Advantech Machine Vision Solutions

- Configurable Platforms
- All-in-One Platforms
- Frame Grabbers
- Deep Learning Solutions

GiGE VISION USB3 VISION

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Enabling an Intelligent Planet

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The Next Generation of Intelligent Machine Vision Solutions

Overview of Machine Vision Solutions

Implementation Advantech Solution in the Field

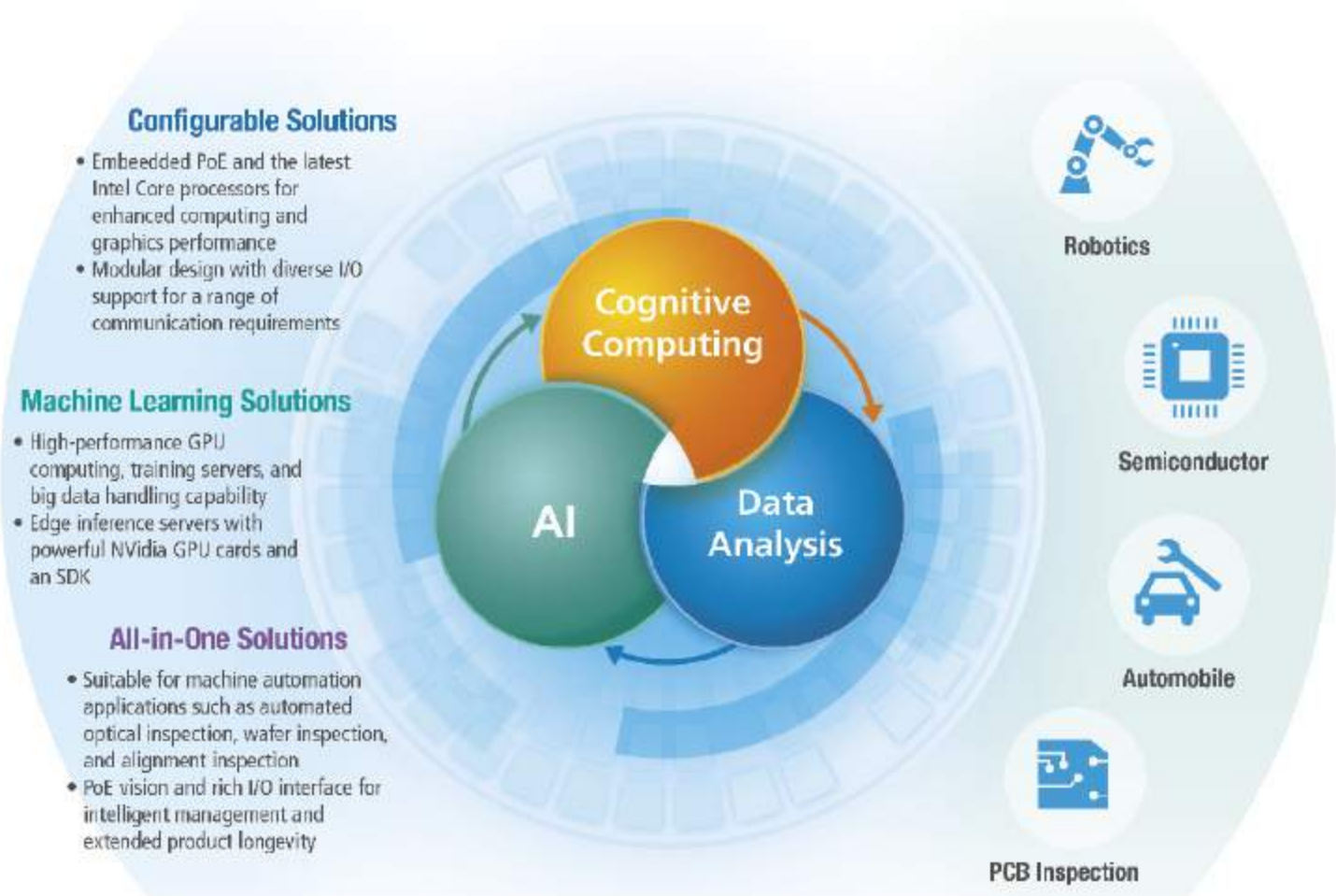
Product Highlights

Success Stories

Selection Guide

Complete Machine Vision Solutions to Meet Diverse Requests from the Field

As technology progresses from research laboratories into practical implementations and as advancements are made in the underlying hardware and software, there has been an exponential increase in machine vision capabilities and applications. The manufacturing marketplace continues to apply machine vision systems in innovative ways to improve performance and quality. This is largely due to high-performance devices being economically applied to solve a variety of problems. Another major contributing factor is ease of use, as new solutions are becoming increasingly simpler to deploy and support compared to their older hardware and software counterparts. To meet the various requests that are emerging with this trend, Advantech offers three major solutions for different fields: configurable solutions, all-in-one solutions, and machine learning solutions.



Configurable Solutions

Modular computers are designed for machine automation applications such as vision inspection, automated optical inspection, packaging inspection and intelligent monitoring. Modular IPCs are beneficial to service and maintenance, and this compact system, with PoE and the latest Intel Core processor, delivers enhanced computing and graphics performance. To address the high diversity and flexibility demands of machine vision, these modular computers feature a rich I/O interface that supports a range of communication requirements and devices, including external sensors, controllers, and displays. Advantech's innovative i-modules provide crucial value-added options for flexible expansion and are easy to assemble and upgrade.

