2	LED Indicators Power, HDD, temperature, fan, LAN1, and LAN2
	Rear Panel	-	-	Two 9-pin D-Sub	-	-	-	Five 9-pin D-Sub and one 68-pin SCSI openings
Environment	Operating	Operating			Non-Operating			
	Temperature	0 ~ 40° C (32 ~ 104° F)			-40 ~ 70° C (-40 ~ 158° F)			
	Humidity	10 ~ 85% @ 40° C non-condensing			10 ~ 95% @ 40° C non-condensing			
	Vibration (5-500 Hz)	1Grms			2Grms			
	Shock	10G			10G			
Physical Characteristics	Dimensions (W x H x D)	430 x 43.5 x 597 mm	482.6 x 88 x 700 mm	482 x 88 x 525 mm	426.4 x 132.2 x 480 mm	452 x 178 x 648 mm	482 x 177 x 448 mm	482 x 177 x 600 mm

# Serverboard Selection Guide



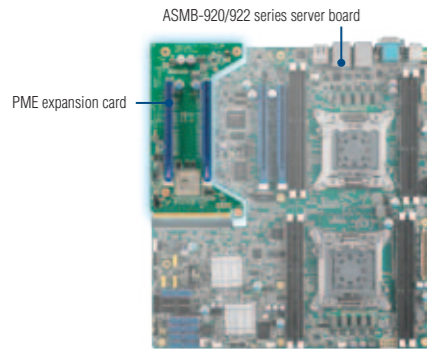
Model Name	ASMB-310IR	ASMB-584	ASMB-781	ASMB-782	ASMB-784	
<b>Form Factor</b>	CEB (12"x10.5")	Micro ATX (9.6"x9.6")	ATX (12"x9.6")	ATX (12"x9.6")	ATX (12"x9.6")	
<b>Processor System</b>	<b>CPU</b>	Intel Xeon E5600/E5500 Series	Intel Xeon E3 V3 and 4th Gen. Core i7/i5/i3 Series	Intel Xeon E3/2nd Gen. Core i3/Pentium Series	Intel Xeon E3/E3 V2/ 2nd and 3rd Gen. Core i3 / Pentium Series	Intel Xeon E3 V3 and 4th Gen. Core i7/i5/i3 Series
	<b>Socket</b>	2 x socket 1366	1 x socket 1150	1 x socket 1155	1 x socket 1155	1 x socket 1150
	<b>Max. Speed</b>	2.53 GHz	3.5 GHz	3.4 GHz	3.5 GHz	3.5 GHz
	<b>Front Side Bus</b>	QPI 6.4 GT/s	-	-	-	-
	<b>L3 Cache</b>	12 MB	8 MB	8 MB/8 MB/3 MB/3 MB	8 MB/8 MB/3 MB/3 MB	8MB
	<b>Chipset</b>	Intel 5520, Intel ICH10R	Intel C226	Intel C206	Intel C216	Intel C226
<b>BIOS</b>	AMI 32 Mbit, SPI	AMI 128 Mbit, SPI	AMI 64 Mbit, SPI	AMI 64 Mbit, SPI	AMI 128Mbitm, SPI	
<b>Expansion Slot</b>	<b>PCI</b>	-	1	3	3	3
	<b>PCIe x16</b>	2 (auto switch to x8)	-	1 (auto switch to two x8)	-	1 (switchable to two x8)
	<b>PCIe x8</b>	2	2 (x16 slot with x8 link)	2 (auto switch to one x16)	2 (x16 slot with x8 link)	2 (switchable to one x16)
	<b>PCIe x4</b>	1 (2 on ASMB-310 SKU)	1	1	2	-
	<b>PCIe x1</b>	-	-	1	-	2
<b>Memory</b>	<b>Technology</b>	DDR3 Non-ECC/ECC/REG 800/1066/1333 MHz	DDR3 ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR3 ECC/Non-ECC Unbuffer 1066/1333/1600 MHz	DDR3 ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR3 ECC/non-ECC Unbuffer 1066/1333/1600 MHz
	<b>Max. Capacity</b>	96 GB	32 GB	32 GB	32 GB	32 GB
	<b>Socket</b>	6 x 240-pin DIMM	4 x 240-pin DIMM	4 x 240-pin DIMM	4 x 240-pin DIMM	4 x 240-pin DIMM
<b>Graphics</b>	<b>Controller</b>	AST2050	Intel GT2-HD Graphics	AST2300/1300 (G4/G2)	Intel HD Graphics	Intel GT2-HD Graphics
	<b>VRAM</b>	DDR2 64 MB	1 GB maximum shared memory with 2 GB and above system memory installed	DDR3 64 MB	1 GB maximum shared memory with 2 GB and above system memory installed	1 GB maximum shared memory with 2 GB and above system memory installed
	<b>LCD</b>	-	-	-	-	-
	<b>TV-Out</b>	-	-	-	-	-
	<b>HDMI</b>	-	-	-	-	-
	<b>DVI</b>	-	1	-	Yes (pin header)	2
<b>Ethernet</b>	<b>Interface</b>	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet
	<b>Controller</b>	1 x Intel 82574L, 1 x Intel 82567LM, 1 x Mgmt LAN (ASMB-310IR SKU)	1 x Intel I217-LM, 1 x Intel I210-AT	1 x Intel 82579LM, 1 x Intel 82574L, Intel 82580DB (G4)	1 x Intel 82579LM + 3 x Intel 82574L (G4 SKU only)	1 x Intel I217-LM + 3 x Intel I210-AT (G4 SKU only)
	<b>Connector</b>	RJ-45 x 3 (1 x Mgmt LAN)	RJ-45 x 2 (G2 SKU) / RJ-45 x 1 (VG SKU)	RJ-45 x 4 (G4 SKU) / x 2 (G2 SKU)	RJ-45 x 4 (G4 SKU) / RJ-45 x 2 (G2 SKU)	RJ-45 x 4 (G4 SKU) / RJ-45 x 2 (G2 SKU)
<b>TPM</b>	Optional	Optional	Optional	Optional	Optional	
<b>SATA</b>	<b>Max. Data Transfer Rate</b>	300 MB/s	600 MB/s	300MB/s for SATA2 600 MB/s for SATA3	300MB/s for SATA2 600 MB/s for SATA3	600 MB/s
	<b>Channel</b>	6	6	4 for SATA2, 2 for SATA3	4 for SATA2, 2 for SATA3	6
<b>SAS</b>	<b>Max. Data Transfer Rate</b>	6 Gb/s	-	-	-	-
	<b>Channel</b>	8	-	-	-	-
<b>Rear I/O</b>	<b>VGA/DVI/HDMI/DP</b>	1 / - / - / -	1 / 1 / - / 2	1 / - / - / -	1 / - / - / -	1 / 2 / - / -
	<b>Ethernet</b>	2	2 for G2 SKU and 1 for VG SKU	4 for G4 SKU and 2 for G2 SKU	4 for G4 SKU and 2 for G2 SKU	4 for G4 SKU and 2 for G2 SKU
	<b>USB</b>	6	4 ( 2 USB 3.0; 2 USB 2.0)	4	4 (2 USB 3.0 ; 2 USB 2.0)	4 ( 2 USB 3.0; 2 USB 2.0)
	<b>Audio</b>	-	Mic-in, Line-out	-	-	-
	<b>Parallel</b>	-	-	-	-	-
	<b>Serial</b>	1 (RS-232)	-	1 (RS-232)	1 (RS-232)	1 (RS-232)
	<b>PS/2</b>	2	-	2	2	1
<b>Internal Connector</b>	<b>DVI</b>	-	-	Yes (pin header)	-	-
	<b>USB</b>	5 (USB 2.0)	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)	8 (6 USB 2.0, 2 USB 2.0 Type-A)	10 (2 USB 3.0; 6 USB 2.0; 2 USB 2.0 Type-A)	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)
	<b>Serial</b>	1	2	1	1	1
	<b>Parallel</b>	-	1	1	1	1
	<b>SATA</b>	6	6	6	6	6
	<b>SAS</b>	8 (ASMB-310IR only)	-	-	-	-
	<b>Compact Flash</b>	-	-	-	-	-
<b>Watchdog Timer</b>	<b>GPIO</b>	-	8 bit GPIO	1 (SATA SGPIO)	1 (SATA SGPIO)	8 bit GPIO
	<b>Output</b>	-	System reset	System reset	System reset	System reset
<b>Interval</b>	-	Programmable 1~255 sec	Programmable 1~255 sec	Programmable 1~255 sec	Programmable 1~255 sec	



