



7

Intelligent Transportation Platforms

- ☞ 7-3 AFC Controllers
- ☞ 7-4 Intelligent Wayside Controllers
- ☞ 7-5 Roadway Traffic Management
- ☞ 7-6 In-vehicle Controllers
- ☞ 7-7 Application-oriented Rolling Stock Controllers
- ☞ 7-8 Onboard Display Systems



Intelligent Transportation Platforms

Comprehensive Solutions for Modernizing Infrastructure

Advantech is dedicated to developing systems that fulfill our vision of building intelligent cities worldwide. With over a decade of successful experience, we have considerable expertise designing and developing products in the urban transportation sector. Advantech offers a full product range for rail and roadway applications, such as railway automatic fare collection, wayside control, rolling stock, urban traffic management, highway management, and transportation hub management.

Product Offerings

AFC Controllers

ITA-1000 series

AFC controller series features fanless design and rich I/O to support various applications such as automatic gate machines, ticket vending machines, automatic fare collection systems, and more. It also supports self-service equipment and kiosk applications due to its compact and lightweight design.



Intelligent Wayside Controllers

ITA-2000 series

Wayside controller series provide various applications such as wayside monitor for electrical system or foreign invasion, communication-based train control, wayside signaling management, our wayside controller system includes CTC and ATC systems that provide a secure monitoring and operating environment.



Roadway Traffic Management

ITA-3000 series

ITA-3000 series works as edge computing platform, providing flexible configuration for local in-time analysis of video images to shorten the time in analyzing real-time and historical traffic data, enabling incident detection, law enforcement and traffic counting in traffic management application.



In-vehicle Controllers

ITA-4000 series

ITA-4000 series is an AI-based in-vehicle platform with visual recognition, and it provides an intelligent in-vehicle solution for smart transportation.



Application-oriented Rolling Stock Controllers

ITA-5000/ARS-2600 series

Rolling stock controller caters for rolling stock applications including CCTV, Infotainment, passenger information system, vehicle monitoring system and more.