All-in-One Solutions

Advantech's all-in-one platforms are highly suitable for machine automation applications such as automated optical inspection, wafer inspection, and alignment inspection, all of which heavily rely on high-performance, high-precision machine vision systems. With PoE vision and a rich I/O interface, our all-in-one platforms are characterized by high-performance computing and low power consumption, intelligent management, and extended product longevity. With the latest Intel Core processors, Advantech's solutions deliver state-of-art computing and graphics performance.

Deep Learning Solutions

Business applications powered by deep learning are growing rapidly. Thanks to high-performance GPU computing, training servers can now handle huge data sets to produce even better trained data models. After trained models have been deployed, edge inference systems can also be utilized leverage the power of GPUs to obtain real-time prediction with a high level of inference accuracy. Advantech's deep learning solutions include edge inference servers with powerful NVidia GPU cards and an SDK that delivers a potent package for IoT intelligence and edge computing. Furthermore, our deep learning solution library accelerates development in server training by enabling you to deploy deep learning models that can, as simple examples, count the number of people on the street or analyze traffic flow in real time.

While no single approach is ideal for all needs, a fundamental objective is to reduce the development and deployment effort of end users. Our advanced hardware and software deliver on this goal, minimizing life cycle support and the total cost of ownership.

Advantech Deep Learning Inference Systems

Satisfying Your Needs With Advantech GigE Vision Solutions

In food and beverage processes—especially those involving the production of a wide range of end products—machine vision systems can be leveraged to verify that the product packaging clearly lists all ingredients in the product, which is critical for foods containing known allergens. Pharmaceutical processes have an even greater criticality in this context, as it is thus absolutely crucial to trace all ingredients and finished products. As the perfect fit for such applications, Advantech has three major product offerings: configurable solutions, all-in-one solutions, and machine learning solutions.

Configurable Solutions

MIC-7500

Intel 6th Generation Core i processor compact fanless system

MIC-7700

Intel 6th/7th Generation Core i desktop compact fanless system

MIC-7900

Compact fanless system with Intel® Xeon® SoC processor

PCIE-1174

4-port PCI Express intelligent GigE vision frame grabber

PCIE-1674E

4-port PCI Express PoE card

PCI-1285

DSP-based 8-axis stepping and servo motor control universal PCI card

Deep Learning Solutions

SKY-6400

4U Rackmount Intel Xeon scalable series GPU server supports
4 x PCIe x16 double-deck card and
1 x PCIe x 8 single-deck FH/FL card

HPC-5000

Small tower chassis for microATX/ mini-ITX motherboard

HPC-7000

Server tower chassis for EATX/ATX/ microATX motherboard

All-in-One Solutions

AIIS-5410P

Fanless vision system with Intel Core i processor, 4-ch GigE PoE camera interface, and PCIe slot

AIIS-3410

Compact vision system, supports Intel 6th Generation Core i CPU, 4-ch GigE PoE or USB 3.0 camera interface

VPS-3100

Intel N3160 processor, 2-port GigE vision platform with lighting control

PCIE-1730H

32-ch TTL and 32-ch isolated digital I/O PCI Express card

PCIE-1756H

64-ch isolated digital I/O PCI Express card

USB-5830/5860

16/8-ch isolated digital I/O + relay USB 3.0 I/O module

Configurable Solutions

Compact modular PCs support i-module expansion to satisfy a diverse range of application requirements. They reduce lead time for CTOS due to their easy configuration and can be widely deployed for factory and machine automation.

Modularized

- i-Module support for flexible expansion
- CTOS service for minimal lead times

Ruggedized

- Compact and fanless design
- Supports wide DC input range and operating temperature

Customized

- 20 standard PCIe lanes for I/O customization and expansion
- Rapid development cycles and simple validation process

Optimized

- Available with various processors to satisfy specific application requirements

All-in-One Solutions

AIIS Series is aligned with such machine automation applications as automated optical inspection, label inspection, and alignment inspection, all of which rely heavily on machine vision. With PoE vision, USB 3.0 vision, and a rich I/O Interface, the AIIS Series consists of high-performance computing and low power consumption for intelligent management and extended product longevity.

Compact Size

- Compact size with rich I/O
- Space-saving and easy-to-install

Mainstream Interface

- GigE vision-compliant
- USB3 vision-compliant

Outstanding Performance

- High-speed, reliable transmission for image acquisition and analysis

High Interoperability

- Compliant with main vision camera partners

Deep Learning Solutions

Our industrial server and storage series include multiple server racks and custom servers to ensure reliability, capacity expansion, and easy deployment. The server series include server motherboards, server chasses, and GPU servers; and our storage series includes external disk arrays, JBOD, and storage servers.

Unique Friendly Design

- Exclusive anti-vibration mechanism
- Cable-less design enhances thermal efficiency

Application-Ready Platform

- Visualization computing
- Parallelization/acceleration computing
- Virtualization computing

Life Cycle Management

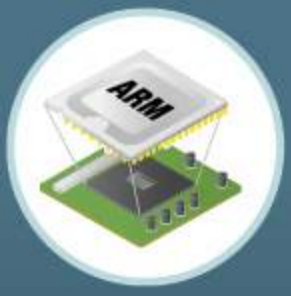
- Longevity support
- 3-5-7 service guarantee
- Advance notice for all proposed changes

High Performance Server

- Optimized CPU selection
- Supports various GPU cards
- Safety/reliability

Frame Grabbers

Frame grabbers can be configured and monitored remotely through Ethernet via a PC or factory network. Small and rugged devices with built-in opto-isolated I/Os allow for direct wiring to associated control devices and can be easily integrated into existing production lines, machinery, or moving equipment. The Ethernet port provides setup and monitoring access, runtime control, and support for standard communication protocols, and the passive PoE supports single cable interfaces.