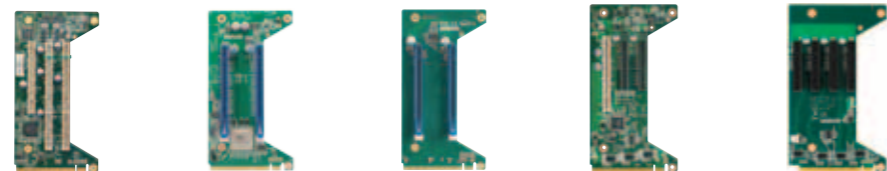
Model Name	ASMB-820I	ASMB-822I	ASMB-823I	ASMB-920IR	ASMB-922I	ASMB-923I	
<b>Form Factor</b>	ATX (12"x9.6")	ATX (12"x9.6")	ATX (12"x9.6")	EATX (12"x13")	EATX (12"x13")	EATX (12"x13")	
<b>Processor System</b>	<b>CPU</b>	Intel Xeon E5-2400 Series	Intel Xeon E5-1600/2600 Series and E5-1600/2600 V2 Series	Intel Xeon E5-2600 V3 Series	Intel Xeon E5-2600 Series	Intel Xeon E5-2600 and 2600 V2 Series	Intel Xeon E5-2600 V3 Series
	<b>Socket</b>	1 x socket 1356	1 x socket 2011	2 x socket 2011-R3	2 x socket 2011	2 x socket 2011	2 x socket 2011-R3
	<b>Max. Speed</b>	2.2 GHz	2.1 GHz	2.5 GHz	2.1 GHz	2.1 GHz	2.5 GHz
	<b>Front Side Bus</b>	-	-	QPI 9.6GT/s	QPI 8 GT/s	QPI 8 GT/s	QPI 9.6GT/s
	<b>L3 Cache</b>	15 MB	20 MB	30 MB	20 MB	20 MB	30 MB
	<b>Chipset</b>	Intel C602J	Intel C602J	Intel C612	Intel C602J	Intel C602J	Intel C612
<b>BIOS</b>	AMI 64 Mbit, SPI	AMI 64 Mbit, SPI	AMI 128 Mbit, SPI	AMI 64 Mbit, SPI	AMI 64 Mbit, SPI	AMI 128 Mbit, SPI	
<b>Expansion Slot</b>	<b>PCI</b>	2	1	-	-	-	-
	<b>PCIe x16</b>	1	-	4	3 (1 for PME)	4 (1 for PME)	4
	<b>PCIe x8</b>	1	5	2	-	1	2
	<b>PCIe x4</b>	1	1	1 (x8 slot with x4 link)	-	-	1 (x8 slot with x4 link)
	<b>PCIe x1</b>	1	-	-	-	-	-
<b>Memory</b>	<b>Technology</b>	DDR3 Reg/ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR3 Reg/ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR4 Registered ECC 2133/1866/1600/1333 MHz DIMM	DDR3 Reg/ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR3 Reg/ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR4 Registered ECC 2133/1866/1600/1333 MHz DIMM
	<b>Max. Capacity</b>	96 GB	96 GB	192 GB	128 GB	128 GB	256 GB
	<b>Socket</b>	6 x 240-pin DIMM	6 x 240-pin DIMM	6 x 288-pin DIMM	8 x 240-pin DIMM	8 x 240-pin DIMM	8 x 288-pin DIMM
<b>Graphics</b>	<b>Controller</b>	AST1300/AST2300	AST1300/AST2300	AST1400/AST2400	AST1300/AST2300	AST1300/AST2300	AST1400/AST2400
	<b>VRAM</b>	DDR3 64 MB	DDR3 64MB	DDR3 64MB	DDR3 64 MB	DDR3 64MB	DDR3 64MB
	<b>LCD</b>	-	-	-	-	-	-
	<b>TV-Out</b>	-	-	-	-	-	-
	<b>HDMI</b>	-	-	-	-	-	-
	<b>DVI</b>	-	-	-	-	-	-
<b>Ethernet</b>	<b>Interface</b>	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet
	<b>Controller</b>	1 x Intel 82574L + 1 x Intel 82567LM + 1 x Realtek 8201EL (ASMB-820I SKU only)	1 x Intel 82579LM + 1 x Intel I210AT + 1 x Realtek 8201EL (ASMB-822I SKU only)	2 x Intel I210AT	1 x Intel 82579LM + 1 x Intel 82574L + 1 x Realtek 8201EL (ASMB-920IR SKU only)	1 x Intel 82579LM + 1 x Intel I210AT + 1 x Realtek 8201EL (ASMB-922I SKU only)	2 x Intel I210AT
	<b>Connector</b>	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 2 (1 sharing IPMI function)	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 3 (1 for IPMI function)
<b>TPM</b>	Optional	Optional	Optional	Optional	Optional	Optional	
<b>SATA</b>	<b>Max. Data Transfer Rate</b>	300MB/s for SATA2 600 MB/s for SATA3	300MB/s for SATA2 600 MB/s for SATA3	600MB/s for SATA3	300MB/s for SATA2 600 MB/s for SATA3	300MB/s for SATA2 600 MB/s for SATA3	600MB/s for SATA3
	<b>Channel</b>	4 for SATA2, 2 for SATA3	4 for SATA2, 2 for SATA3	9 for SATA3	4 for SATA2, 2 for SATA3	4 for SATA2, 2 for SATA3	10 for SATA3
<b>SAS</b>	<b>Max. Data Transfer Rate</b>	-	-	-	6 Gb/s	-	-
	<b>Channel</b>	-	-	-	8	-	-
<b>Rear I/O</b>	<b>VGA/DVI/HDMI/DP</b>	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -
	<b>Ethernet</b>	2	2	2	2	2	2
	<b>USB</b>	4	6 (2 USB 3.0)	4 (USB 3.0)	4	4 (2 x USB 3.0)	4 (2 USB 3.0, 2 USB 2.0)
	<b>Audio</b>	-	-	-	-	-	-
	<b>Parallel</b>	-	-	-	-	-	-
	<b>Serial</b>	1 (RS-232)	1(RS-232)	-	1 (RS-232)	1 (RS-232)	1 (RS-232)
	<b>PS/2</b>	2	2	1 (by onboard connector)	2	2	2
<b>Internal Connector</b>	<b>DVI</b>	-	-	-	-	-	-
	<b>USB</b>	8 (6 USB 2.0, 2 USB 2.0 Type-A)	8 (6 USB 2.0, 2 USB 2.0 Type-A)	5 (2 USB3.0, 2 USB2.0, 1 USB 2.0 Type-A)	7 (6 USB 2.0, 1 USB 2.0 Type-A)	9 (8 USB 2.0, 1 USB 2.0 Type-A)	7 (2 USB3.0, 4 USB2.0, 1 USB 2.0 Type-A)
	<b>Serial</b>	1	1	1	1	1	1
	<b>Parallel</b>	-	1	-	-	-	-
	<b>SATA</b>	6	6	9	6	6	10
	<b>SAS</b>	-	-	-	8(ASMB-920IR only)	-	-
	<b>Compact Flash</b>	-	-	-	-	-	-
<b>Watchdog Timer</b>	<b>GPIO</b>	1 (SATA SGPIO)	1 (SATA SGPIO)	2 (8 bit GPIO + SATA SGPIO)	2 (1*SATA SGPIO + 1*SAS SGPIO)	1 (SATA SGPIO)	2 (8 bit GPIO + SATA SGPIO)
	<b>Output</b>	System reset	System reset	System reset	System reset	System reset	System reset
<b>Interval</b>	Programmable 1~255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable 1~255 sec	Programmable 1~255 sec	Programmable 1~255 sec	