Onboard Display Systems

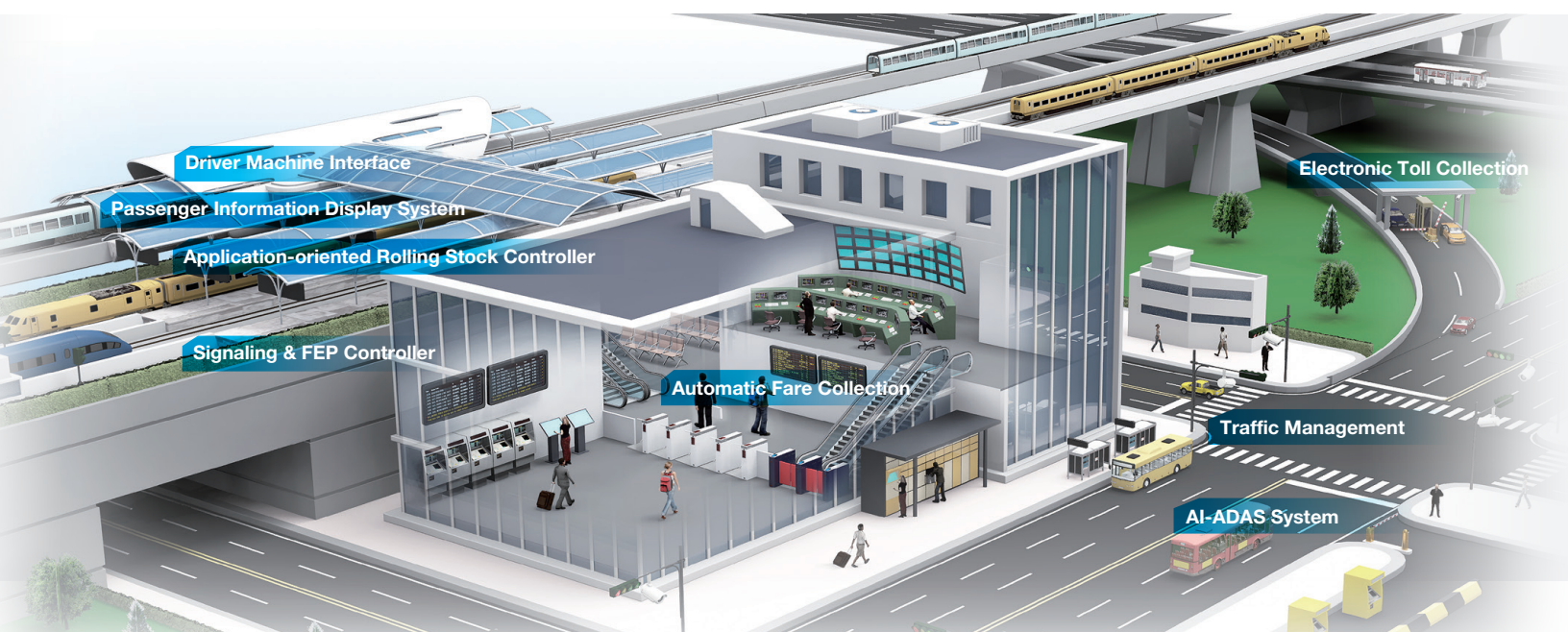
ARS-P/ITA-7220 series

Advantech ARS-P Series and ITA-7220 are Passenger Information Display Systems. It features a stretched LCD panel, with high brightness to ensure easy readability even in light-insufficient environments.



ITA-8000 series

ITA-8000 series is a driver machine interface (DMI) with projective capacitive touchscreen, auto dimming and UIC 612-01 keypads for installation in driver cabins, while the configuration flexibly allows it to be adjusted for specific applications and different train models.



AFC Controllers



Model		ITA-1611	ITA-1711	ITA-1711N
Processor System	CPU	Intel® Celeron™ J1900	Intel® Celeron™ J1900	Intel® Celeron™ J1900
	Processor Base Frequency	2.0 GHz	2.0 GHz	2.0 GHz
	Cache	2 MB	2 MB	2 MB
	Core Number	4	4	4
	TDP	10W	10W	10W
	Operating Temperature	-25 ~ 60°C (With SSD) 0 ~ 40°C (With HDD)	-25 ~ 60°C (With SSD) 0 ~ 40°C (With HDD)	-25 ~ 60°C (With SSD) 0 ~ 40°C (With HDD)
Memory	Technology	Dual channel DDR3 1333	Dual channel DDR3 1333	Dual channel DDR3 1333
	Capacity	4 GB onboard (Max. 8 GB with SO-DIMM)	4 GB onboard (Max. 8 GB with SO-DIMM)	8 GB onboard