Reliability

- Dedicated coprocessor for network traffic and image acquisition
- No frame or packet loss

GigE Vision Support

- GigE vision-compliant
- Reduce CPU workload

Easy to Use

- ToE/PoE single cable solution to reduce installation and maintenance time

Shorten Development Time

- Provide viewer utility and .NET Component SDK
- GeniCam and GenTL compatible, support for MVTec HALCON, Stemmer Imaging CVB

Automated Optical Inspection Solutions for Product Traceability in Food and Beverage Industry

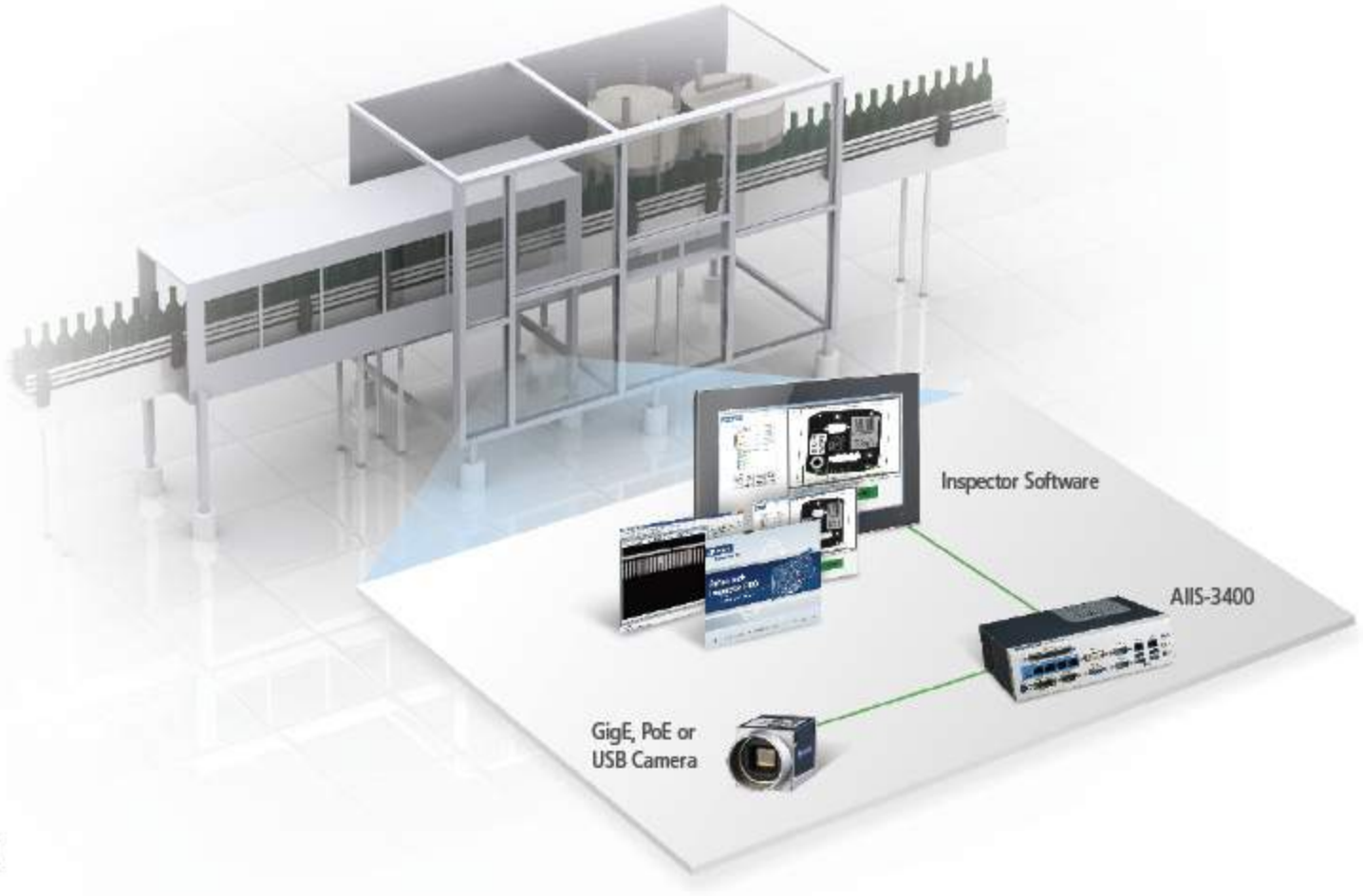
With greater market demand for food safety, traceability is receiving increasingly more attention in the food and beverage industry as well as the packaging industry. Traceability refers to the ability to verify the history, location, and application of an item via documented recorded identification, thus enabling the recall of goods based on precise date/time and location information.

Solution

Model	Description
AIIS-3400	4-CH PoE compact vision system with Intel® Core™ i7 CPU
Inspector Express	GUI machine vision software
QCAM-GM0640-300CE	Quartz color Ethernet camera 658 x 492 CMOS (12-bit, 300 fps)

System Requirements

- A leading provider of beverage containers sought to identify bar codes, characters, and numbers on ink-jet-printed labels at a run rate of 7 units per second with more than 99.9% accuracy.