# PME Expansion Card



Advantech's PME (Powerful Modular Expansion) design allows versatile expansion module options to the ASMB-920/922 series motherboards. PME expansion cards are an economical, effective solution for a range of applications, providing function expansion for a range of PCIe modules. In addition to meeting standard industrial specifications, Advantech's PME modules fit just about anywhere. They are easy to assemble and provide a simple upgrade path.



Model Name	ASMB-FF3PX	ASMB-FF20F	ASMB-FF208	ASMB-FF3P8	ASMB-FF404*	
Expansion Slots	Total PCI/PCI-X/PCIe slots	3	2	2	3	4
	Slot location E1	-	-	-	-	PCIe x8 (Gen2 x4 link)
	Slot location 1	PCI 33/66 MHz	PCIe x16 (Gen3 x16 link)	PCIe x16 (Gen1 x8 link)	PCI 33/66 MHz	PCIe x8 (Gen2 x4 link)
	Slot location 2	PCI-X 100 MHz	-	-	PCIe x8 (Gen2 x4 link)	PCIe x8 (Gen2 x4 link)
Fit Motherboard	Slot location 3	PCI-X 100 MHz	PCIe x16 (Gen3 x16 link)	PCIe x16 (Gen1 x8 link)	PCIe x8 (Gen2 x8 link)	PCIe x8 (Gen2 x4 link)
		ASMB-920/922 series	ASMB-920/922 series	ASMB-920/922 series	ASMB-920/922 series	ASMB-920/922 series
Environment	Operating Temperature	System: 0 ~ 40° C Board: 0 ~ 60° C		Non-operating -40 ~ 85° C		
	Humidity	0% ~ 90%		5% ~ 95% (Non condensing)		
	Physical Characteristics	Dimensions	101 mm x 193 mm	101 mm x 193 mm	101 mm x 193 mm	111 mm x 193 mm