Graphics	Chipset	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
	Multiple Display	Dual	Dual	Dual
	Display Interface	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz
	LVDS (optional)	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	2 x Intel® I211	2 x Intel® I211	4 x Intel® I211
	Connector	2 x RJ-45	2 x RJ-45	4 x RJ-45
Storage	Internal	1 x mSATA	1 x mSATA	1 x mSATA
	External	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD
I/O	Main Display	VGA	VGA	VGA
	Second Display	LVDS/VGA/DVI	LVDS/VGA/DVI	LVDS/VGA/DVI
	SATA	2 x SATA	2 x SATA	2 x SATA
	USB 2.0	5	5	7
	USB 3.0	1	1	1
	LAN	2 x RJ-45	2 x RJ-45	4 x RJ-45
	Serial Port	6	14	14
	Audio	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in
	Digital I/O	8 GPIO	Up to 24 DI and 24 DO	48 programmable GPIO
Expansion Slot	Mini PCIe	1	1	2
Power	Input Voltage	9~36 V _{DC}	9~36 V _{DC}	9~36 V _{DC}
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
Mechanical Features	Dimension (W x H x D)	200 x 70 x 190 mm	200 x 100 x 190 mm	220 x 80 x 190 mm
Certification	EMC	CE/FCC, CCC, BSMI	CE/FCC, CCC, BSMI	CE/FCC, CCC, BSMI
	Safety	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

