

ITA-5231

Intel® 6th/7th Generation Processor Fanless System; EN 50155 Compliant for Railway Applications



Features

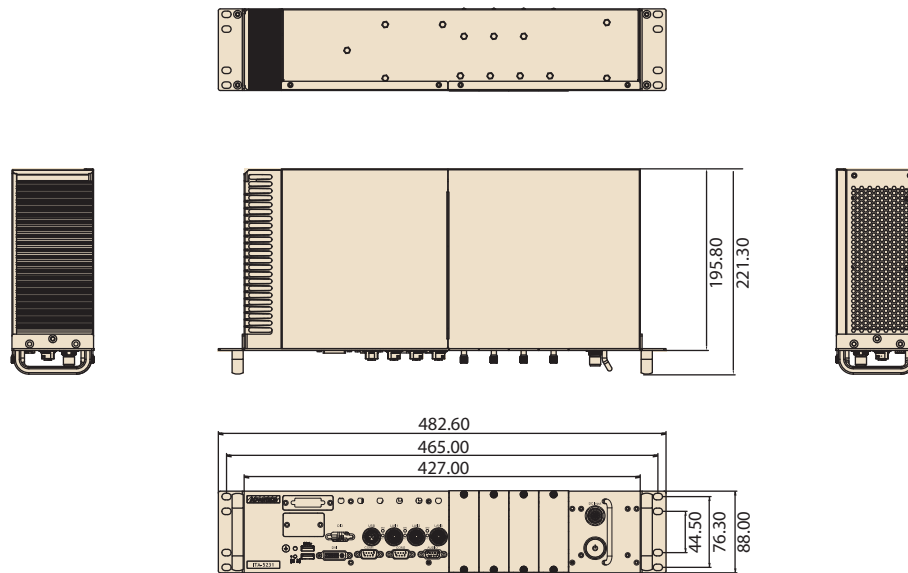
- Fanless computer for railway vehicle applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70 °C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2/ EN 50121-4 EMC test standard
- Ruggedized connectors (M12) used for communication and power ports
- Supports easy-swap storage module and I/O module
- No RED Certification

Specifications

System Chipset	CPU	Intel Xeon E3-1505L V6	Intel® Core™ i7-6822EQ	i5-6442EQ	Celeron® G3902E
	Base Frequency/Turbo Boost	2.2/3.0GHz	2.0/2.8GHz	1.9/2.7GHz	1.6GHz/NA
	L3 Cache	8M	8M	6M	2M
	Cores/Threads	4C/8T	4C/8T	4C/4T	2C/2T
	Chipset	CM238	QM170		
	BIOS	AMI SPI 128Mbyte Flash			
Memory	Technology	16GB on board memory, DDR4 2133 MHz	8GB on board memory, DDR4 2133MHz	8GB on board memory, DDR4 2133MHz	8GB on board memory, DDR4 2133MHz
	SODIMM slot	1	1	1	1
	Max. Capacity	Up to 32GB	Up to 32GB, by request	Up to 32GB, by request	Up to 32GB, by request
Graphics	Chipset	Intel HD Graphics 530	Intel HD Graphics 530	Intel HD Graphics 530	Intel HD Graphics 510
	VRAM	Shared with system memory up to 512MB			
	Display	DVI-I: 1920x1200 @ 60Hz			
I/O	USB	2 x USB3.0 with Type A 1 x USB2.0 with M12 A-coded(F) 4-pin			
	Serial Port	2 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control			
	DIO	1 x DB9, 4-bit DI/ 4-bit DO with 2KV Isolation			
	Main Display	1 x DVI-I (optional to DVI-D+VGA via Y cable)			
	Audio	1 x DB9, 1 x speaker-out with 2 x 4W amplifier, 1 x Mic-in			
Ethernet	Controller	Intel I210-IT/I219LM/ELX550AT2 (industrial)	Intel I210-IT/I219LM	Intel I210-IT/I219LM (optional I225-IT)	Intel I210-IT/I219LM
	Interface	10/100/1000/10000 Mbps	10/100/1000Mbps	10/100/1000/(2500)Mbps	10/100/1000Mbps
	Connector	5 x M12 X-coded(F), LAN1/LAN2 with i210-IT and LAN3 with i219, and extra 2 x 10G LAN with X550	3 x M12 X-coded(F), LAN1/LAN2 with i210-IT and LAN3 with i219LM	3 x M12 X-coded(F), LAN1 with i225-IT, LAN2 with i210-IT and LAN3 with i219LM	3 x M12 X-coded(F), LAN1/LAN2 with i210-IT and LAN3 with i219LM
Storage	HDD/SSD easy-swap module	1 x ITA-EM-ST51-00A1E, supports 2 x 2.5" SSD (default setting) Max to 4 x 2.5" SSD (7mm/9.5mm), supports RAID 0,1,5,10			
	mSATA	1 x mSATA slot on board			
Others	Mini PCIe	3 x Mini PCIe Socket (full size)			
	SIM card	2 x SIM slot			
LED & Button	LED	1 x Power, 1 x storage, 1 x alert, 1 x battery			
	Button	1 x Power on/off switch 1 x Reset button			
Power	Input Voltage	DC 24V input compliant with EN50155 class S2/C2 (optional DC 48/72/110V input)			
	Connector	1 x M12 S-coded(M) 4-pin			
Watchdog Timer	Output	System reset			
	Interval	Programmable 1-255 sec/min			
Environmental	Temperature	Operating (with industrial/wide-temperature SSD/mSATA) -40 ~ 70 °C			Non-operating -40 ~ 85 °C
	Humidity	5% ~ 95% @ 40 °C (Non-condensing)			
Mechanical	Dimension (W x H x D)	427 x 88 x 195.8 mm (16.81" x 3.46" x 7.71")/482.6 x 88 x 221.3 mm (19" x 3.46" x 8.71") with mounting kits			
	Install	Rack-mounting			
Certification	EMC	CE/FCC Class A, CCC			
	Safety	UL, CB, CCC			
EN 50155 Compliance	Ambient Temperature	EN 50155 TX (-40 ~ 70 °C)			
	Shock and Vibration	IEC 61373 body mount class B			
	Interruptions of Voltage Supply	Class S2			
	Supply Change Over	Class C2			
	EMC	EN 50121-3-2, EN 50121-4			

