

Integrated Automation Systems

Enabling machine vision, motion control and factory signage

- / Intelligent Factory
- / IoT System Deployments
- / Software Services



- Flexible and Compact Design
- IoT Ready Platform
- Maximizing Production Efficiency

ADVANTECH

Enabling an Intelligent Planet

WISE-PaaS/RMM

WebAccess/SCADA

WebAccess/IMM

Making Intelligent Factory Accessible

In the IoT era, industrial automation has gradually become sufficiently reliable to serve as an effective part of the production process. With Advantech integrated automation system solutions, the production line can be automated with robotic machine control as well as visual inspection and support data visualization through our software services.

3 Winning Facts

Flexible and Compact Design

To provide flexible support for different function requests, Advantech offers diverse modular products, including stackable I/O expansion and customized power inputs. The compact design not only enables easy IoT implementation but also energy saving.

IoT Ready Platform

Embedded IoT systems are all equipped with wireless connectivity and innovative software services to realize the IoT implementation. Our WISE-PaaS software platform can empower the deployment and management of IoT applications.

Maximizing Production Efficiency

All the systems are integrated with automation related peripherals, allowing use of a wide variety of controls and sensors that can add value to any management installation.

IoT System Deployments in Intelligent Factory



IoT Software Architecture



Through new ideas and technologies, Advantech embedded IoT systems integrated a series of innovative software solutions to make our systems more manageable, power-saving, and secure. This effectively relieves system developers and users of the complexity of device management and maintenance, and simplifies the operation of embedded devices.



WISE-PaaS/RMM

Remote Monitoring and Management

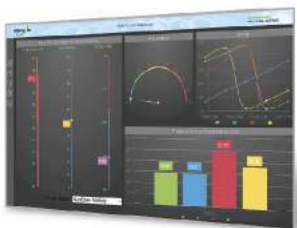
- Centralized IoT device HW & SW status management
- Built-in 15+ real-time monitoring widgets



WebAccess/IMM

Content management

- Manages up to 500 screens
- Drag and drop operation
- Supports rich multimedia content



WebAccess/SCADA

Smart SCADA Management

- Dashboard Editor & Viewer
- Widget Library & Widget Builder
- Cross Browser & Device Viewing



Microsoft Azure

IoT Cloud Solutions

Advantech provides cloud services powered by Azure and WISE-PaaS to assist customers with connecting their industrial solutions to the cloud.

Product Offerings

Edge Intelligence Server **WISE-PaaS/RMM** **WebAccess/SCADA** IoT Development Tools



EIS-D110

- Intel® Celeron® J1900
- WES7E/Win 10 Enterprise
- COM, GbE
- Wi-Fi, Bluetooth



EIS-DK10

- Complete IoT connection solution, from sensor, to edge system, to cloud
- IPre-configured Microsoft Azure service: Device Management Package (1 month free trial)

Embedded IoT Systems **WISE-PaaS/RMM**

Motion & Vision Integrated

Embedded platform



ARK-3520

Intel® 6th Gen Core i3/i5/i7

Motion cards



PCI-1274

Motion controller with Position Latch and Trigger

Frame grabber



PCIE-1174

PCIe x 4 compliant

Motion Control Solutions

Embedded platform



ARK-3405

Intel® Celeron® N3160

Motion cards



PCI-1203

EtherCAT master card



PCI-1245E

DSP-based 4-axis



PCI-1285E

DSP-based 8-axis

Soft control platform



ARK-2230L

Intel® Celeron® J1900

Machine Vision Solutions

Embedded platform



ARK-3520

Intel® 6th Gen Core i3/i5/i7

Machine vision cards



PCIE-1674E

4 x PoE ports



PCIE-1672E

2 x PoE ports

Machine vision camera



QUARTZ

0.3-10.0 mega pixel PoE camera

Factory Signage



DS-370

- Intel® Celeron® J1900



WISE-PaaS/RMM **WebAccess/IMM**



DS-280

- Intel® 6th Gen Core i3/i5/i7



DS-980

- Intel® 6th Gen Core i3/i5/i7



Advantech Headquarters

No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei, Taiwan 11491
Tel: 886-2-2792-7818 Fax: 886-2-2794-7301
www.advantech.com

ADVANTECH

Enabling an Intelligent Planet

US/Canada: 1-888-576-9668
Europe: 00800-2426-8080/8081
China: 800-810-0345/8389
Taiwan: 800-777-111
Japan: 0800-500-1055
Korea: 080-363-9494/9495