Advantech's Motor Control Integrated Solutions for High-Precision Dual-Channel Adhesive Dispensers

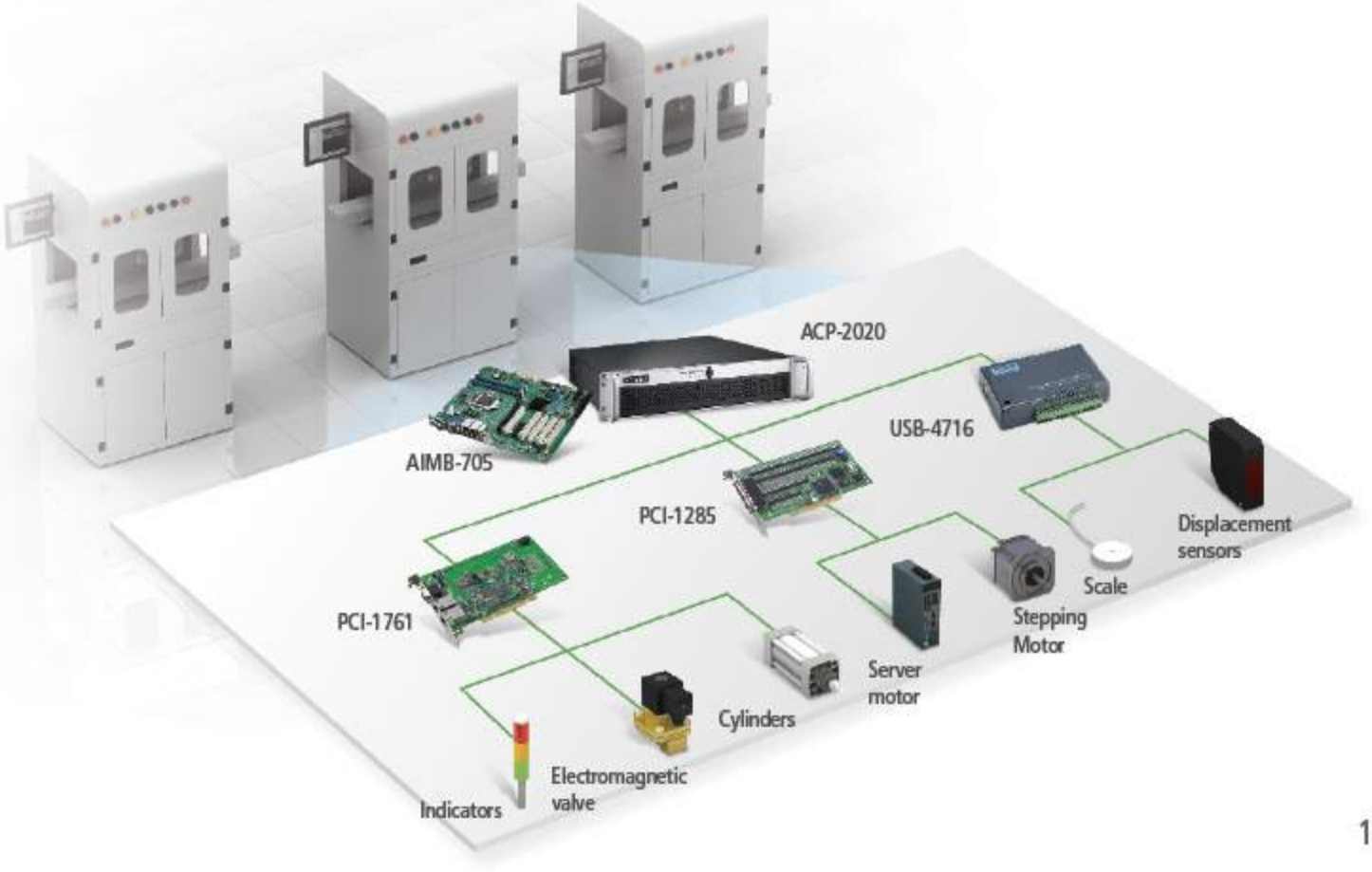
Adhesive dispensers are widely used in electronics, lighting, automotive, power generation, and other industries; in fact, they are one of the most basic types of equipment found in product manufacturing. However, this type of dispenser technology is far from mature in China, and international brands, whose products generally cost millions to purchase, have a clear monopoly. To help the Chinese market overcome this market barrier, Advantech has worked with local smart equipment manufacturers to help them realize a technological breakthrough.

Solution

Model	Description
PCI-1285	DSP-based 8-axis stepping and servo motor control universal PCI card
USB-4716	200 kS/s, 16-bit, 16-ch multi-function USB module
PCI-1761	8-ch relay/isolated digital input PCI card
AIMB-705	Intel 6th/7th Gen. Core i ATX motherboard, H110 PCH
ACP-2020	2U short-depth rackmount chassis

System Requirements

- Requires motor control cards to control at least 3 server motors and 3 stepping motors
- Requires the awaiting nozzle height to realize dual z-axis automated height adjustment in the process
- In the dispensing route, all routes has to be completed at a unified speed