✓: supported, –: not supported, △: optional

1

IoT Software Solutions

2

Intelligent Systems

3

SKY Servers

4

AI & Advanced Computer Vision

5

Intelligent HMI and Monitors

6

Automation Computers

7

Intelligent Transportation Platforms

8

Mission Critical CompactPCI Platforms

9

Utility and Energy Solutions

10

EtherCAT Solutions and Automation Controllers

11

Intelligent Motion Control Solutions

12

High Speed DAQ Solutions

13

Industrial Communication

14

Intelligent Edge DAQ Devices

15

Remote I/O, Wireless I/O & Sensors

16

Serial Communication

Intelligent Wayside Controllers



Model		ITA-260	ITA-2111	ITA-2211	ITA-2231
Processor System	CPU	Intel® 11th Tiger Lake UP3 core i7 / i3	Intel® Atom™ E3845	Intel® Atom™ E3845	Intel® Core™ i7-6822EQ
	Processor Base Frequency	i7: 2.8 GHz/1.8 GHz /1.2GHz i3: 3.0 GHz/2.2 GHz /1.7GHz	1.91 GHz	1.91 GHz	2.0 GHz
	Cache	12MB / 6MB	2 MB	2 MB	8 MB
	Core Number	Max to 4	4	4	4
	TDP	28W /15W /12W	10W	10W	25W
	Chipset	–	–	–	QM170
	BIOS	AMI® SPI 64 Mb	AMI® SPI 64 Mb	AMI® SPI 64 Mb	AMI® SPI 128 Mb
Memory	Technology	Dual-channel DDR4	Dual channel DDR3 1333	Dual channel DDR3 1333	Dual-channel DDR4 2133
	Max. Capacity	SO-DIMM (up to 64 GB with 2 SO-DIMM slots)	Onboard 4 GB (up to 8 GB with SO-DIMM)	Onboard 4 GB (up to 8 GB with SO-DIMM)	Onboard 16 GB (Up to 32 GB with SO-DIMM)
	Socket	1 x 260 pin SO-DIMM	1 x 204 pin SO-DIMM	1 x 204 pin SO-DIMM	1 x 204 pin SO-DIMM
Graphics	Chipset	Intel® Iris® Xe Graphics	Intel® HD Graphics for Intel Atom® Processor Z3700 series	Intel® HD Graphics for Intel Atom® Processor Z3700 series	Intel® HD Graphics 530
	VRAM	–	Shared system memory up to 256 MB SDRAM	Shared system memory up to 256 MB SDRAM	Shared system memory up to 512 MB SDRAM
	Display Ports	1 x HDMI support HDMI1.4 standard 3840 x 2160 @60 HZ	1 x VGA and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	1 x VGA and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	1 x DVI-I and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz
Ethernet	Interface	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	4 x Intel® I211 2 x Intel® I225LM	4 x Intel® I210IT	2 x Intel® I210IT	1 x Intel® I219IT, 1 x Intel® I210IT
	Connector	4 x RJ-45 2 x SFP	4 x RJ-45	2 x RJ-45	2 x RJ-45
Storage	SSD	1 x SATA3.0 and 1 x mSATA+mPCIe co-lay	1 x mSATA (optional with SATA2)	1 x mSATA (optional with SATA2)	1 x M.2 (with SATA interface)
I/O Interface	HDD	–	1 x 3.5" or 2 x 2.5" HDD bay	1 x 3.5" or 2 x 2.5" HDD bay	1 x 3.5" or 2 x 2.5" HDD bay
	VGA	–	1	1	–
	DVI-I	–	–	–	1
	DVI-D	–	1	1	1
	LAN	6	4	2	2
	USB	2 x USB 2.0, 2 x USB 3.0	6 x USB 2.0, 1 x USB 3.0	6 x USB 2.0, 1 x USB 3.0	4 x USB 3.0, 3 x USB 2.0
	Serial	2 x DB9 (RS-232/422/485)	2 x DB9 (RS-232/422/485) and 8 x RS-232/422/485 with 2 x 20-pin terminal block	2 x DB9 (RS-232/422/485)	2 x DB9 (RS-232/422/485) with 2.5kV isolation
	CAN	–	2	–	–
	PS/2	–	1	1	1
	Audio	–	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in
Expansion Slots	ITA-EM	–	–	3	3
	PCI104	–	1	1	1
	Mini PCIe	2 x Mini PCIe & 2 x M.2 & 1 x SIM slot	1	1	1
Power		DC-IN	Single Power Module	Single Power Module	Dual Power Module
	Input Range	9-48V V _{DC}	100~240 V _{AC} / 110 V _{DC}	100~240 V _{AC} / 110 V _{DC}	Dual 100~240 V _{AC} / 110 V _{DC}
	Connector	–	1 x 3pin 5.08mm Terminal Block	1 x 3pin 5.08mm Terminal Block	2 x 3pin 5.08mm Terminal Block
	Wattage (60°C)	60W	110W	110W (Load Balance)	110W (Load Balance)
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
Environment	Temperature	Operating (with SSD)	Operating (with SSD)	Operating (with SSD)	Operating (with SSD)
		Non-Operating	Operating (with HDD)	Operating (with HDD)	Operating (with HDD)
Physical Characteristics	Dimensions (W x H x D)	70 x 150 x 120 mm/ 100 x 150 x 120 mm	426 x 44.4 x 326.65 mm	427 x 88 x 325 mm	427 x 88 x 325 mm
	Install	Wall mount & DIN rail bracket	(19" x 1.75" x 13.8") with mounting kits	(19" x 3.46" x 13.57") with mounting kits	(19" x 3.46" x 13.57") with mounting kits
	EMC	CE,FCC,CCC	CE,FCC,CCC	CE,FCC,CCC	CE,FCC,CCC
Certification	Safety	UL,CB,CCC	UL,CB,CCC	UL,CB,CCC	UL,CB,CCC
	Compliance	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS

✓: supported, –: not supported, Δ: optional

Roadway Traffic Management



Model		🌀 ITA-3650N		🌀 ITA-3650E		🌀 ITA-3650G		🌀 ITA-3650T	
Processor System	CPU	G3900TE	G4400TE	i3-6100TE	i5-6500TE	i7-6700TE	i3-6100	i5-6500	i7-6700
	Processor Base Frequency	2.30 GHz	2.40 GHz	2.70 GHz	2.30 GHz	2.40 GHz	3.70 GHz	3.20 GHz	3.40 GHz
	L2 Cache	2 MB	3 MB	4 MB	6 MB	8 MB	3 MB	6 MB	8 MB
	Core Number	2	2	2	4	4	2	4	4
	TDP	35W	35W	35W	35W	35W	51W	65W	65W
	Chipset	H110		H110		C236		C236	
	Operating Temperature	35W: -25 ~ 60°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)					51W/65W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)		
Processor System	CPU	G3930TE	i3-7101TE	i5-7500T	i7-7700T	i3-7101E	i5-7500	i7-7700	—
	Processor Base Frequency	2.70 GHz	3.40 GHz	2.70 GHz	2.9 GHz	3.90 GHz	3.40 GHz	3.60 GHz	—
	L2 Cache	2 MB	3 MB	6 MB	8 MB	3 MB	6 MB	8 MB	—
	Core Number	2	2	4	4	2	4	4	—
	TDP	35W	35W	35W	35W	54W	65W	65W	—
	Chipset	H110		H110		C236		C236	—
	Operating Temperature	35W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)					54W/65W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)		
Memory	Technology	Dual-channel DDR4 2133 MHz (without ECC)							
	Capacity	8 GB on board (Max. 32 GB with SO-DIMM)		8 GB on board (Max. 32 GB with SO-DIMM)		16 GB on board (Max. 32 GB with SO-DIMM)		16 GB on board (Max. 32 GB with SO-DIMM)	
Graphics	Controller	Intel® HD Graphics 630/610/530/510							
	VGA	1 x DB15, max resolution up to 1920x1080@60Hz							
	HDMI	1 x HDMI, support HDMI1.4 standard, max to 3840x2160@30Hz							
	DP	Box Header on board		Box Header on board		4 x DP, max resolution up to 4096 x 2160 @ 60Hz		Box Header on board	
	Display Option	HDMI+VGA		HDMI+VGA		HDMI+VGA+4DP		HDMI+VGA	
Ethernet	Interface	10/100/1000 Mbps							
	Controller	1 x Intel® I210; 1 x IWGI219LM; 4 x Intel® I211		1 x Intel® I210; 1 x IWGI219LM; 2 x Intel® I211		1 x Intel® I210; 1 x IWGI219LM; 4 x Intel® I211		1 x Intel® I210; 1 x IWGI219LM	
	Connector	6 x RJ-45		4 x RJ-45		6 x RJ-45		2 x RJ-45	
Storage	Internal	1 x mSATA							
	External	2 x 2.5" storage bay							
I/O	Main Display	HDMI							
	Second Display	VGA							
	SATA	2 x SATA							
	USB	4 x USB3.0 & 2 x USB2.0		4 x USB3.0 & 2 x USB2.0		6 x USB3.0		6 x USB3.0	
	LAN	6 x RJ-45		4 x RJ-45		6 x RJ-45		2 x RJ-45	
	Serial Port	8 x DB9 (RS232/422/485 with automatic flow control)		8 x DB9 (RS232/422/485 with automatic flow control)		2 x DB9 (RS232/422/485 with automatic flow control)		2 x DB9 (RS232/422/485 with automatic flow control)	
	Audio	1 x Speaker out with 8W amplifier, 1 x Mic-in							
	Digital I/O	1 x DB25 (12 DI and 12 DO)		1 x DB25 (12 DI and 12 DO)		—		—	
	Expansion Slot	Mini PCIe / M.2	1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot; 2 x Mini PCIe or 2 x M.2 2280 for AI Acceleration Module
PCI/PCIe		—		1 x PCI & 1 x PCIe x 8 slot or 2 x PCI slot		—		—	
MXM Slot		—		—		1 x MXM slot		—	
Power	Input Voltage	9~36 V _{DC}							
Watchdog Timer	Output	System reset							
	Interval	Programmable 1~255 sec/min							
Environment	Operating Temperature	Industry SSD: max to -25 ~ 60°C		Industry SSD: max to -25 ~ 60°C		-25 ~ 40°C (with Industry SSD) with 0.7m/s air flow		-25 ~ 50°C (with Industry SSD) with 0.7m/s air flow	
	Storage Temperature	-40~85°C							
Mechanical Features	Dimension (W x H x D)	210 x 118 x 240 mm (8.27" x 4.65" x 9.45")		210 x 122 x 240 mm (8.27" x 4.8" x 9.45")		210 x 120 x 240 mm (8.27" x 4.72" x 9.45")		210 x 78 x 240 mm (8.27" x 3.07" x 9.45")	
	Install	Wall mount bracket							
Certification	EMC	CE/FCC, CCC, BSMI							
	Safetv	UL, CCC, BSMI							