Singapore: 65-6442-1000
Malaysia: 1800-88-1809
Australia: 1300-308-531
Thailand: 66-2-248-3140
Indonesia: 62-21-7511939
Mexico: 1-800-467-2415

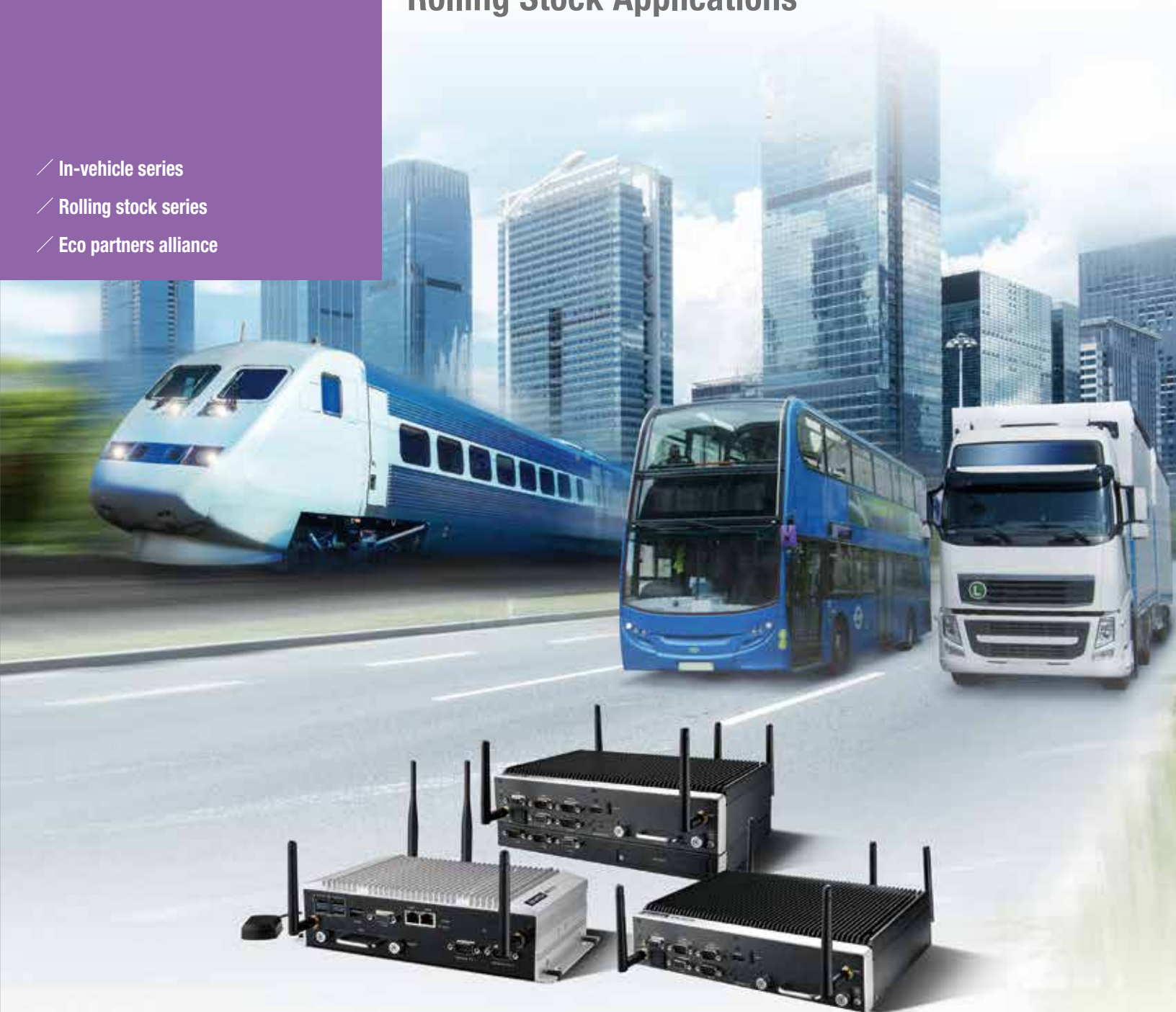
8600000331

Embedded-IoT

Embedded Systems for Transportation

Certified Designs for In-Vehicle,
Rolling Stock Applications

- ✓ In-vehicle series
- ✓ Rolling stock series
- ✓ Eco partners alliance



ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

Embedded Systems for Transportation

We provide in-vehicle and rolling stock embedded systems with designs unique for transportation industry applications. These products feature in-vehicle/rolling stock certifications (eMark/EN50155), high extension capability for communication interfaces, wireless 3G/LTE and GPS communication support, and wide operating temperature designs. With flexible and modular hardware design capability, we can efficiently meet customers' function requirements and time-to-market, and enable applications including fleet management, mobile surveillance, passenger information system, traffic surveillance and management, and much more.