FOG Vision System for LED Module Production Line

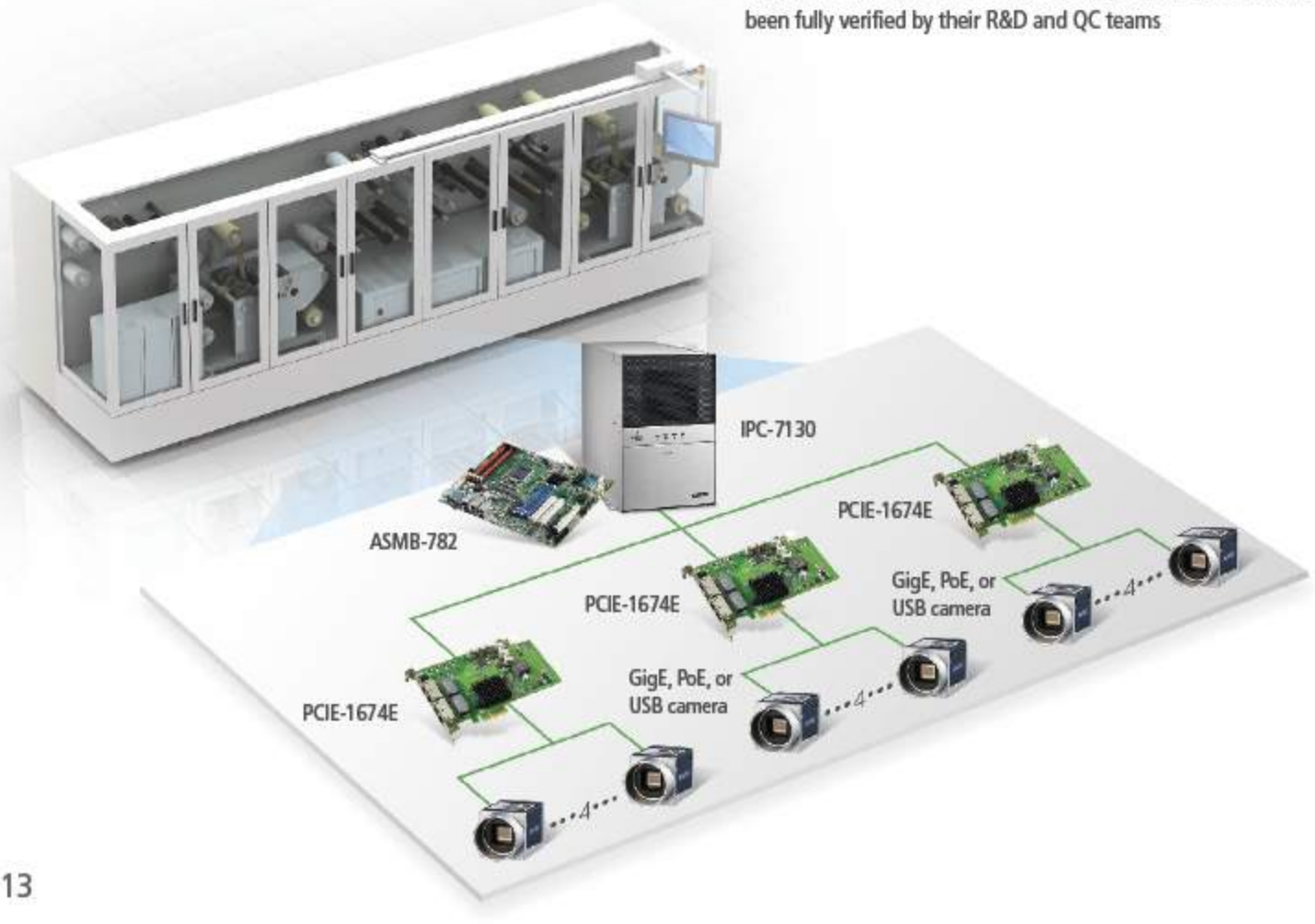
Most LCD panels used in mobile phones, tablet PCs, and electric home appliances are being replaced with LED panels. The world's most famous company in the mobile phone market sought to adopt LED panels produced by Korea Display Company in their new generation mobile phones and tablet PCs. Therefore, this machine builder was requested to develop large FOG vision machines with 17 sets of IPCs in a single machine.

Solution

Model	Description
IPC-7130	Desktop/wallmount chassis for ATX/microATX motherboard with dual hot-swap 3.5" drive bays
ASMB-782G2	LGA 1155 Intel® Xeon® E3 V2 ATX server board with 2 x PCIe x16 (x8 link), 2 x PCIe x4, USB 3.0, PCIe Gen III, Quad LANs
PCIE-1674E	4-port PCI Express PoE card

System Requirements

- The FOG vision machines that the machine builder was developing needed a high-end CPU performance IPC with 4 x PCIe x4 to connect up to 12 Ethernet cameras
- Each machine required 17 IPCs; the machine builder wanted to utilize compact-sized, high-performance computing to downsize the machine in order to maximize the number of machines they could run at the same time
- This machine builder had to move to mass-production within a very short time and hence sought to adopt an IPC that had already been fully verified by their R&D and QC teams