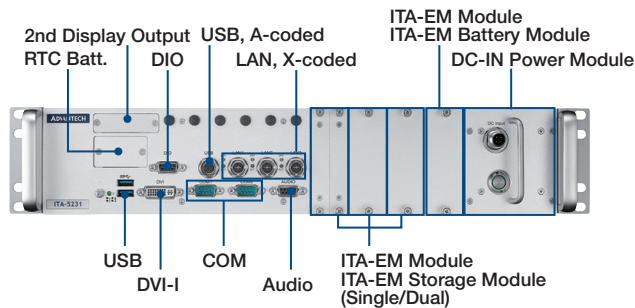
Dimensions

Unit: mm

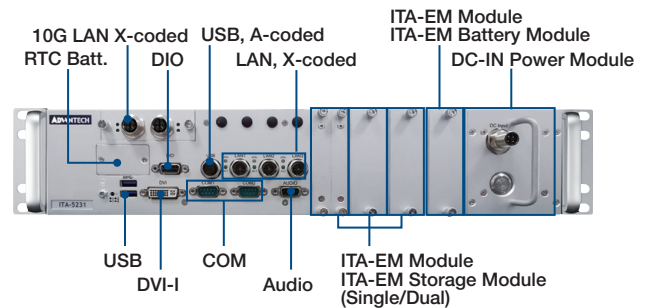


Front View #1

A-type



B-type

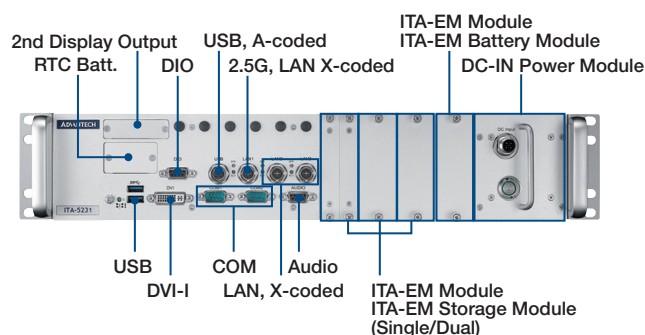


Ordering Information #1

Voltage (M12-S-Male)	Part Number	Processor	Memory (GB)	GbE (M12-X-F)	10GbE (M12-X-F)	USB2.0 (M12-A-F)	USB3.0 (Type A)	miniPCIe	2.5" SSD	mSATA slot	COM	DIO	Display
24V _{DC}	ITA-5231-LXB1	E3-1505L	16	3	2	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-L7A1E	i7-6822EQ	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-L5A1E	i5-6442EQ	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-L0A1E	G3902E	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
48V _{DC}	ITA-5231-M7A1E	i7-6822EQ	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-SXB1	E3-1505L	16	3	2	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
72/110V _{DC}	ITA-5231-S7A1E	i7-6822EQ	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-S5A1E	i5-6442EQ	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I
	ITA-5231-S0A1E	G3902E	8	3	0	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I

ITA-5231 Series supports various I/O expansion. For more specifications, please contact your distributor or sales representative.

