msi®

intel® IoT Solutions Alliance

Regenerate MS-9A89 System for IIoT

with Ultimate Expansions and 3.5” SBC Embedded

Embedded with Industrial Wide Temperature for Various Applications

Automation

Transportation

Medical

Digital Signage

Retail

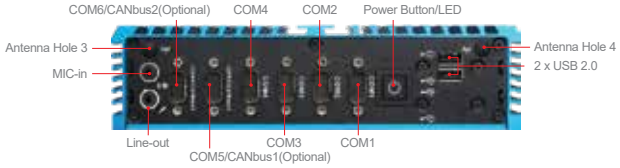
Gaming

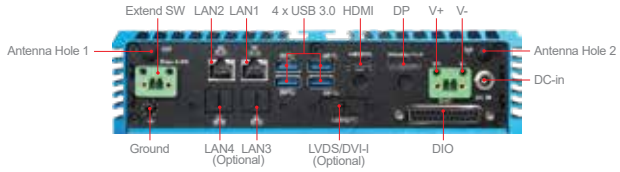
http://ipc.msi.com

Industrial PCs for IIoT

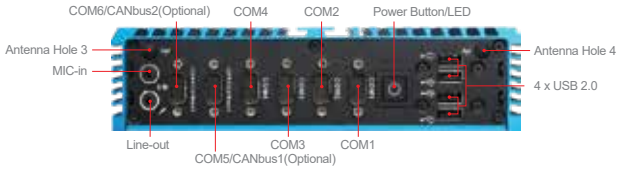
Compact-Size Box PC with Intel® Kaby Laby-U/Skylake-U or Apollo Lake-I Series Processor for Ultra Low-Power Fanless Solution

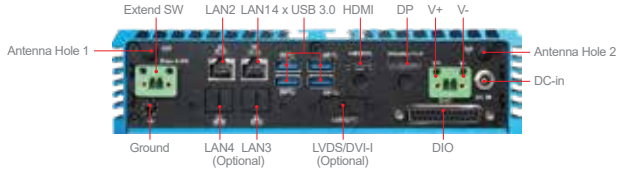
MS-9A89-A1/ A2





MS-9A89-U1/ U2/ U3





Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC or Intel® 7th/6th Gen Kaby Lake-U/Skylake-U Series
- DDR3L 1866/1600 MHz SODIMM Slot up to 8GB or DDR4 2133 MHz SODIMM Slot up to 16GB
- Triple independent displays: DP++, HDMI, LVDS/DVI-I (by option)
- 2 GbE LAN with RJ-45, 2 GbE LAN by Mini-PCIe expansion card with RJ-45 (by option)
- Mini-PCIe (Full size, with mSATA), Mini-PCIe (Full size, with Nano SIM Holder) Slots
- SATA 3.0 storage (2.5” SSD/HDD) , micro SD for storage or 2 SATA 3.0 storage (2.5” SSD/HDD) , micro SD for storage, SATA RAID 0/1
- 4 USB 3.2 Gen 1, 2 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- 4 opening resrved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Railway design to Compliance EN50155 TX Class
- Wide operating temperature: -20~70°C
- Wide Voltage DC-IN 12~24V
- Ultra-Compact with fanless design