\*Only chassis HPC-7400 is able to fit this PME

# ASMB Riser Card



## Selection Guide

Model Name	ASMB-RF3X8-21A1E	ASMB-RF348-21A1E		
Interface	PCIe x16	PCIe x16 for slot 6		
Expansion Slots	Spec.	2 * PCI-X 64bit 133/100MHz + 1 * PCIe x8	1 * PCIe x8 + 2 * PCIe x4	
	Top Slot	3.3V PCI-X 64bit 133/100MHz	PCIe x16 (x8 link)	
	Middle Slot	3.3V PCI-X 64bit 133/100MHz	PCIe x8 (x4 link)	
	Bottom Slot	PCIe x8 slot (x8 link)	PCIe x8 (x4 link)	
Chassis	2U	HPC-7280 ACP-2010MB/2320MB HPC-7242MB	HPC-7280 ACP-2010MB/2320MB HPC-7242MB	
	Motherboard	ASMB-310	YES	*Δ (Note1)
	ASMB-584	X	*Δ (Note3)	
	ASMB-781	YES	*Δ (Note1)	
	ASMB-782	X	*Δ (Note2)	
	ASMB-820	YES	YES	
	ASMB-822	YES	YES	
	ASMB-920	YES	YES	
	ASMB-922	YES	YES	

Yes: Fully compatible  
 Δ: Conditional Compatible

- \*Δ Note 1: PCIe x16 slot of ASMB-781 & ASMB-310 motherboard can split as x8 x8 mode. When install ASMB-RF348-21A1E riser card, it supports one PCIe x4 (bottom slot) and one PCIe x8 (top slot). The middle of PCIe x4 of riser card doesn't work.
- \*Δ Note 2: PCIe x16 slot of ASMB-782 motherboard is x8 link only. When install ASMB-RF348-21A1E riser card, it only supports one PCI-E x4 slot (bottom).
- \*Δ Note 3: PCIe x16 slot of ASMB-584 motherboard is x8 link and can split as x4 x4 mode. When install ASMB-RF348-21A1E riser card, it supports two PCIe x4 (bottom and middle slot) and the top of PCIe x8 slot doesn't work.

# ADVANTECH GPU Server

## About About Optimized GPU Server

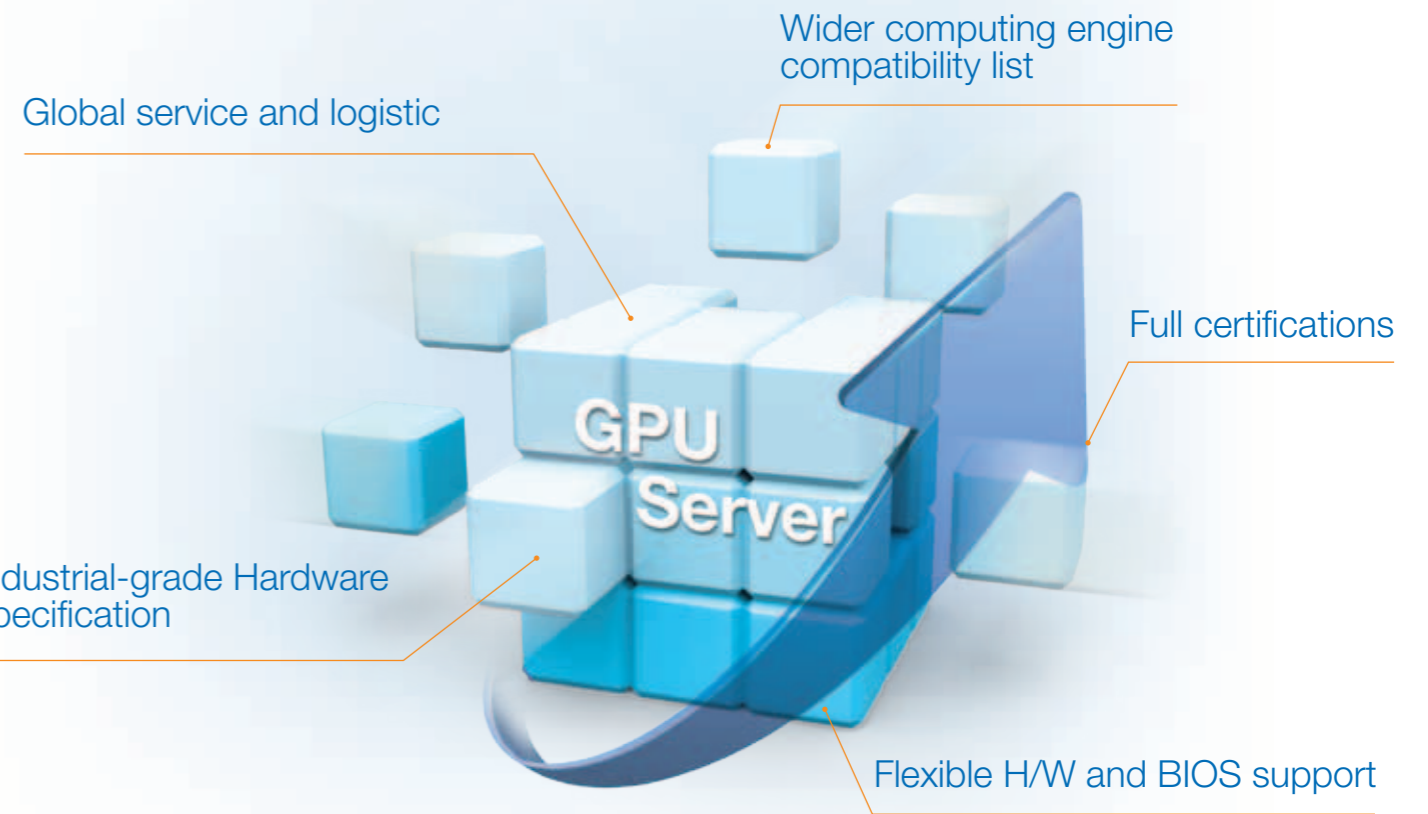
What's the next trend? Images and video play increasingly key roles in modern life. Applications like medical imaging, broadcast transcoding, image recognition, cloud gaming, and remote conferencing all require high performance processing power.