✓: supported, —: not supported, △: optional

1

IoT Software Solutions

2

Intelligent Systems

3

SKY Servers

4

AI & Advanced Computer Vision

5

Intelligent HMI and Monitors

6

Automation Computers

7

Intelligent Transportation Platforms

8

Mission Critical CompactPCI Platforms

9

Utility and Energy Solutions

10

EtherCAT Solutions and Automation Controllers

11

Intelligent Motion Control Solutions

12

High Speed DAQ Solutions

13

Industrial Communication

14

Intelligent Edge DAQ Devices

15

Remote I/O, Wireless I/O & Sensors

16

Serial Communication

In-Vehicle Controllers



Model		ITA-460	ITA-460G
Computer system	CPU	Intel® 8th/9th Gen. Core™ i7/i5/i3/Celeron	Intel® 8th/9th Gen. Core™ i7/i5/i3/Celeron
	CPU TDP	35W/65W	35W/65W
	BIOS	AMI 256Mb SPI Flash (limited to TDP 35W in default)	AMI 256Mb SPI Flash (limited to TDP 35W in default)
	Chipset	Intel® H310	Intel® H310
Memory	Technology	Dual channel DDR4 2666	Dual channel DDR4 2666MHz
	Capacity	Up to 32 GB	Up to 32 GB
	Onboard Memory	8 GB (16GB optional)	8 GB (16GB optional)
	SO-DIMM Slot	1	1
Graphics	Chipset	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	MXM GPU Expansion	–	1 x MXM3.1 Type A/Type B (< 60W)
Ethernet	Controller	2 x Intel® i210-IT	2 x Intel® i210-IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	2 x M12 X-coded	2 x M12 X-coded
I/O	USB	2 x USB 3.0 /3.1(Type A)	2 x USB 3.0 /3.1(Type A)
	Audio	1 x M12 A-Coded (1 x line out and 1 x mic in)	1 x M12 A-Coded (1 x line out and 1 x mic in)
	Serial	1 x DB9 (2 x RS-232/422/485 software programmable)	1 x DB9 (2 x RS-232/422/485 software programmable)
	Display	1 x HDMI	1 x HDMI
Expansion Interface	Mini PCIe	3	3
	SIM Slots	1	1
	Interface	PCIe / USB	PCIe / USB
Storage	mSATA	1 x mSATA SSD	1 x mSATA SSD
	SSD	2 x 2.5" SSD slot (9mm)	2 x 2.5" SSD slot (9mm)
Software	Operating System	Windows 10, Linux Ubuntu 20.04	Windows 10, Linux Ubuntu 20.04
Power	Input Voltage	12V/24V (8~32V _{DC} * wide power input); 9.6V ~28.8V full loading (*: Power input constraint at low power 8~9.6V) (6-Pin M16)	12V/24V (8~32V _{DC} * wide power input); 9.6V ~28.8V full loading (*: Power input constraint at low power 8~9.6V) (6-Pin M16)
Environment	Operating Temperature	-25°C ~ +60°C with 0.7 m/s air flow	-25°C ~ +60°C with 0.7 m/s air flow
	Vibration, Shock	MIL-STD-810; 75G 11 ms	MIL-STD-810; 75G 11 ms
	Ingress Protection	IP-65	IP-65
Physical Characteristics	Dimensions (W x H x D)	190 x 70 x 220 mm	190 x 130 x 220 mm
	Weight	4 kg	6.5 kg
Certification	EMC	CE/FCC Class B	CE/FCC Class B
	Safety	CB/UL, CCC, Emark, ISO 7637-2, BSMI	CB/UL, CCC, Emark, ISO 7637-2, BSMI

