ITA-580G

Rolling Stock AI System with Intel® Core™ Processors (11th Gen) and NVIDIA Quadro MXM GPU, compliant with EN 50155

EN 50155

Features

- 11th Gen Intel® Core™ H-Series platform with RM590E
- Fanless MXM GPU design and support NVIDIA Quadro MXM 3.1 Type A/B form factor GPU module
- Real-time graphic analysis catering to AI Applications
- With an MXM GPU module conforming to EN 50155 and EN 50121-3-2/EN 50121-4 standards
- SKY-MXM modules provide product life support extending beyond 5 Years
- Wide range 24 - 110V$_{DC}$ power input, compliant with EN 50155
  - No RED certification

Introduction

ITA-580G powered by Intel's 11th Gen. processors and compatible with NVIDIA's Quadro MXM GPU series, delivers a robust solution for AI applications in the rail industry. This computer excels in tasks like accelerated rendering, AI inference, real-time video analysis, and overall computing performance. Designed for rail applications, it seamlessly integrates 2 x DisplayPort interfaces, complemented by 4 additional interfaces from the MXM GPU module. The system also features 3 x 2.5 GbE ports in M12 X-Coded format, wide input support from 24V to 110V$_{DC}$, TPM 2.0 security, and 2 removable trays for 2.5-inch SSDs.
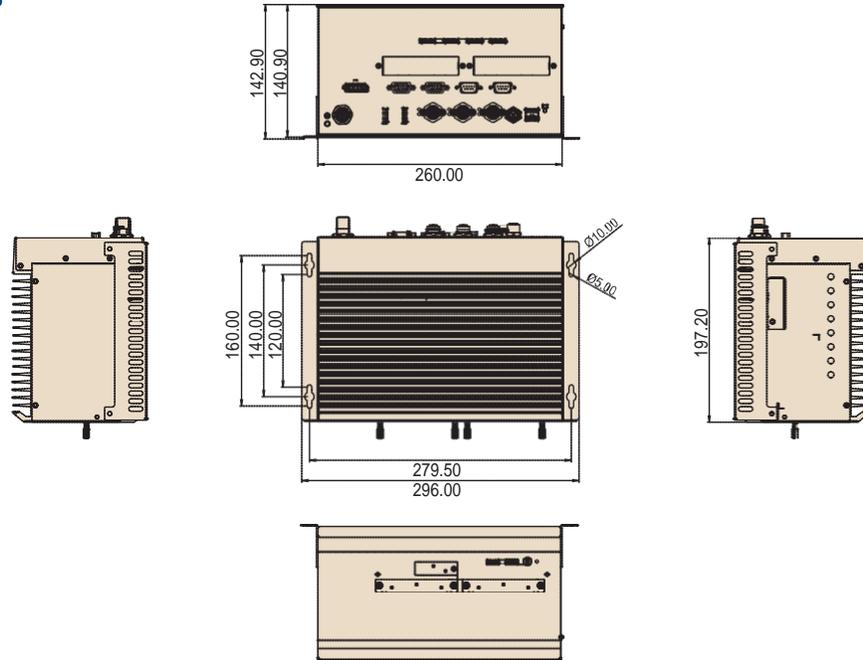
Adheres to the rigorous standards set forth by EN 50155, EN 50121-3-2, EN 50121-4, and EN 45545-2 test criteria. This compliance guarantees unwavering stability and reliability in the execution of critical applications within railway environments. As a result, the ITA-580G emerges as an optimal solution for AI inference needs within rolling stock applications.
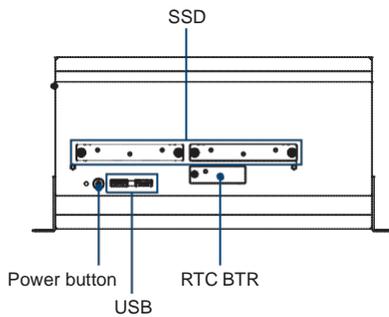
Specifications