Advantech is committed to providing reliable platforms (AGS) with industrial-grade specifications and service to support the realization of these applications.

Unlike general purpose server platforms, Advantech offers the AGS (Advantech GPU Server), dedicated to those resource intensive applications. We understand our customers' needs, and we meet those needs.

Advantech partners with the leading GPU, and DSP suppliers, e.g., AMD, Intel®, nVidia, TI, etc. This gives us the best, most immediate connections to support our customers.

## What can you get from an Advantech GPU server?



## High Flexibility & Strong Partnership

In the GPU server market, the Advantech AGS series is committed to supporting a wide range of GPU solutions: NVIDIA Telsa, GRID, Quadro, AMD FirePro, and Intel® Phi; as well as Advantech-designed DSP cards. This makes Advantech's AGS series products uniquely flexible and distinct from the competition. AGS series servers have passed full validation requirements and are certified for NVIDIA Tesla/GRID/Quadro series high-end GPU solutions.

### Wide Range of GPU and DSP Cards Supported

Whether you are looking for assistance in completing an integration projects, require in-depth expertise in building a system, or want to find 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



Advantech, in alliance with GPU and DSP processor providers, provides the best support and service for industrial applications:

#### Trusted GPU server solution

Advantech GPU Servers have undergone strict validation processes and are fully qualified by both Advantech and its eco-partners, including necessary middleware and software, all of which helps you reduce risk and lower development costs.

#### Leading-edge solutions

Advantech customers benefit from early access to roadmaps, test platforms, and design support. This helps you innovate with the latest technologies, giving you first-in-market solutions you can use to stay ahead of your competition.

#### Design and development expertise

our partnership provides customers with a significant head start, including quick technical support, product specification, benchmarks, and resolution of software issues in your own design efforts.

#### Long lifecycle support

Advantech's 7-year extended lifecycle support for GPU servers protects your development investment.

## GPU Server Selection Guide



Model Name		AGS-910	AGS-920
Processor Support		Support dual processors	Support dual processors
Form Factor Support		Proprietary	Proprietary
Expansion Slots		3 x PCIe x16 double-deck card + 1 x PCIe x8 FH/HL card	4 x PCIe x16 double-deck card + 1 x PCIe x8 f FH/HL card
Drive Bay	Slim ODD Bay	-	-
	2.5" Hot Swap	4	8
	3.5" Hot Swap	-	-
Cooling	Chassis Fan	7 * 40x56 + 2 * 40x28 high speed fan	4 * 80x38 + 1 * 80x20 + 1 * 80x38 (optional) high speed fan
	Air Filter	-	-
Chassis Intrusion Alarm		YES	YES
Front USB		2	2
Miscellaneous	LED Indicators	Power status, HDD activity, Lan status, location, error message	Power status, HDD activity, Lan status, location, error message
	Rear Panel	location, error message	location, error message
Physical Characteristics	Dimensions (W x H x D)	430 x 44 x 770 mm	430 x 88 x 770 mm

		Operating	Non-Operating
Environment	Temperature	0 ~ 35° C (32~104° F)	-20 ~ 60° C (-4 ~ 140° F)
	Humidity	10 ~ 85% @ 40° C	10 ~ 95% @ 40° C
	Vibration (5~500 Hz)	0.5 Grms	2G
	Shock	10 G	10 G
(with 11ms duration, half since wave)			



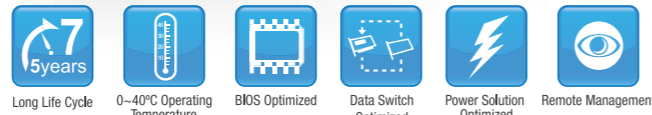
# Video Wall Controller Selection Guide

## 8-40 Output Solutions

### AVS series validated by Datapath



Model Name	AVS-542	AVS-543	
Processor System	<b>CPU</b>	Intel® Xeon® E5-2600/E5-2600 V2 Series	Intel® Xeon® E5-2600 / E5-2600 V2 Series
	<b>Memory</b>	DDR3-1333/1600MHz (ECC) U-DIMM and R-DIMM up to 96GB	DDR3-1333/1600MHz (ECC) U-DIMM and R-DIMM up to 96GB
Video	<b>Maximum Input</b>	15 Analog/Digital or 40 Analog	16 Analog/Digital or 40 Analog
	<b>Maximum Output</b>	20	20
Drive Bay	<b>3.5" Front-Accessible</b>	-	4
	<b>3.5" Internal</b>	2	-
	<b>2.5" Internal</b>	1	1
Power Supply	<b>Power Output Wattage</b>	80+ Bronze 700W Single Power Supply	80+ Bronze 750W Redundant Power Supply
	<b>Input Range</b>	AC 100~240V	AC 100~240V
Miscellaneous	<b>LED Indicators</b>	Power status, HDD activity, temperature and fan status	Power status, HDD activity, temperature and fan status
	<b>Remote Management</b>	IPMI, Advantech Remote Monitoring Utility	IPMI, Advantech Remote Monitoring Utility
Physical Characteristics	<b>Dimension</b>	482x177x348mm (19" x 7.0" x 13.7")	482x177x478mm (19" x 7.0" x 18.8")