✓: supported, –: not supported, △: optional

Application-oriented Rolling Stock Controllers



Model		ITA-510/560	ITA-5231 G	ITA-5231 ITA-5231 S	ITA-5831	ARS-2610/2610K ARS-2620/2620K	ARS-2110
Computer system	CPU	NVIDIA® Jetson AGX Xavier™ 8-core NVIDIA	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® i7-6600U (ARS-2610/2620) Intel® i7-7600U (ARS-2610K/2620K)	Intel® Atom™ E3845
	GPU	NVIDIA® Volta GPU 512 Volta CUDA cores and 64 Tensor cores	NVIDIA® Quadro Embedded T1000	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	CPU TDP	30W	25W	25W	25W	15W	10W
	Frequency	-	Up to 2.8 GHz	Up to 2.8 GHz	Up to 2.8 GHz	Up to 3.9 GHz	Up to 1.9 GHz
	Core Number	8	4	4	4	2	4
	GPU Core Number	512 Volta CUDA cores and 64 Tensor cores	-	-	-	-	-
	Cache	8 MB	8 MB	8 MB	8 MB	4 MB	2 MB
	BIOS	-	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI EFI 64Mbit
Memory	Chipset	-	Intel® QM170	Intel® QM170	Intel® QM170	-	-
	Technology	-	Dual channel	Dual channel	Dual channel	Single channel	Single channel
	Capacity	LPDDR 4	DDR4 2133	DDR4 2133	DDR4 2133	DDR4 2133	DDR3L 1333
	Onboard Memory	32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 16 GB	Up to 8 GB
Display	SO-DIMM Slot	-	1	1	1	1 (8GB default)	1 (4 GB default)
	Graphic Memory	-	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 256 MB
Ethernet	Multiple Display	Single	Dual	Dual	Dual	Dual	Dual
	Controller	3 x Intel® i210-IT + 1 x Marvell 88E1512-A0	1 x Intel® i219LM + 2 x Intel® i210-IT	1 x Intel® i219LM + 2 x Intel® i210-IT	1 x Intel® i219LM + 2 x Intel® i210-IT	2 x Intel® i210-IT	2 x Intel® i210
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	4 x M12 X-coded	3 x M12 X-coded	3 x M12 X-coded	3 x M12 X-coded	2 x M12 X-coded	2 x M12 A-coded
Storage	PoE port / Max. Power Budget	4 x M12 X-coded up to 30W (ITA-510, optional)	-	-	-	4 x M12 X-coded up to 60 Watts	-
	Onboard Slot	On-board eMMC 5.1 32GB	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA
	M.2 2230 E-key (SATA interface)	1	-	-	-	-	-
	Easy Swap Module	1x 2.5" SSD (ITA-560)	Max. 4 x 2.5" SSD, supports RAID 0/1/5/10	Max. 4 x 2.5" SSD (ITA-5231 & ITA-5231S with key latch design), supports RAID 0/1/5/10	Max. 3 x 2.5" SSD by ITA-EM expansion, supports RAID 0/1/5/10	Max. 2 x 2.5" SSD by AIO-EM expansion	Max. 2 x 2.5" SSD by AIO-EM expansion
Expansion Interface	Mini PCIe	1	3	3	3	3	3
	SIM Slots	1	2	2	2	2	1
	ITA-EM / AIO-EM	-	4	4 (ITA-5231) 1 (ITA-5231S)	2	2	2
	MXM Type-A Slot	-	1	-	-	-	-
I/O	Display	1 x HDMI	1 x DVI-I	1 x DVI-I	1 x DVI-I	2 x DVI-D	1 x VGA + 1 x DVI-D
	Audio	-	1 x Speaker-out, with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out, with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out, with 2 x 4W amplifier, 1 x Mic-in	Line-out, Mic-in, Line-in	Line-out, Mic-in, Line-in
	Ethernet	4	3	3	3	2 (ARS-2610/2610K) 6 (ARS-2620/2620K)	2
	USB3.0	-	2 (Type A)	2 (Type A)	2 (Type A)	2 (Type A)	1 (Type A)
	USB2.0	2 (Type-A)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)
	COM	1+1(internal)	2	2	2	2	2
	CAN	1+1(internal)	-	-	-	-	-
	Digital I/O	1x 8 bit	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO	3 x DI & 3 x DO by AIO-EM expansion	3 x DI & 3 x DO by AIO-EM expansion
Power	Input Voltage	24/48/72/110 V _{DC} (selectable) (M12 S-coded)	24/48/72/110 V _{DC} (selectable) (M12 S-coded)	24/48/72/110 V _{DC} (selectable) (M12 S-coded)	24/48/72/110 V _{DC} (selectable) (M12 S-coded)	24/48/72/110 V _{DC} (selectable) (M12 A-coded)	24/72/110 V _{DC} (selectable) (M12 A-coded)
Physical Characteristics	Dimensions (W x H x D)	430 x 44 x 194.6 mm (ITA-510) 190 x 60 x 160 mm (ITA-560)	427 x 88 x 230 mm	427 x 88 x 200 mm	220 x 88 x 200 mm	313 x 103 x 180 mm (ARS-2610/2610K) 313 x 127 x 180 mm (ARS-2620/2620K)	267 x 87.5 x 175 mm
Environment	Operating Temperature	EN 50155 OT1	EN 50155 OT4 (without MXM T1000) EN 50155 OT1 (with MXM T1000) (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)	EN 50155 TX -40 ~ 70°C (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)
	Ingress Protection	IP-40	IP-50 (with IO caps)	IP-50 (with IO caps)	IP-50 (with IO caps)	IP-40	IP-40
Regulation	EMC	CE, EMC, CCC	CE, EMC, CCC	CE, EMC, CCC	CE, EMC, CCC	CE, FCC	CE, FCC
	Safety Certifications	UL, CB	UL, CB	UL, CB	UL, CB	UL, CB	UL, CB
	Railway Standards	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2007 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2