Embedded modular design



Stackable extension

- Communication
- Storage extension
- Data acquisition
- ODM



Railway EN50155 Certification

- EN50121-3-2 (EMC)
- EN50121-4 (EMC)
- EN50155 Tx (-40~70°C)
- IEC 61373 (Shock/Vibration)



EMARK In-Vehicle Certification

- ISO 7637-2 (Power)
- IEC 60721-3-5 5M3 (Shock/Vibration)

Embedded peripherals



RAM



mSATA



Wireless



CANBus

Vertical accessories



IP Camera



Camera Access
Controller



Signage
Displays

Eco-Partner Collaboration – Key to Success

Advantech collaborates with professional ecosystem partners to provide building blocks required for delivering integrated and innovative solutions to the market. We work closely to ensure compatibility and reliability of our combined solutions, in order to help customers reduce integration efforts, time-to-market, and related costs.

Eco-Partner Program

- Generate additional revenues by being a "solutions seller"
- Grow your market share by leveraging Advantech brand
- Explore new opportunities with Advantech global sales team
- Professional training and support worldwide

Join us at eco-partner@advantech.com



Modular



In-vehicle embedded systems

- ✓ In-vehicle standard: EMARK, IEC 60721-3-5
- ✓ Intelligent power ignition management and wide voltage support 9~36Vdc
- ✓ GPS, 3G/ LTE wireless communication functions



On Board Surveillance

Monitor in-vehicle and surrounding status to prevent accidents and enhance passenger safety



Entertainment

Display videos and multimedia in the bus for passengers to be entertained



Passenger Information System

Display messages for passengers to keep updated on station information



Driver Behavior

Detect driver fatigue and abnormal behavior to prevent accidents



Vehicle Diagnostics

Analyze vehicle health data for preventive maintenance



Fleet management

Track vehicle movement for real-time location monitoring

Product offerings



ARK-2121V

- Intel Atom E3845 QC with 4PoE
- Up to 720p 120fps
- -30 ~ 60°C



ARK-2151V

- Intel Core i5-4300U DC with 4PoE
- Up to 1080p 120fps
- -20 ~ 60°C



ARK-2250V

(with Stackable Extension options)

- Intel Core i7-6822EQ QC with 8PoE
- Up to 1080p 240fps
- -20 ~ 70°C



Rolling stock embedded systems

- ✓ Railway standard: EN50155, EN50121-3-2, IEC61373
- ✓ 24Vdc EN50155 S2/C1 compliant, 48/ 72/ 110Vdc options
- ✓ 2nd extensible layer for PoE+, COM/ DIO, storage and add-on modules



Safety Monitoring

Detect abnormal events and forbidden objects to enhance passenger safety



BYOD Infotainment

Enhance passenger experience by providing entertainment content through mobile devices



Traveler Information System

Display real-time train schedules for passengers to keep updated on latest information



Cabin Environment Monitoring

Collect real-time environmental sensor data to detect temperature, smoke, and fire, for safety precautions



Alarm System

Alert passengers about emergency situations to enhance safety

Product offerings



ARK-2231R / 2250R

- Intel® Atom™ / Core™ i platform
- Ruggedized M12 connector design
- -40~70°C EN50155Tx