### AVS series validated by Matrox



Model Name	AVS-240	AVS-290	AVS-540	AVS-541	AVS-840	AVS-860	
Processor System	<b>CPU</b>	Intel® Xeon® E5-2400 Series	Intel® Xeon® E3-1200 Series	Intel® Xeon® E5-2600/E5-2600 V2 Series	Intel® Xeon® E3-1200V2 Series	Intel® Xeon® E3-1200V2 Series	
	<b>Memory</b>	DDR3 1333/1600MHz (ECC) UDIMM/RDIMM up to 96GB	DDR3-1333MHz (ECC) U-DIMM up to 32GB	DDR3-1333/1600MHz (ECC) U-DIMM and R-DIMM up to 96GB	DDR3-1333/1600MHz (ECC) U-DIMM up to 16GB	DDR3-1333/1600MHz (ECC) U-DIMM up to 16GB	DDR3-1333/1600MHz (ECC) U-DIMM up to 16GB
Video	<b>Input</b>	8 Analog/Digital + 16 Analog	8 Analog/Digital	20 Analog/Digital	20 Analog/Digital & 160 Analog	40 Analog/Digital	40 Analog/Digital
	<b>Output</b>	8 Analog/Digital	8 Analog/Digital	20 Analog/Digital	20 Analog/Digital	40 Analog/Digital	40 Analog/Digital
Drive Bay	<b>5.25" Front-Accessible</b>	3	1	3	3	3	4
	<b>3.5" Front-Accessible</b>	1	2	1	1	1	-
	<b>3.5" Internal</b>	-	1 x SATA	-	1	1	2
Power Supply	<b>Power Output Wattage</b>	80+ Bronze 500W Single Power Supply	80+ Bronze 400W ATX PS/2 Single Power Supply	80+ Bronze 700W Single Power Supply	810W 3+1 redundant power supply (front-accessible)	810W 3+1 redundant power supply (front-accessible)	80+ Bronze 750W Redundant Power Supply
	<b>Input Range</b>	AC 100~240 V	AC 100~240 V	AC 100~240 V	AC 100~240V	AC 100~240 V	AC 100~240 V
Miscellaneous	<b>LED Indicators</b>	Power status, HDD activity, temperature, fan, and power voltage status	Power status, HDD activity, temperature, and fan status	Power status, HDD activity, temperature, fan, and power voltage status	Power status, HDD activity, temperature, fan and power voltage status	Power status, HDD activity, temperature, fan and power voltage status	Power status, HDD activity, temperature, fan and power voltage status
	<b>Remote Management</b>	IPMI, Advantech Remote Monitoring Utility	IPMI, Advantech Remote Monitoring Utility	IPMI, Advantech Remote Monitoring Utility	Advantech Remote Monitoring Utility, iAMT 8.0	Advantech Remote Monitoring Utility, iAMT 8.0	Advantech Remote Monitoring Utility, iAMT 8.0
Physical Characteristics	<b>Dimension</b>	482 x 177 x 479 mm (19" x 7" x 18.9")	200 x 320 x 480 mm (7.9" x 12.6" x 18.9")	482 x 177 x 479 mm (19" x 7" x 18.9")	482 x 177 x 657 mm (19" x 7" x 26")	482 x 177 x 657 mm (19" x 7" x 26")	482 x 266 x 464 mm (19" x 10.5" x 18.3")

## About Industrial Storage (IStorage)

Demands for storage subsystems continue to grow due to rapidly proliferating mission-critical applications, such as video-on-demand services, intelligent surveillance, factory automation systems, and data-intensive data-mining analysis. As businesses move their data services to the cloud, they face tough challenges around data protection and scaling. To meet these challenges, an industrial-level storage subsystem offers high reliability, quick capacity expansion, easy deployment, and efficient management functions that protect your long-term enterprise investments.

Advantech Industrial Storages (IStorage) are high-performance and cost-effective storage solutions that fulfill the requirements of industrial environments and mission-critical industrial applications. Advantech storage server solutions have comprehensive fault-tolerant capability with H/W RAID and online expansion capability via JBOD to ensure the highest possible data availability.

The Advantech external disk array is designed to provide systems with the ability to consolidate and share data at an affordable price, while leveraging advanced software capabilities usually found in more expensive mid-range & high-end systems.

IStorage solutions bring you a seamless integration with Advantech IServer products. With a wide range of product portfolios and completed validation tests, they can be immediately introduced into various industrial applications and upgrade your systems to become a working part of the industrial cloud.

### IStorage Value Proposition S•A•F•E

#### Seamless Integration

- One-stop Shopping Solution, from MB/Chassis/Server/Storage
- Wide Storage Portfolio, Including JBOD/Storage Server/Disk Array

#### Flexibility

- Global CTOS Service, including BIOS, OS & Host Interface Card
- Low MOQ & Customization

