MIC-332S

3U CompactPCI® Serial EN50155 Computer Based on NVIDIA® Jetson AGX Orin™ for Edge AI



Features

- 3U CPCI-S Computing card for Edge AI
- Embedded with NVIDIA® Jetson AGX Orin™ up to 275 TOPS
- Rich I/O resources, support 6xGbE, 2 x USB 3.2 Gen 2 , 1 x HDMI, 1 x DB9, 1 x micro USB
- Rich storage expansion capability with multiple M.2 NVMe slots
- Support smart fan
- Wide range 24-110Vdc power input, support 1+1 redundancy power by BOM option
- Compliant with EN50155, EN45545-2
- Compliant PICMG CompactPCI Serial(CPCI-S.0 R2.0)

Introduction

Advantech MIC 332S is a compact size system controller compliant with the 3U CompactPCI Serial standard, powered by the NVIDIA® Jetson AGX Orin™ series module. It integrates a 4 port 2.5GBASE T Ethernet board and a carrier board supporting up to four M.2 PCIe/NVMe modules, delivering rich storage and network expansion capabilities ideal for edge AI deployment. Additionally, the system adopts a smart fan board to enable real time monitoring of fan operating status. It also supports dual power redundancy, ensuring higher safety and stability for continuous system operation.

MIC 332S is fully compliant with EN50155, EN50121-3-2 and EN45545-2 railway standards, which guarantees stable and reliable system operation for critical railway applications.

Specifications

		MIC-332S1-D1	MIC-332S1-D2
System Processor	NVIDIA Jetson Series	AGX Orin 32G	AGX Orin 32G
	CPU	8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 2 MB L2 + 4 MB L3	8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 2 MB L2 + 4 MB L3
	GPU	1792-core NVIDIA Ampere GPU with 56 Tensor Cores, maximum operating frequency: 930 MHz	1792-core NVIDIA Ampere GPU with 56 Tensor Cores, maximum operating frequency: 930 MHz
	AI Performance	Up to 200 TOPS	Up to 200 TOPS
	Memory	32 GB 256-bit LPDDR5 DRAM	32 GB 256-bit LPDDR5 DRAM
Graphics	Chipset	Integrated on Jetson module	Integrated on Jetson module
	I/O Connector	HDMI 2.0	HDMI 2.0
	Resolution	3840 x 2160 @60 Hz	3840 x 2160 @60 Hz
Ethernet	Interface	10/100/1000 BASE-T, 2.5 G BASE-T	10/100/1000 BASE-T, 2.5 G BASE-T
	Chipset	Intel i226 Ethernet controller	Intel i226 Ethernet controller
	I/O Connector	2 x M12 from MIC-332AO board 4 x M12 from MIC-3860 Ethernet Board	2 x M12 from MIC-332AO board 4 x M12 from MIC-3860 Ethernet Board
Storage	Mode	eMMC, PCIe 3.0	eMMC, PCIe 3.0
	Channels	1 x 64GB eMMC 5.1 integrated into Jetson module 1 x M.2 2242 (M-Key, NVMe, Signal: PCIe x4) from MIC-332AO board 4 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4) from MIC-3821 Carrier Board	1 x 64GB eMMC 5.1 integrated into Jetson module 1 x M.2 2242 (M-Key, NVMe, Signal: PCIe x4) from MIC-332AO board 4 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4) from MIC-3821 Carrier Board
Front I/O	USB	2 x type A USB 3.2 Gen2 @ 10 Gbps	2 x type A USB 3.2 Gen2 @ 10 Gbps
	Display	1 x HDMI 2.0 port	1 x HDMI 2.0 port
	LAN	6 x M12 X-code GbE / 2.5 GbE	6 x M12 X-code GbE / 2.5 GbE
	COM	1 x DB9 (RS232, 4 line)	1 x DB9 (RS232, 4 line)
	Micro-USB	1 x Micro-USB	1 x Micro-USB

All product specifications are subject to change without notice.

Specifications (Cont.)

LED & Button	Button	1x power on/off switch System reset button x1, recovery mode button x1 for BSP programming	1x power on/off switch System reset button x1, recovery mode button x1 for BSP programming
	LED	MIC-332AO Board: 1 x blue/orange hot swap/HDD Led, 1 x green PWR Led 1 x green primary/secondary Led, front LAN activity/speed (2.5 G / green, GbE / yellow, others: off) MIC-3860 Ethernet Board: LNK: (2.5 Gbps: green; 1 Gbps: orange; 100 Mbps & 10 Mbps: off); ACT: green blink MIC-3821 Carrier Board: Power LED & NVMELED	MIC-332AO board: 1 x blue/orange hot swap/HDD Led, 1 x green PWR Led 1 x green primary/secondary Led, front LAN activity/speed (2.5 G / green, GbE / yellow, others: off) MIC-3860 Ethernet Board: LNK: (2.5 Gbps: green; 1 Gbps: orange; 100 Mbps & 10 Mbps: off); ACT: green blink MIC-3821 Carrier Board: Power LED & NVME LED
Power Supply	Input Range	24V-110VDC	24V-110VDC
	Output Wattage	Vo1: +12V, standby Vo2: +5V	12V
	Output Current (typ.)	Vo1: 25A, standby Vo2: 2.5A	12.5A
	Output Wattage	312W (Ta 55°C, Cooling 200LFM,Typ 110V input) 240W (Ta 70°C, Cooling 200LFM,Typ 110V input)	150W (Ta 55°C ,Fanless, Convection air) 70W (Ta 70°C, Fanless, Convection air)
	System power consumption	Max 100W	Max 100W
Physical Characteristics	Dimension (W x D x H)	238.60 x 200 x 132.50 mm	238.60 x 200 x 132.50 mm
Environment		Operating	Non-Operating
	Temperature	-25~ 70°C (32 ~ 158° F)	-40 ~ 85°C (-104 ~ 185°F)
	Humidity	95% @ 40°C, non-condensing	95% @ 60°C, non-condensing
	Shock	10G, 11ms, each axis three times	
	Vibration	2G rms	
Software	Operating System	Linux Kernel 5.15, Ubuntu 22.04, Jetpack 6.2	
Certification		FCC Class A, CE, RoHS	
Compliance		PICMG® CompactPCI® Serial	
EN50155 Compliance	Operating temperature classes	EN50155:2021 OT3 (-25~70°C)	
	Shock and Vibration	IEC 61373 body mount class B	
	Interruptions of Voltage Supply	Class S2: 10ms interruptions	
	Supply Change Over	Class C2: 30ms	
	EMC	EN50121-3-2	
	Fire protection	EN45545-2:2020+A1:2023 HL3	