A Production Line Solution for Mobile Phone Ceramic Covers

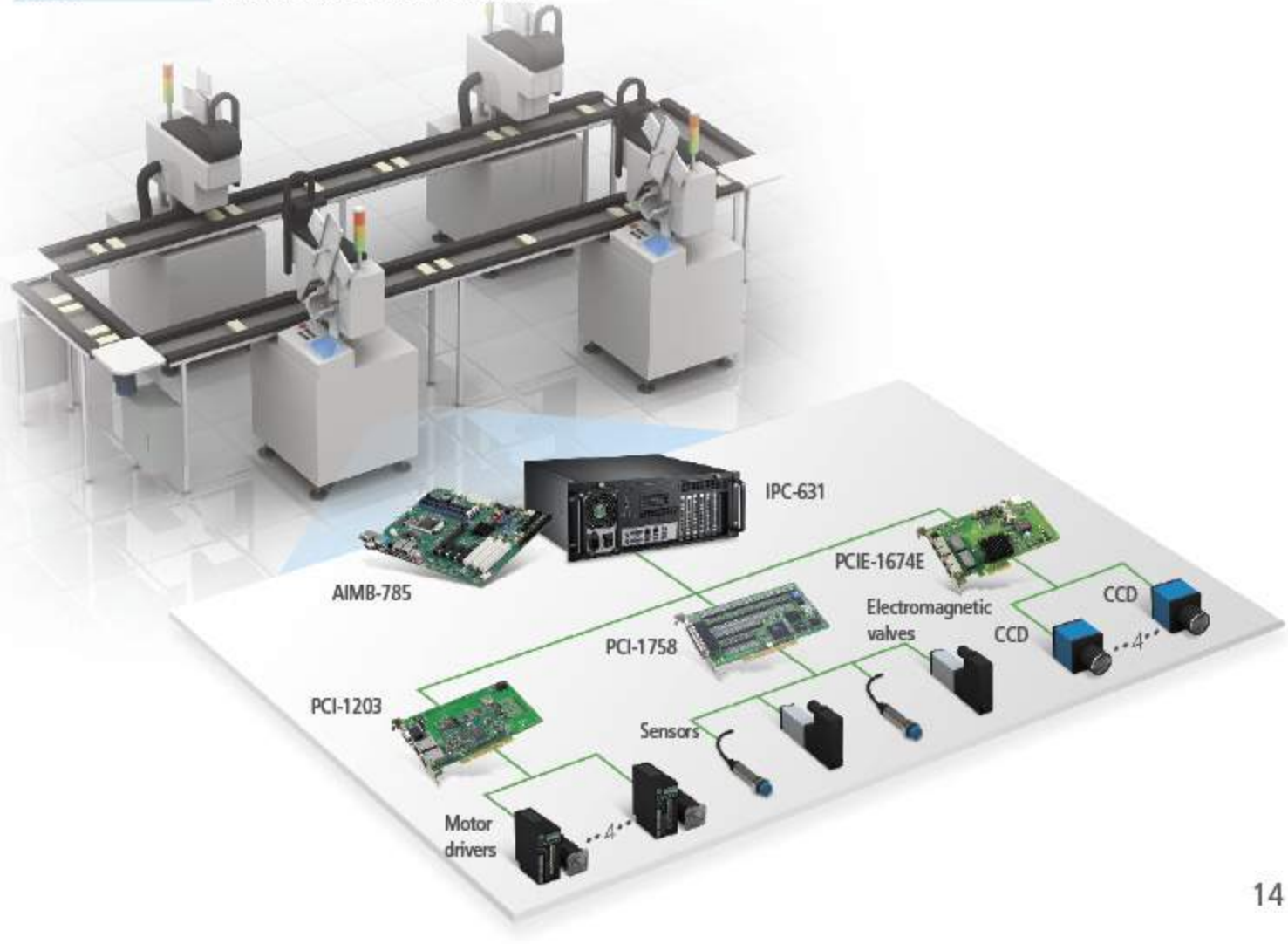
Ceramic covers have been developed as a new and innovative material for mobile phones. Their production requires complete automation in order to prevent defects during such processes as loading/unloading, polishing, and laminating. Concurrent automated visual machine inspection is also necessary to maximize yield. Demand and production standards are exceptionally high for this market, and thus fully automated around-the-clock production is essential to ensure both production quantity and quality.

Solution

Model	Description
PCI-1203	2-port EtherCAT universal PCI master card
PCI-1758	128-ch isolated digital I/O universal PCI card
PCIE-1674E	High-efficiency, multi-channel image acquisition card, supports GigE vision standard
AIMB-785	Intel 6th/7th Generation Core i ATX motherboard
IPC-631	4U front I/O short-depth rackmount chassis

System Requirements

- Rapid motor control response was necessary
- The system required 108 digital inputs and 96 digital outputs while still conserving PCI slots for controllers
- The cameras had to provide a high frame rate and operate with high-efficiency for multi-channel image acquisition



Selection Guide

Intelligent Inspection System

Model name		AIIS-3410P/ AIIS-3410U	AIIS-5410
Processor system	Chipset	H110	QM170
	CPU	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th Generation Core i7/i5 BGA1440 processor
	Core	4	
	Cache	8MB	
	Memory	Dual Channel DDR4 1866/2133 MHz (non-ECC) Max 32GB	
Graphics	Graphics controller	Integrated Intel HD Graphics	
	VRAM	Shared system memory is subject to OS	
Expansion	PCIe x8	1	
	PCI*	1x riser card (optional)	1x riser card
	mini PCIe	1	
Storage	HDD Bay	1 x Internal 2.5 HDD Bay	2 x Internal 2.5 HDD Bay
	mSATA	-	1
	CFast	1	
	RAID	-	RAID 0/1
Ethernet	Ethernet interface	10/100/1000 Mbps	
	Controller	LAN1: Intel i219LM LAN2: Intel i210	2 x Intel I210
Machine vision connector	Interface	4 x channel PoE 4 x channel USB	4x channel PoE
	Controller	Intel I210 Renesas µPD720202	Intel I210
Front I/O	Display	VGA + DVI-D	VGA + DVI-D
	LAN	2	
	USB	4 x USB3.0	8 x USB3.0
	COM	2 x RS-232/422/485	-
	Audio	Line-in/Line-out/ Mic-in	Line-out/Mic-in
Rear I/O	COM	-	2 x RS-232/422/485
	Digital I/O	8 Channels (Isolated)	
Watchdog timer output	Output	System reset	
	Interval	Programmable 1 ~ 255 sec/min	
Power supply	Input range	DC 19-24V	DC 9-36V
	Remote power switch	1	
Cooling	System fan	1 (8cm / 57 CFM)	-
	Air filter	-	-
Physical characteristics	Dimensions (W x H x D)	240 x 97 x 190 mm (9.45" x 3.82" x 7.48")	235 x 88 x 188 mm (9.25" x 3.46" x 7.4")
	Weight	2.4 kg (5.3 lb)	2.9 kg (6.4 lb)