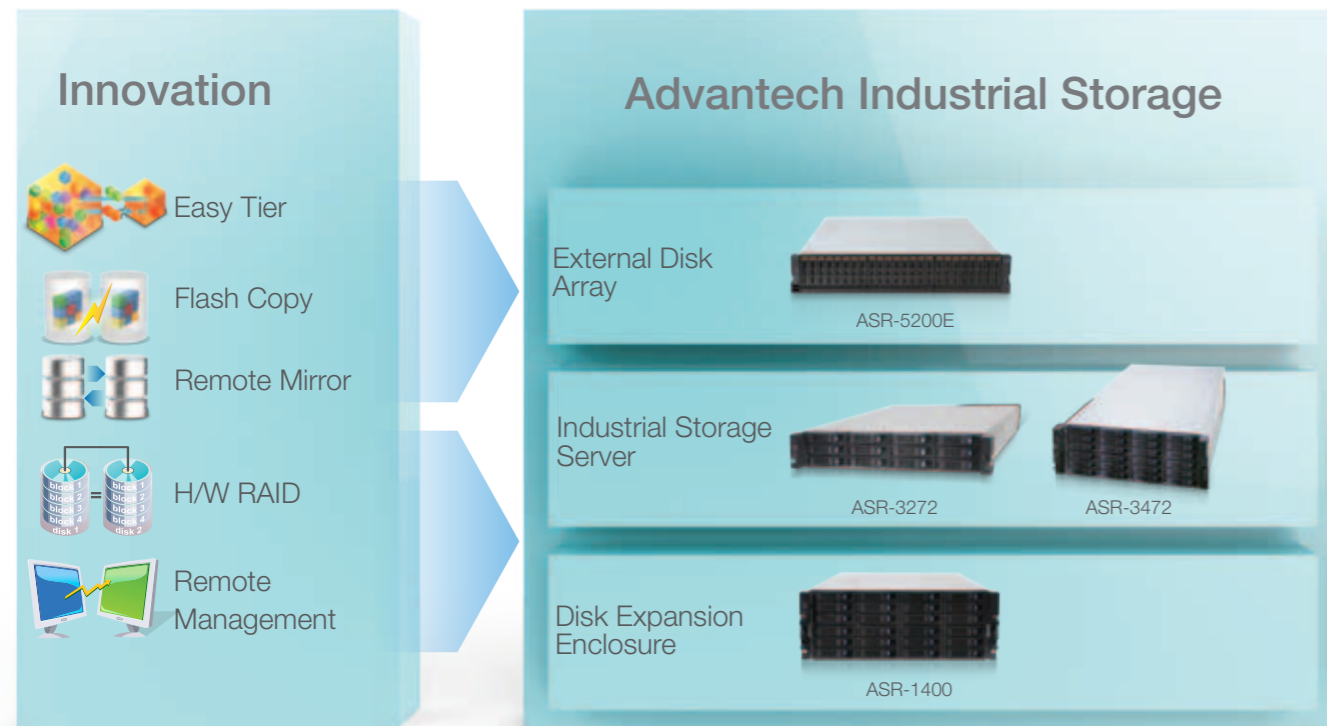
#### Availability

- Leverage WW Tier1 Partners' Storage Technology
- EMI/EMC & Safety Certified

#### Expertise

- Know-how & Experience in Industrial Application Deployment
- Longevity & Version Control

# Advantech IStorage Portfolio



## IStorage Compelling Features

### Strict Data Protection

The dedicated H/W RAID engine for Industrial Storage is capable of providing complete data protection. Through advanced RAID 5 or 6 protection, data can be retained error free, even in the event of one or even two hard disk failures. And a BBU (Battery Backup Unit) further prevents the risk of data loss when the system power fails, and thus further enhances data protection capability.

### Diverse I/O Expansion

To widely support a variety of industrial applications, the IStorage product series is designed with great I/O expansion flexibility. ASR-3000 series not only supports PCIe daughter card expansion, but the traditional full length PCI daughter card, which is fully in line with diverse industrial demands. ASR-5000 series products have an embedded SAS host and iSCSI 1G interface, and high-speed FC 8G/iSCSI 10G interface is also supported for private cloud deployment in each industry.

### Simple Management

Along with the new-generation, intelligent management software, SUSIAccess 2.0, ASR-3000 series provides comprehensive remote monitoring management service, which includes real-time monitoring to control the system status accurately and improve system reliability. Through the simple and interactive wizard mode, administrators can easily and quickly complete all setup of ASR-5000 through the GUI management interface; the real-time, browser-based alert notification system effectively reduces maintenance costs and TCO.

### Capacity Scaling

The IStorage product line supports the expansion capacity (JBOD Expansion enclosure). As the amount of business and data gradually increases, IStorage can be expanded by JBOD; storage pool capacity can be increased fast with hot-pluggable disks.

### OS/Peripheral/VM Integration

IStorage products integrate seamlessly with other Advantech product lines, from front-end devices to back-end servers, to provide a complete turnkey cloud solution for industrial applications, such as those in surveillance, retail, and video walls. You can also leverage our eco-partner software such as VMWare and Acronis to establish a value-added system.

# Windows Storage Server Software Introduction

Windows Storage Server 2012 R2 (WSS 2012 R2) offers a robust range of file service and storage functionalities which delivering enterprise-class data availability, storage reliability, reliability, and performance scalability but retains a familiar management interface for reduced deployment complexity.

## Important roles and features of WSS 2012 R2 that can be employed include

### Data Deduplication

Optimizes storage space utilization by storing a single copy of identical data on the volume to reduce hardware costs and increase storage ROI.

### DFS Namespaces and Replication

In a larger network, DFS Namespaces enables users to group shared folders that are located on different servers into one logically centralized folder namespace.

### BranchCache

intends to cache central data to remote or branch offices in order to improve response time, reduce network traffic and optimize WAN utilization.

### Volume Shadow Copy Services (VSS)

Creates a point-in-time snapshot image of the storage volume. It provides enhanced data protection through high fidelity backups, rapid data restores, and data transport.

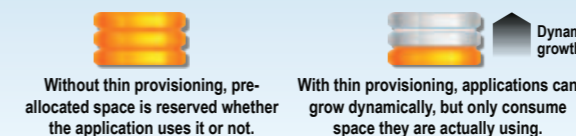
# High Value-added Data Services in ASR 5000 Series

## FlashCopy



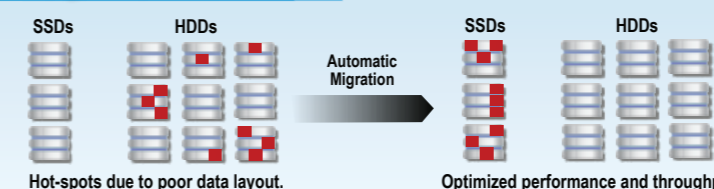
- Create instant application copies for backup or application testing
- Make better use of space with incremental (only changed blocks) or space-efficient (thin provisioned) snapshots
- Can help to reduce space required for copies
- Virtually eliminate backup windows

## Thin Provisioning



- More productive use of available storage across all supported host platforms.
- Improve storage utilization by enabling applications to consume only the space they are using

## Easy Tier



- Busiest portions of data identified and automatically relocated to high performance solid-state drives
- Remaining data can take advantage of higher capacity disk drives

# Storage Server

High Performance Industrial Storage Server with Reliable Data Protection and Backup Solution