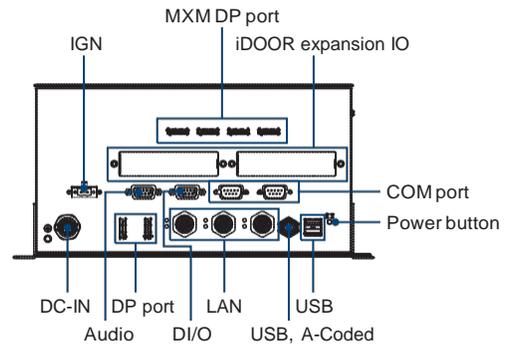|			
System Chipset	CPU	i7-11850HE	
	Base frequency/Turbo Boost	2.6/4.7GHz	
	L3 Cache	24M	
	Cores/Threads	8 P-core/16T	
	Chipset	RM590E	
	BIOS	AMI UEFI 256Mbit	
Memory	Technology	Dual channel DDR4 3200 MHz	
	SO-DIMM slot	1	
	On-board RAM	16GB	
	Max. Capacity	Up to 32GB	
Security	TPM	TPM 2.0	
Graphics	Chipset	Intel® UHD Graphics for 11th Gen Intel® Processors	
	Max. Frequency	1.35 GHz	
I/O	USB	4 x USB 3.2 (Gen.1), Type-A connectors 1 x USB 2.0. M12 A-Coded (F)	
	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	
	Display	2 x DP port (max resolution up to 4096 x 2304 at 60 Hz), 4 x DP port from MXM (Discrete Mode)	
	Audio	1 x DB9, 1 x Line-out, 1 x Mic-in	
Ethernet	Controller	Intel 3 x i226-IT (Industrial-grade)	
	Transmission Speed	10/100/1000/2500 Mbps	
	Connector	3 x M12 X-Coded(F)	
Storage	SSD easy-swap tray	2 x 2.5" 7mm SSD, Support RAID 0/1/5/10	
	mSATA	1 x mSATA slot	
Others	Mini PCIe	2 x Mini PCIe Socket (Full size)	
	M.2	2 x M.2 3042/3052 B+M Key / 1 x M.2 2230 A+E Key	
	PCIe	1 x PCIex16 thru. MCIO connector	
	SIM card	4 x micro SIM slot, each M.2 slot supports dual micro SIM cards	
LED & Button	LED	1 x power, 1 x storage, 1 x battery, 1 x CPU temperature alert	
	Button	1 x Power on / off switch	
Power	Input Voltage	24 - 110V$_{DC}$ power input, compliant with EN 50155	
	Connector	1 x M12 K-Coded (M) 5 pin	
	Ignition	Enable range from 10 to 30V$_{DC}$ with 2.5KV isolation	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1~255 sec/min	
Environment		Operating (with Industrial SSD)	Non-operating
	Temperature	-40 ~ 70; -25 ~ 55°C with MXM module*	-40 ~ 85 °C
	Humidity	5% ~ 95% @ 40 °C (Non-Condensing)	
Mechanical	Dimension (W x H x D)	260 x 140.9 x 197.2 mm / 10.24 x 5.51 x 7.76 inch 296 x 142.9 x 197.2 mm / 11.7 x 5.6 x 7.76 inch with mounting kit	
	Install	Desktop mounted using a mounting bracket	
	Ingress Protection	IP40 rating	
Software	Operating System	Windows 10, 11, Linux	
Certification	EMC	CE/FCC Class A, CCC	
	Safety	UL, CB, CCC, BSMI	
EN 50155 Compliance	Operating temperature classes	EN 50155:2021 OT4 (-40 ~ 70 °C); With MXM module: EN 50155:2021 OT1 (-25 ~ 55°C)*	
	Shock and Vibration	IEC 61373 body mount class B	
	Interruptions of Voltage Supply	Class S2: 10 ms interruptions	
	Supply Change Over	Class C1: at 0.6 Un during 100 ms without interruptions	
	EMC	EN 50121-3-2/EN 50121-4	
	Fire protection	EN45545-2:2020 HL3	

Last updated: 03-March-2026

Dimensions

Unit: mm

142.90
140.90

260.00

⌀10.00
⌀5.00

160.00
140.00
120.00

197.20

279.50
296.00

Front View

SSD

Power button

USB

RTC BTR

Rear View

IGN

MXM DP port

iDOOR expansion IO

COM port

Power button

DC-IN

DP port

Audio

DI/O

LAN

USB, A-Coded

USB

Ordering Information

M12 K-Coded	Part Number	Processor	Onboard RAM	Ethernet M12 X-Coded	USB2.0 M12 A-Coded	USB 3.2	mPCIe / M.2	2.5" SSD	mSATA slot	COM	Digital I/O	DP port
24V$_{DC}$ ~ 110V$_{DC}$	ITA-580G-W7A2	i7-11850HE	16GB	3	1	4	2 / 3	2	1	2	4DI/4DO	2

ITA-580 offers various I/O expansion, for specification customization, please contact your distributor or sales representative.

Optional List

Part Number	Description
FRU-ITAUSB-0002	External M12 A-Coded 4P(F) to USB type-A 50cm
FRU-ITALAN-0003	External M12 X-Coded 8pin(M) Male to RJ45 (F) 100cm
FRU-ITAPWR-0004	External M12 K-Coded 5 pin Female power cable 100cm
FRU-ITAAUD-0001	Audio cable: DB9 (F) -> 3.5mm audio jack, Mic-in and Line-out, 20cm
1960065854N001	Bracket for iDoor expansion module

MXMGPU

MXM Model	Description
SKY-MXM-A500	MXM 3.1 Type A NVIDIA® Quadro® Embedded A500
SKY-MXM-A1000*	MXM 3.1 Type A NVIDIA® Quadro® Embedded A1000 with DP 1.4a
SKY-MXM-A2000*	MXM 3.1 Type A NVIDIA® Quadro® Embedded A2000 with DP 1.4a
SKY-MXM-2000A*	MXM 3.1 Type A NVIDIA® Quadro® Embedded 2000A with DP 1.4a

Note:
1. Please see product sales kit for more detail
2. Please contact your distributor or sales representative, if Quadro SKY-MXM-RTX series is required
3. For GPU model SKY-MXM-A1000/ SKY-MXM-A2000/ SKY-MXM-2000A, will require to use with restrict capacity (35W) by VBIOS update.