Industrial Chassis

Model Name			IPC-631	IPC-7130 / IPC-7130L	ACP-2020	ACP-4D00
Form factor support			ATX/Micro-ATX	ATX / Micro ATX	ATX / MicroATX	PICMG 1.3/ PCI Half-sized SBC
Drive bay	Slim optical drive		-	-	1	-
	2.5"		4 (2 external optional hotswap)	-	4 (2 external optional hot-swap)	-
	3.5"	External	-	2 (hot-swap) / 2	-	1 / each node
		Internal	-	1 / 1	1 (2.5" only)	-
	5.25"		-	1 / 1	-	-
Front I/O	USB		Front I/O chassis	2 / 2	2	2 (USB 2.0) + 2 (USB 3.0) / each node
	PS/2		-	-	-	-
Cooling	No. of fans		2	1 + 1	2	1 / each node
	CFM		2 x 82	73.8 + 21.2	82	1 x 58 per node
Power supply	AC		500W PS/2	300W PS/2 400W PS/2 500W PS/2	500W Flex ATX	250W Flex ATX 300W Flex ATX
	AC redundant		500W Mini RPS	350W Mini RPS 500W Mini RPS	500W 2U redundant	-
	DC		-	-	-	-
No. of slots for add-on cards			7	7	7	6 / each node
No. of full-sized cards			0	7	7	0
Passive backplane options	PICMG 1.0		-	-	-	Yes (PCI BP only)
	PICMG 1.3		-	-	-	Yes
Intelligent system module			-	Yes/No	Yes	Yes
Physical characteristics	Dimensions (W x H x D)		482 x 177 x 348 mm (19" x 7" x 13.7")	200 x 320 x 480 mm (7.9" x 12.6" x 18.9")	482 x 88 x 398 mm (18.96" x 3.46" x 15.67")	430 x 177 x 350 mm (19" x 7" x 13.8")
	Weight		8 kg (17.6 lb)	12.8 kg (28.2 lb)	8 kg (17.6 lb)	15 kg (33 lb)

Modular Industrial Computer






Model name		MIC-7900	MIC-7500	MIC-7700	MIC-7300	UNO-3283G	UNO-3285G
Processor system	Chipset	-	QM170	Q170/H110	-	QM170	
	CPU	Intel Xeon D-1559/D-1539 BGA type	Intel Core i processer BGA type w QM170	Intel 6th/7th generation Core i CPU (LGA1151)	Intel Celeron N3350/ Atom x7 E3950 Processor	Intel® 6th Gen Core™ i7/i5/i3 CPU	
	Core	Max.12	Max.4			Quad Core	
	Cache	12/18 MB	8/6/3 MB	8/6/4/3/2 MB	4/2 MB	8 MB	
	Memory	Dual DDR4 2133 MHz Max 32 GB (Supports ECC)	Dual DDR4 2133 MHz Max 32 GB		Dual DDR3L 1867 MHz Max 8 GB	Built-in 8 GB DDR4 2133 MHz Max 32 GB	
Graphics	Graphics controller	Aspeed 1400 w/256 MB RAM VGA provides basic 2D VGA function	Integrated Intel HD Graphics			Intel HD Graphics	
	VRAM	Shared system memory is subject to OS					
Expansion	PCIe x16	Support by i-Module				1	-
	PCIe x8	-				2	2 (optional)
	PCIe x4	-				-	
	PCIe x1	-				-	
	PCI	-				1 (2 x PCI optional)	2 (4 x PCI optional)
	mini PCIe	1	2		1	2 x full mPCIe	
Storage	HDD Bay	1 x Internal 2.5" HDD				2 x Internal 2.5" HDD	
	mSATA	1				1 (optional)	
	CFast	1			-	1	
	RAID	-	0/1/5/10	0/1/5/10 (Q SKU only)	-	0/1	
Ethernet	Ethernet interface	10/100/1000 Mbps					
	Controller	4 x Intel i210IT	Intel i219LM Intel i210IT		2 x Intel i210AT	Intel i210-IT Intel i219-LM	
Front I/O	Display	VGA	VGA+DVI-D			1 x DVI-I 1 x HDMI 1.4a	
	LAN	4	2			2	
	USB	4 x USB3.0	8 x USB3.0	Q170: 8 x USB3.0 H110: 4 x USB3.0, 4 x USB2.0	2 x USB3.0 6 x USB2.0	6 x USB3.0	
	COM	2 x RS-232/422/485	2 x RS-232/422/485 2 x RS-232			2 x RS-232/422/485 2 x RS-232 (pin header)	
	PS/2	-				-	
	Audio	Line-out/Mic-in					
Watchdog timer output	Output	System reset					
	Interval	Programmable 1~255 s/min					
Power supply	Output Wattage	-					
	Input range	9~36 V_{DC}				10~36 V_{DC}	
	Remote power switch	-			1	-	
Cooling	System fan	-				(optional)	
	Air filter	-					
Physical characteristics	Dimensions (W x H x D)	74 x 192 x 230 mm (2.91" x 7.55" x 9.05")		78 x 192 x 230 mm (3.07" x 7.55" x 9.05")	74 x 192 x 230 mm (2.91" x 7.55" x 9.05")	UNO-3283G:142 X 238 X 177 mm (5.59" x 9.37" x 6.96") UNO-3285G: 182 X 238 X 177 mm (7.16" x 9.37" x 6.96")	
	Weight	2.9 kg (6.4 lb)		2.8 kg (6.1 lbs)		UNO-3283G: 4 kg (8.8 lb) UNO-3285G: 4.5 kg (9.9 lb)	