## Selection Guide

Model Name		ASR-1400	ASR-3272	ASR-3472			
<b>System</b>	Form Factor	4U-24Bay	2U 12-Bay	4U 24-Bay			
	Number of Drives	24 Bays (2.5"/3.5")	12 Bays (2.5"/3.5")	24 Bays (2.5"/3.5")			
	Drive Type	SATA/SAS 6Gb/s or 3Gb/s	SATA/SAS 6Gb/s or 3Gb/s	SATA/SAS 6Gb/s or 3Gb/s			
	CPU Type	-	LGA 1155 Xeon E3 V2 or 3rd Generation Core i3 processor	LGA 1155 Xeon E3 V2 or 3rd Generation Core i3 processor			
	Chipset	-	Intel C216 Chipset	Intel C216 Chipset			
	Memory Type	-	4 x 240 pin DDR3 up to 32 GB	4 x 240 pin DDR3 up to 32 GB			
	Storage Expansion	2 x 6Gb/s SAS 4x wide ports	Yes (only for E SKU)	No			
	RAID Level	-	0, 1, 5, 6,10, 50, 60	0, 1, 5, 6,10, 50, 60			
	TPM	-	Yes (optional)	Yes (optional)			
	Smart Fan Control	Yes	Yes (smart fan control for both CPU & SYS fan)	Yes (smart fan control for both CPU & SYS fan)			
<b>Power Supply</b>	Power Output Wattage	875W Redundant Power	650W Redundant Power	875W Redundant Power			
	Input Range	AC 100-240V	AC 100-240V	AC 100-240V			
<b>Mechanical</b>	Dimension	699 x 432 x 176 (mm)	699 x 432 x 88 (mm)	699 x 432 x 176 (mm)			
	Weight	41 kg (without hard drives)	19 kg (without hard drives)	42 kg (without hard drives)			
<b>Environmental</b>	Temperature	Operation	Non-operation	Operation	Non-operation	Operation	Non-operation
		0° C ~ 40° C (32° F ~ 104° F)	-20° C ~ 60° C (-4° F ~ 140° F)	0° C ~ 40° C (32° F ~ 104° F)	-20° C ~ 60° C (-4° F ~ 140° F)	0° C ~ 40° C (32° F ~ 104° F)	-20° C ~ 60° C (-4° F ~ 140° F)
	Humidity	10% ~ 85% @ 40° C, non-condensing	10% ~ 95% @ 40° C, non-condensing	10% ~ 85% @ 40° C, non-condensing	10% ~ 95% @ 40° C, non-condensing	10% ~ 85% @ 40° C, non-condensing	10% ~ 95% @ 40° C, non-condensing
<b>Misc</b>	Notification LED	Power Status, System Fail		Power Status, System Fail, LAN LED		Power Status, System Fail, LAN LED	
<b>Expansion Slot</b>	PCIe x16 slot with x8 link	-	1	1			
	PCIe x4 slot	-	2	2			
	PCI	-	3	3			
<b>Display</b>	Chipset	-	Integrated Intel HD Graphics(GT2-P4000 or GT1-2500)		Integrated Intel HD Graphics(GT2-P4000 or GT1-2500)		
	Display Memory	-	1 GB maximum shared memory with 2 GB and above system memory installed		1 GB maximum shared memory with 2 GB and above system memory installed		
	VGA	-	Onboard, supports up to 2048 x 1536 (@60Hz)		Onboard, supports up to 2048 x 1536 (@60Hz)		
<b>Ethernet</b>	Gigabit Ethernet	-	4	4			
<b>I/O</b>	Front Panel I/O Port	-	2 USB 2.0		2 USB 2.0		
	Back Panel I/O Port	-	1 PS/2 Keyboard/Mouse 1 VGA Port 1 COM RS-232 Port 2 USB 2.0 Ports 2 USB 3.0 Ports 4 LAN RJ45 Port		1 PS/2 Keyboard/Mouse 1 VGA Port 1 COM RS-232 Port 2 USB 2.0 Ports 2 USB 3.0 Ports 4 LAN RJ45 Port		
	Internal I/O Connector	-	1 TPM Pin Header 2 USB Type A connectors		1 Parallel Port pin header 1 COM Port pin header 1 Audio Port pin header 1 TPM Pin Header 1 USB 3.0 Pin Header 2 USB Type A connectors 3 USB 2.0 Pin Headers		

# External Disk Array

High Availability Disk Array Solution for Mission-Critical Service with No Down Time



## Specifications

Model Name		ASR-5200E	
<b>System</b>	Form Factor	2U 12-Bay (LFF) / 24-Bay (SFF)	
	Configuration	Dual Controller	
	Number of Drives	12 Bay (3.5") / 24 Bay (2.5")	
	Drive Type	6 Gb/s SAS	
	Cache Memory	8 GB	
	JBOD Expansion	Yes, miniSAS HD	
	Max Drives	120 x 3.5" drives / 240 x 2.5" drives	
	Default Host	4 x 1Gb/s iSCSI RJ45 port 6 x 6Gb/s SAS wide-port 8 x 8Gb/s FC SFP port	
	Optional Host	4 x 10Gb/s iSCSI SFP+ port 8 x 1Gb/s iSCSI RJ45 port	
	RAID Levels	0, 1, 5, 6, 10	
<b>Data Service</b>	Advanced Functions	Thin Provisioning FlashCopy (64 Targets for free) Easy Tier	
	Optional Features	Flash Copy upgrade (up to 2040 Targets) Remote Mirror	
<b>Power Supply</b>	Power Output Wattage	800W Redundant Power	
	Input Range	AC 100-240V	
<b>Mechanical</b>	Dimensions	556 x 483 x 8.7 (mm)	
	Weight	18kg (without hard drives)	
<b>Environmental</b>	Temperature	Operating	Non-operating
		10°C~35°C (50°F~95°F)	-10°C~50°C (14°F ~ 125°F)
	Humidity	20%~80%@35°C, non-condensing / 10%~90%@35°C, non-condensing	