Front View #2



Ordering Information #2

Voltage (M12-S-Male)	Part Number	Processor	Memory (GB)	GbE (M12-X-F)	2.5GbE (M12-X-F)	USB2.0 (M12-A-F)	USB3.0 (Type A)	miniPCIe	2.5" SSD	mSATA slot	COM	DIO	Display
72/110V _{DC}	ITA-5231N-SSA1	i5-6442EQ	8	2	1	1	2	3	Up to 4	1	2	4DI/4DO	DVI-I

Optional Expansion Modules

Part Number	Description
ITA-EM-SR51-00A1E	Easy-swap module, 4 x RS232/422/485 with 2KV isolation
ITA-EM-CN51-00A1E	Easy-swap module, 2 x CAN ports with 2KV isolation
ITA-EM-PE51-00A1E ^{Note1}	2 PoE: Each port max to 7.5W @ 52V _{DC} 1 PoE: Up to 15.4W @ 52V _{DC}
ITA-EM-NC51-00A1E	2-Port M12 GbE module
ITA-EM-ST51-00A1E	Easy-swap storage tray, support 2 x 2.5" SSD (7mm/9.5mm)
ITA-EM-ST52-00A1	Easy-swap storage tray, support 1 x U.2 SSD
ITA-EM-BA51-00A1E	14.4V 2500mAh, discharging for 30mins @ 55C and charging for 3hrs @ 40 °C
ITA-EM-EC51-00A1 ^{Note2}	Easy-swap mPCIe/M.2 M-key riser tray, support DB37 IO Plate
ITA-EM-EC51-01A1 ^{Note3}	Easy-swap mPCIe/M.2 M-key riser tray, support 2 x DB9 IO Plate

Note 1: Only Support EN50155 T2 Class: -40~55°C with max. 2 ITA-EM-PE modules (4 ports)
 Note 2: Compatible Peripherals with DB37

Part Number	Description
PCM-27D24DI	24-channel isolated DI/DO w/ counter mPCIe, DB37

Note 3: Compatible Peripherals with 2 x DB9

Part Number	Description
PCM-26D2CA	2-Port isolated CANBus mPCIe, CANopen, DB9
968AD00025	MVB module D017M-PM-T-I1-Y30C-M3
MiniPCIeCAN-2E-U	CAN module under Windows by ZLG
MiniPCIeCAN-II	CAN module under Linux by ZLG

Optional Advanced Function

Part Number	Description
9891EC52000 ^{Note4}	Easy-swap AI tray, support mPCIe AI accelerator module
9891EC52010 ^{Note5}	Easy-swap AI tray, support M.2 M-Key AI accelerator module
9891EC53000 ^{Note6}	Easy-swap wireless tray, supports M.2 B-Key 5G module with 3 x SMA IO Plate
9891EC53010	Easy-swap wireless tray, supports M.2 E-Key WiFi 6 module with 3 x SMA IO Plate

Note 4: Compatible Peripherals by miniPCIe
 Only Support EN50155 T1 Class: -25~55°C

Part Number	Description
VEGA-330-01A1	Intel Movidius Myriad X Edge AI module with 1VPU
VEGA-330-02A1	Intel Movidius Myriad X Edge AI module with 2VPU

Note 5: Compatible Peripherals by M.2 M-key
 Only Support EN50155 T1 Class: -25~55°C

Part Number	Description
XCUC2SHD-MLU220	MLU 220 M.2 VPU by Cambricon

Note 6: Compatible Peripherals (5G modules)
 Only Support EN50155 T1 Class: -25~70°C

Part Number	Description
968DD00175	Quectel RM500Q-AE M.2 B-Key 3052 5G module
968DD00063	FM150-AE-01(USB3.0) 5G m.2 wireless module

External Cables and Connectors

Part Number	Description
FRU-ITA5831-0001	External cable USB to M12
FRU-ITA5831-0002	External cable Power to M12
FRU-ITA5831-0003	External cable Y cable DVI+VGA
FRU-ITA5831-0004	External cable Audio cable
FRU-ARS2600-0001	External cable RJ45 to M12
Y5D5231005	External connector LAN X-coded
Y5A5231004	External connector PWR S-coded
Y5D5231004	External connector USB A-coded