Selection Guide

GPU Server

Model Name		SKY-6400	
Processor Support		Dual Intel® Xeon® Scalable GPU Server	
Expansion Slots		4 x PCIe x16 double-depth + 1 PCIe x 8 FH/FL card + 1 PCIe x4 card	
Drive bay	Slim ODD Bay	-	
	2.5" Internal	2	
	2.5" hot swap	-	
	3.5" hot swap	8	
Cooling	Chassis fan	6 x 120 x 38	
	Air filter	-	
Chassis intrusion alarm		Yes	
Front USB		2 (USB 3.0)	
Miscellaneous	LED indicators	Power status, HDD activity, LAN1 & LAN2	
	Remote Management	Advantech Remote Monitoring Utility	
Environment		Operating	Non-operating
	Temperature	0~35°C (32~86°F) *0~30°C (32~86.9°F) for nVidia Tesla P100	-20~60°C (-4~140°F)
	Humidity	10~85% @ 40°C	10~95% @ 40°C
	Vibration (5~500 Hz)	0.5Grms	
	Shock	10g (with 11ms duration, half since wave)	
Physical characteristics	Dimensions (W x H x D)	435 x 177 x 673 mm (17.12" x 7.0" x 26.6")	

Monitor

Model Name	FPM-7211W
Max resolution	1 x Upstream (Type B) 4 x Downstream (Type A)
Display type	21.5" Full HD TFT LED LCD
Video port	VGA & DVI-D
Power input	Phoenix jack: 24 Vdc input
Power consumption	25 W + 20%
Weight	8 kg (17.6 lb)
Dimensions	558.4 x 349.8 x 47.7 mm (21.98" x 13.77" x 1.88")

Digital I/O Card

Model Name			PCI-1710U/ 1710UL	PCI-1712/ 1712L
Analog Input	Resolution		12 bits	12 bits
	Channels		16 SE/8 diff.	16 SE/8 diff.
	Onboard FIFO		4,096 samples	1,024 samples
	Sampling rate		100 kHz	1 MHz
	Input ranges	Unipolar inputs (V)	0~10, 0~5, 0~2.5, 0~1.25	0~10, 0~5, 0~2.5, 0~1.25
		Bipolar inputs (V)	±10, 5, 2.5, 1.25, 0.625	±10, 5, 2.5, 1.25, 0.625
		Configurable per channel	✓	✓
	Trigger modes	Pacer/ software/ external pulse	✓	✓
		Analog slope	-	✓
		Advanced trigger	-	✓
	Data transfer modes	Software	✓	✓
		DMA	-	Bus mastering
Analog Output	Resolution		12-bit	12-bit
	Channels		2 (PCI-1710U only)	2 (PCI-1712 only)
	Onboard FIFO		-	32,768 samples
	Output range (V)		0~5, 0~10	0~5, 0~10, ±5, ±10
	Output rate		Static update	1 MHz
	DMA transfer		-	✓
Digital I/O	Input channels		16	16 (shared)
	Output channels		16	
Timer/ Counter	Channels		1	3
	Resolution		16-bit	16-bit
	Max. input frequency		10 MHz	10 MHz
Isolation Voltage			-	-
Auto Calibration			-	✓
Board ID Switch			✓	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			68-pin SCSI	68-pin SCSI
Legacy driver	Windows XP/2000		✓	✓
	WinCE		✓	-
	Linux		✓	✓
DAQNavi driver	Windows 8/7/Vista/XP/2000		✓	✓
	WinCE		✓	-
	Linux		-	-
LabVIEW driver			✓	✓

Frame Grabber




Model Name		PCIE-1172	PCIE-1174	PCIE-1672E	PCIE-1674E
Power requirements	Input voltage	12 V_{DC} direct from PCIe slot, total Max. 18 W or AT/ATX system power input			
	Overload current protection	Present			
	Connection	AT/ATX power jack			
	Output PoE power	48 VDC PoE Power output, total Max. 18W (total Max. 60W with AT/ATX system power input)			
Environment	Operating temperature	0~50°C (32~122°F)			
	Storage temperature	-20~80°C (-4~176°F)			
	Operating humidity	5~95% RH			
Mechanics	Dimensions (W x D)	185 x 110 mm (7.3" x 3.9")			
GigE vision	Compatibility	IEEE802.3af			
	Speed	1000 Mbps		10/100/1000 Mbps	
	No. of ports	2	4	2	4
	Port connector	8-pin RJ45			
	Bus interface	PCI Express x4			
	Jumbo frame	9KB			
	GigE vision offload engine	√	√	-	-
Safety	ESD	8 kV (air), 4 kV (contact)			
	EFT	2 kV			
	Surge protection	1 kV			
	Isolation protection	2.5 kV			
Digital I/O	No. of channels	2 input and output	4 input and output	-	-
	I/O range	0~30 V opto-isolated		-	-
	Max. frequency	1 kHz		-	-
	Digital input interrupt	Falling and rising edge, normal and invert		-	-

USB 3.0 Digital I/O Module

Model Name		USB-5830/5860
Interface		USB 3.0
Digital Input Environment	Channels	16/32
	Input voltage	Logic 0: 3 V
	Max. Logic 1	10 V min. (30 V max.)
Digital Output	Channels	16/32
	Load voltage	5~40 V_{DC}
	Load current	350 mA/ch (sink) @ 25°C
Isolation protection		2,500 V_{DC}
Opto-isolator response time		100us
Dimensions		120 x 120 x 40 / 170 x 120 x 40 mm3

USB 3.0 Hub

Model Name	USB-4630
Ports	1 x Upstream (Type B) 4 x Downstream (Type A)
Bus	USB 3.0
Supply current	External power: 900 mA max. per port USB bus power: 700 mA max. shared by all ports
Transfer speed	5 Gbps shared by all downstream ports
DC power input	10 ~ 30 V_{DC}
Power consumption	760 mW (no load)
Dimensions	132 x 80 x 32 mm

Regional Service & Customization Centers

China	Taiwan	Netherlands	Poland	USA/ Canada
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