AMK-R102E

- 4 x isolation COM
- 16 x isolation DIO



AMK-R104E

- 8 x 10/100 PoE+
- 1 x 2.5" drive bay



AMK-R100E

- 8 x GbE PoE+
- 1 x 2.5" drive bay

Stackable Extension Options

Selection Guide



Application	Outdoor		In-Vehicle		Rolling Stock		
Model Name	ARK-2121S	ARK-2151S	ARK-2121V	ARK-2151V	ARK-2231R	ARK-2250R	
Processor System	CPU	Intel Atom E3845	4th Gen Intel® Core i5 4300U	Intel Atom E3825/E3845	4th Gen Intel Celeron 2980U/ Core i5-4300U	Intel Atom E3845/E3950	6th Gen Intel Core i5-6442EQ/i7-6822EQ
	Frequency	1.91 GHz	1.9 GHz	1.33 GHz / 1.91 GHz	1.6 GHz / 1.9 GHz	1.91GHz / 2.0GHz	1.9GHz/2.0GHz
	Core Number	4	2	2/4	2	4	4
	BIOS	AMI EFI 64 Mbit	AMI EFI 128 Mbit	AMI EFI 64 Mbit	AMI EFI 128 Mbit	AMI EFI 64bit	AMI UEFI 128Mbit
	Chipset	Intel Atom QC E3845	4th Gen Intel® Core i5 4300U	Intel Atom E3825/E3845	4th Gen Intel Celeron 2980U/ Core i5-4300U	Intel Atom E3845/E3950	QM170
Memory	Technology	DDR3L 1333 MHz	DDR3L 1600 MHz	DDR3L 1066/1333 MHz	DDR3L 1333/1600 MHz	DDR3L 1333/1867 MHz	DDR4 2133MHz
	Max. Capacity	8 GB	8 GB	8 GB	8 GB	8G	32G
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	2 x 260-pin SODIMM
Display	VGA	1 (up to 1600 x 1200)	1 (up to 1920 x 1200)	1 (up to 1600 x 1200)	1 (up to 1920 x 1200)	1 (up to 2560 x 1600)	1 (up to 1920 x 1200)
	LCD (TTL/LVDS/eDP)	LVDS optional	LVDS optional	LVDS optional	LVDS optional	-	-
	DDI (HDMI/DVI/ DisplayPort)	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4K at 24 Hz	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4K at 24 Hz	1 x lockable HDMI, up to 3840 x 2160 @ 30Hz	1 x lockable HDMI, up to 4096 x 2160 @ 24Hz
	Multiple Display	Dual	Dual	Dual	Dual	Dual	Dual
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/ SIM holders	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/ SIM holders	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/ SIM holders	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/ SIM holders	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 1 x Full-size Mini PCIe w/ SIM holder	1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/ SIM holders
	SIM socket	2	2	2	2	1 (accessible)	2 (accessible)
Other	GPS	-	-	Support GPS, GLONASS, GALILEO and OZSS signals	Support GPS, GLONASS, GALILEO and OZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals
	G-Sensor	-	-	Yes	Yes	Yes	Yes
	PoE	4 x 10/100 Mbps PoE	4 x 10/100 Mbps PoE	4 x 10/100 Mbps PoE (E3845)	4 x 10/100 Mbps PoE (4300U)	Optional in 2nd stack: 4/8 x GbE PoE+ (M12 D/X-coded)	Optional in 2nd stack: 4/8 x GbE PoE+ (M12 D/X-coded)
	CANBus	-	-	optional	optional	optional	optional
Ethernet	Controller	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT	GbE 1 : Intel I218 GbE 2 : Intel I210-IT	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT	GbE 1 : Intel I218 GbE 2 : Intel I210-IT	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT
	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
Audio	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)
	3G Voice	-	-	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	-	-
WatchDog Timer	Yes	Yes	Yes	Yes	Yes	Yes	
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	1	2	1	2	1	2
	USB2.0	3	2	3	2	2	1
	GPIO	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	1 x 8bit DIO Optional 1 x Isolated 16bit DIO in 2nd Stack	1 x 8bit DIO Optional 1 x Isolated 16bit DIO in 2nd Stack
	COM Port	2 x (RS-232/422/485)	2 x (RS-232/422/485)	2 x RS-232/422/485 + 2 x Isolated RS-232/422/485 (E3825)	2 x RS-232/422/485 + 2 x Isolated RS-232/422/485 (2980U)	2 x RS-232/422/485 Option 2/4 x Isolated RS-232/422/485 in 2nd stack	2 x RS-232/422/485 Option 2/4 x Isolated RS-232/422/485 in 2nd stack
	LAN	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x M12 X-code	2 x M12 X-code
Power	Power Supply Voltage	9 ~ 36 V _{DC} w/ isolation	9 ~ 36 V _{DC} w/ isolation	9 ~ 36 V _{DC} w/power ignition management	9 ~ 36 V _{DC} w/power ignition management	24 V _{DC} (48 V _{DC} , 72 V _{DC} , 110 V _{DC} optional)	24 V _{DC} (48 V _{DC} , 72 V _{DC} , 110 V _{DC} optional)
	Connector	3-pin Phoenix	3-pin Phoenix	3-pin Phoenix	3-pin Phoenix	M12 A-coded	M12 A-coded
	Power Adaptor	AC to DC, 19 V _{DC} , 120W	AC to DC, 19 V _{DC} , 120W	AC to DC, 19 V _{DC} , 120W	AC to DC, 19 V _{DC} , 120W	AC to DC, 24Vdc, 150W	AC to DC, 24Vdc, 150W
	Regulation	-	-	ISO 7637-2 lev.4	ISO 7637-2 lev.4	EN50155 S2&C1	EN50155 S2&C1
Environment	Operating Temperature (air flow 0.7 m/sec)	-30~60° C	-20 ~ 60° C	-30~70° C / -30~60° C	-20~60° C	-40~70° C (EN50155 Tx)	-40~70° C (EN50155 Tx)
	Vibration Resistance	3 Grms	3 Grms	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3	IEC61373 Category1, Class B	IEC61373 Category1, Class B
	Shock Protection	30 G	30 G	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3	IEC61373 Category1, Class B	IEC61373 Category1, Class B
Physical Characteristics	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	264.5 x 75.1 x 133.0 mm	264.5 x 69.2 x 133.0 mm	264.5 x 75.1 x 133.0 mm	260 x 57 x 160 mm (260 x 83.6 x 160 mm with 2nd stack)	260 x 67 x 160 mm (260 x 93.6 x 160 mm with 2nd stack)
Operating System	Microsoft Windows	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes	Yes
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (By project)	Yes (By project)
APIs	SUSIAccess	Yes	Yes	Yes	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC , CCC, BSMI, EN50155	CE/FCC , CCC, BSMI, EN50155
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	UL, CCC, BSMI, CB, E13	UL, CCC, BSMI, CB, E13	UL, CCC, BSMI, CB, EN50155	UL, CCC, BSMI, CB, EN50155