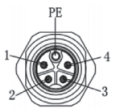
Ordering Information

Part Number	Processor	Power	Backplane	Fan	2.5G LAN (M12 X-code)	HDMI	USB3.2 (TypeA)	COM (DB9)	Micro USB	NVMe (M.2 M key)
MIC-332S1-D1	AGX Orin 32G	1*300W DC to DC	1*7 slot	√	6	1	2	1	1	5
MIC-332S1-D2	AGX Orin 32G	1*150W DC to DC	1*7 slot	√	6	1	2	1	1	5

Optional Accessory

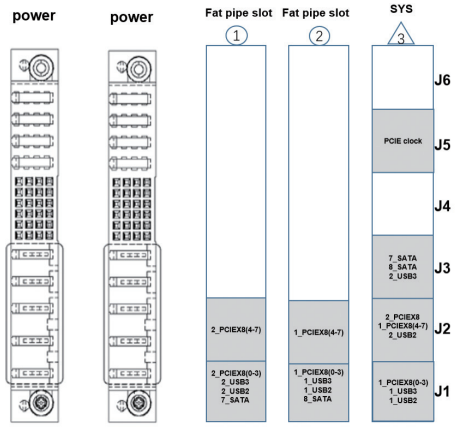
Peripheral board	Description
MIC-332-AOC64	MIC-332 3U CPCI-S carrier board,AGX Orin 64G
MIC-3840-A1S1	MIC-3840 FIO 8-port Serial Communication Card
MIC-3811-A1S1	MIC-3811 Dual Mini-PCIe Carrier Board
MIC-3954F-A1S1	MIC-3954F 3U CPCI-S 4* USB3.0 typeA,1* M.2 E key
MIC-3954E1-S1E	MIC-3954 CPCI-S Quad MiniPCIe Carrier
MIC-3954D1-S1E	MIC-3954 CPCI-S Quad M.2 carrier
MIC-3860-D1S1	MIC-3860 3U CPCI-S 4 M12 LAN W/ PoE(AF/AT mode)
MIC-3890DC-A1D1	D/D 16.6-160V 312.5W 12V/5V CPCI
FRU-ITAPWR-0004	External M12 K-Coded 5 pin Female power cable
1960117152S001	3U 4HP Blank Panel for CPCI Anodizing
1960117153S001	3U 8HP Blank Panel for CPCI Anodizing

DC in power M12 connector pin define



pin	Signal Name	pin	Signal Name
1	V+	3	V-
2	V-	4	V+
PE	Earth ground		

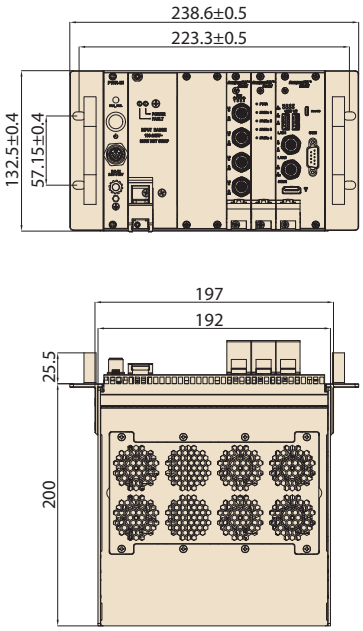
Backplane Topology



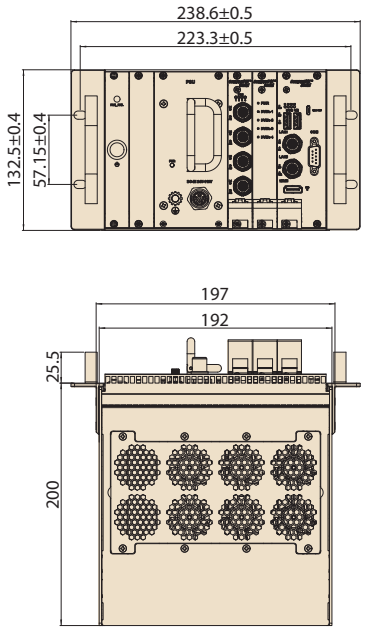
Dimensions

Unit: mm

MIC-332S1-D1



MIC-332S1-D2



Front View

MIC-332S1-D1



MIC-332S1-D2