✓: supported, -: not supported, Δ: optional

1

IoT Software Solutions

2

Intelligent Systems

3

SKY Servers

4

AI & Advanced Computer Vision

5

Intelligent HMI and Monitors

6

Automation Computers

7

Intelligent Transportation Platforms

8

Mission Critical CompactPCI Platforms

9

Utility and Energy Solutions

10

EtherCAT Solutions and Automation Controllers

11

Intelligent Motion Control Solutions

12

High Speed DAQ Solutions

13

Industrial Communication

14

Intelligent Edge DAQ Devices

15

Remote I/O, Wireless I/O & Sensors

16

Serial Communication

Onboard Display Systems



Model		ITA-8100/8100B	ITA-8120	ARS-P2800/P2800F	ITA-7220/7220F
Computer System	CPU	Intel® Atom™ x7-E3950	Intel® Atom™ x7-E3950	Intel® Celeron® J1900	Intel® Celeron® J1900
	Frequency	Up to 2.00 GHz	Up to 2.00 GHz	2.00 GHz	2.00 GHz
	Core	4	4	4	4
RAM	Memory	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)
Storage	M.2	1 x M.2 2242 SSD (Default 64 GB)	1 x M.2 2242 SSD (Default 64 GB)	1 x mSATA SSD (Default 64 GB)	1 x mSATA SSD (Default 64 GB)
Graphics	Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	Display Ports	–	–	1 x DVI-D	1 x DVI-D
Display	Display Type	10.4" TFT LCD panel (Max. resolution 1024 x 768 XGA)	12.1" TFT LCD panel (Max. resolution 1024 x 768 XGA)	28" TFT LCD panel (Max. resolution 1920 x 357, 16:3)	22" TFT LCD panel (Max. resolution 1920 x 1080, 16:9)
	Brightness	500 nits (ITA-8100) 1300 nits (ITA-8100B)	600 nits	1000 nits	400 nits
	Contrast Ratio	1000:1 (ITA-8100) 700:1 (ITA-8100B)	1000:1	6500:1	1000:1
Touch Panel and Function Keys	Touch Type	Projected capacitive touchscreen (Multi-touch)	Projected capacitive touchscreen (Multi-touch)	–	–
	Brightness Adjustment	Auto (built-in light sensor)	Auto (built-in light sensor)	–	–
	Function Keys	32 keypads (UIC 612-01 Compliant)	32 keypads (UIC 612-01 Compliant)	–	–
I/O Interface	LAN	2 x 10/100/1000 Mbps (M12 X-coded)	2 x 10/100/1000 Mbps (M12 X-coded)	1 x 10/100/1000 Mbps (M12 X-coded) / 2 x 10/100/1000 Mbps (M12 X-Coded) (ARS-P2800F)	1 x 10/100/1000 Mbps (M12 X-coded) / 2 x 10/100/1000 Mbps (M12 X-Coded) (ITA-7220F)
	Serial Port	2 x RS-422/485 (M12 A-coded)	2 x RS-422/485 (M12 A-coded)	–	–
	USB	1 x USB 2.0 (M12 A-coded)	1 x USB 2.0 (M12 A-coded)	1 x USB 2.0 (M12 A-coded) + 1 x USB 2.0 (Type A)	1 x USB 2.0 (M12 A-coded) + 1 x USB 2.0 (Type A)
	Digital I/O	5 Inputs / 1 Output, isolated (M12 A-coded)	5 Inputs / 1 Output, isolated (M12 A-coded)	–	–
Software	Operating System	Windows 10, Linux	Windows 10, Linux	Windows 7 and 10, Linux	Windows 7 and 10, Linux
Power	Input Voltage	24/48/72/110 V _{DC} (selectable) (M12 A-coded)	24/48/72/110 V _{DC} (selectable) (M12 A-coded)	24/48/72/110 V _{DC} (selectable) (M12 A-coded)	24/48/72/110 V _{DC} (selectable) (M12 A-coded)
Environment	Operating Temperature	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT1: -25 ~ 55°C	EN 50155 OT1: -25 ~ 55°C
	Shock and Vibration	IEC 61373	IEC 61373	IEC 61373	IEC 61373
	Ingress Protection	IP65-rated front panel	IP65-rated front panel	IP65-rated whole system	IP40-rated
Physical Characteristics	Dimensions (W x H x D)	310 x 214 x 70 mm	350 x 260 x 71.5 mm	814 x 178 x 56 mm	575 x 299 x 56 mm
	Weight	4.5 kg	5 kg	8.3 kg (ARS-P2800F) 8 kg (ARS-P2800)	7 kg (ITA-7200F) 6.5 kg (ITA-7220)
Certification	Railway Standards	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4, IEC 60571	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4, IEC 60571	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4
	EMC and Safety	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368

✓: supported, –: not supported, △: optional