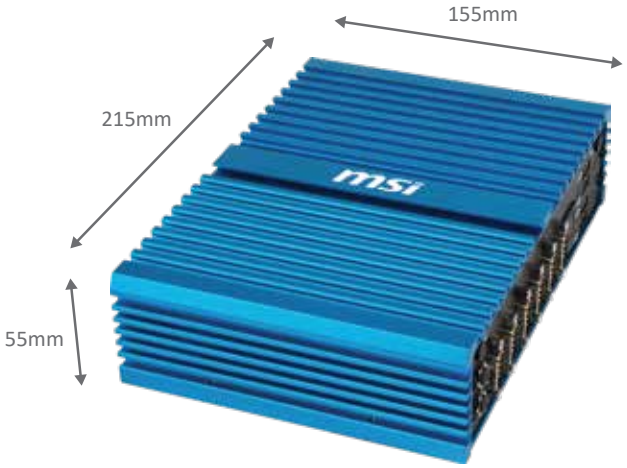
Specifications

NEW

		MS -9A89-A1	MS -9A89-A2	MS -9A89-A3	MS -9A89-U1	MS -9A89-U2	MS -9A89-U3	MS -9A89-U4
Processor	CPU	Intel® Atom™ x7 Processor E3950, QC, 12W	Intel® Atom™ x5 Processor E3940, QC, 9.5W	Intel® Celeron® Processor J3455, QC, 10W	Intel® Kaby Lake-U Core™ i3-7100U Processor, DC, 15W	Intel® Skylake-U Core™ i5-6300U Processor, DC, 15W	Intel® Skylake-U Core™ i3-6100U Processor, DC, 15W	Intel® Skylake-U Core™ i7-6600U Processor, DC, 15W
	Frequency	1.6 GHz up to 2.0 GHz	1.6 GHz up to 1.8 GHz	1.5 GHz, up to 2.3 GHz	2.4 GHz			2.6 GHz
	L2 Cache	2MB			3MB			
	CPU Type	BGA						
	Chipset	Integrated in SoC Process			Integrated in Process			
	BIOS	AMI						
Memory	Technology	Single-channel DDR4 1866/1600 MHz			Single-channel DDR4 2133 MHz			
	Max. Capacity	Up to 8GB			Up to 16GB			
	Socket	1 x 204-pin SO-DIMMs			1 x 260-pin SO-DIMMs			
Display	Controller	Intel® HD Graphics						
	Graphic Memory	Depends on CPU						
	Multiple Display	3 independent displays						
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2160 @60Hz LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			HDMI1.4 up to 4096 x 2160 @24Hz DP up to 3840 x 2160 @60Hz (Support DP++) LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			
Ethernet	Controller	2 x Intel® I210-IT GbE LAN	2 x Intel® I210-AT GbE LAN		1 x Intel® I210-AT GbE LAN 1 x Intel® I219-LM GbE LAN PHY			
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec						
H/W Monitor	Watchdog Timer	256-level Watchdog Timer						
TPM	Controller	N/A						
Expansion Slot	Mini-PCIe	2 x Full-size (Mini-PCIe1 Slot w/ NANO SIM-Holder) (Mini-PCIe2 Slot w/ mSATA)						
Storage	SATA	1 x 2.5" HDD/SSD Bay						
	mSATA	1 x Full-size						
I/O Interface	RJ-45	4 (LAN1/2 Standard, LAN3/4 by Option)						
	PoE	2 x 802.11af (Option by Request)						
	Audio	1 x Line-out 1 x Mic-in						
	USB	4 x USB 2.0 2 x USB 3.2 Gen 1			4 x USB 2.0 4 x USB 3.2 Gen 1			
	Serial	6 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V						
	GPIO	16-bit (8*GPI; 8*GPO), 5V						
	CANbus	2 x CAN 2.0B (Option)						
	HDMI	1						
	LVDS	1 (optional)						
	DVI	1 (DVI-I by option)						
	DisplayPort	1						
	Antenna	4 openings reserved for antennas						
Power Supply	DC Input	DC-in 12V~24V						
Environment	Operating Temperature	-10~45°C (HDD) -20~70°C (w/ WT SSD/ mSATA)	-10~45°C (HDD) -10~60°C (w/ WT SSD/ mSATA)		-10~45°C (HDD) -10~60°C (w/ WT SSD/mSATA)			
	Operating Humidity	10 ~ 90%, non-condensing						
	Storage Temperature	-20 ~ 80°C						
	Storage Humidity	10 ~ 90%, non-condensing						
	Vibration	IEC61373 Category 1, Class B						
	Shock	IEC61373 Category 1, Class B						
Form Factor	Dimensions (Wx DxH)	215 x 155 x 55 mm						
	Weight	1.55 kg						
	Mounting	Wall mount (STD)/DIN-rail mount(STD)/VESA mount(by BOM option)						
Certification	EMC	CE, FCC, VCCI, RCM, BSMI, EN50155						
	Safety	BSMI						
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux Fedora 25 (by request) Linux Ubuntu 16.04 (by request)						

Customization for Flexible Extend Functions

Compact-size with Multiple Ports & Expansions



4 x USB 2.0 & 6 x COM Ports

4 x USB 3.2 Gen 1
16 x GPIO 2 x 4K2K Display Ports
2 or 4 x LAN (By option) 1 x LVDS/
DVI-I (By option)

Two mPCIe Slots Create 8-Type of Combinations

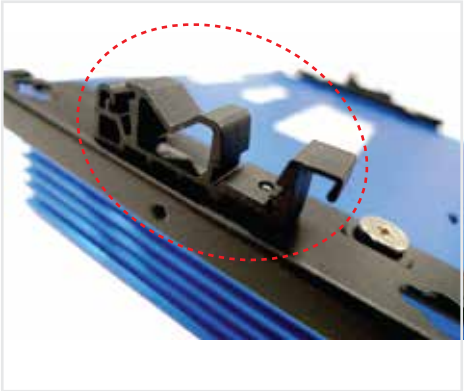
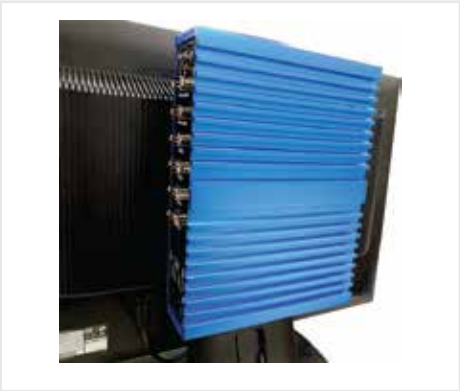
	mPCIe Modules			
Modules Combination	Dual Isolated LAN Module(WT) EtherCAT	Dual Isolated PoE Module(WT) (By Requested I/O Bracket) EtherCAT	Dual Isolated CANbus 2.0B Module (Share By COM5, COM6)	Four RS232 Module (By Requested I/O Bracket)
MS-99C0 LVDS Change Into DVI-I Converter Board DVI-I Up to 1920x1200 @ 60Hz	V		V	
	V			V
		V	V	
		V		V
MS-99C5 Power USB Extension Card (Rear I/O Bracket) Multi-I/O function with 1*24V power USB, 2*12V power USB and 1*cash drawer	V			
		V		
			V	
				V

Customization for Flexible Extend Functions

SMA Wireless Antenna Types

Wi-Fi	LTE	Wi-Fi + LTE

Flexibility of Installation Types

Wall mount	DIN-Rail	VESA mount
		

Certifications

TRACK RESISTANCE tested according to DIN EN/ IEC 61373

EN50155

R33008 RoHS

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