Transportation System Solutions



On Board
Surveillance



Fleet
Management



Passenger
Information System



Onboard
Entertainment



Driver
Behavior



Vehicle
Diagnostics



Regional Service & Customization Centers

China | Kunshan
86-512-5777-5666

Taiwan | Taipei
886-2-2792-7818

Netherlands | Eindhoven
31-40-267-7000

Poland | Warsaw
00800-2426-8080

USA | Milpitas, CA
1-408-519-3898

Worldwide Offices

Greater China

China

Toll Free 800-810-0345
Beijing 86-10-6298-4346
Shanghai 86-21-3632-1616
Shenzhen 86-755-8212-4222
Chengdu 86-28-8545-0198
Hong Kong 852-2720-5118

Taiwan

Toll Free 0800-777-111
Neihu 886-2-2792-7818
Xindian 886-2-2218-4567
Taichung 886-4-2329-0371
Kaohsiung 886-7-229-3600

Middle East and Africa

Israel 072-2410527

Asia

Japan

Toll Free 0800-500-1055
Tokyo 81-3-6802-1021
Osaka 81-6-6267-1887
Nagoya 81-52-856-9657

Korea

Toll Free 080-363-9494
Seoul 82-2-3663-9494

Singapore

Singapore 65-6442-1000

Malaysia

Kuala Lumpur 60-3-7725-4188
Penang 60-4-537-9188

Thailand

Bangkok 66-2-248-3140

India

Bangalore 91-80-2545-0206
Pune 91-20-3948-2075

Indonesia

Jakarta 62-21-751-1939

Australia

Toll Free 1300-308-531
Melbourne 61-3-9797-0100

Europe

Germany

Toll Free 00800-2426-8080/81
Munich 49-89-12599-0
Düsseldorf 49-2103-97-855-0

France

Paris 33-1-4119-4666

Italy

Milano 39-02-9544-961

Benelux & Nordics

Breda 31-76-523-3100

UK

Newcastle 44-0-191-262-4844
London 44-0-870-493-1433

Poland

Warsaw 48-22-31-51-100

Russia

Moscow 8-800-555-01-50
St. Petersburg 8-800-555-81-20

Czech Republic

Ústí nad Orlicí 420-465-521-020

Ireland

Oranmore 353-91-792444

Americas

North America

Toll Free 1-888-576-9668
Cincinnati 1-513-742-8895
Milpitas 1-408-519-3898
Irvine 1-949-420-2500
Ottawa 1-815-434-8731

Brazil

Toll Free 0800-770-5355
São Paulo 55-11-5592-5355

Mexico

Toll Free 1-800-467-2415
Mexico City 52-55-6275-2727

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

Please verify specifications before ordering. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2017

8600000319