

MS-9A89

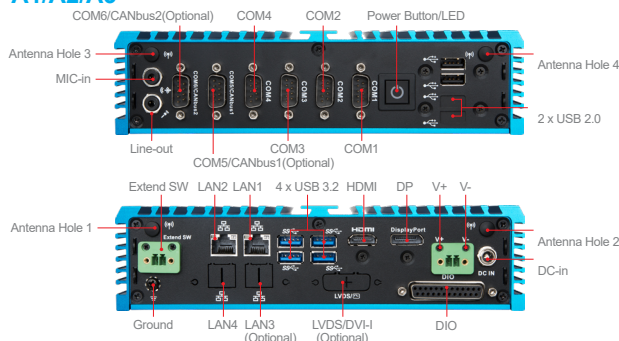
Compact-Size Box PC with Intel® Kaby Lake-U/Skylake-U or Apollo Lake-I Series Processor for Ultra Low-Power Fanless Solution



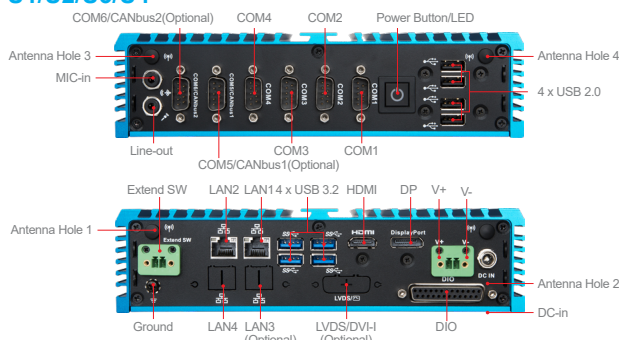
EN50155



A1/A2/A3



U1/U2/U3/U4



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- DDR3L 1866/1600 MHz SODIMM Slot up to 8GB
- Triple independent displays: DP++, HDMI, LVDS/DVI-I (by option)
- 2 GbE LAN with RJ-45, 2 GbE LAN by Mini-PCle expansion card with RJ-45 (by option)
- Mini-PCle (Full size, with mSATA), Mini-PCle (Full size, with Nano SIM Holder) Slots
- SATA 3.0 storage (2.5" SSD/HDD), micro SD for storage
- 4 USB 3.2 Gen 1, 2 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- 4 opening reserved 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

- Intel® 7th/6th Gen Kaby Lake-U/Skylake-U Series
- 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-PCle expansion card with RJ-45 (by option)
- Mini-PCle (Full size, with mSATA), Mini-PCle (Full size, with Nano SIM Holder) Slots
- 2 SATA 3.0 storage (2.5" SSD/HDD), micro SD for storage SATA RAID 0/1
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- 4 opening reserved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Railway design to Compliance EN50155 TX Class
- Wide Voltage DC-IN 12~24V
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Specifications

		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 DDR3L 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 x 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-PCle	2 x Full-size (Mini-PCle1 Slot w/ NANO SIM-Holder) (Mini-PCle2 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 4 x USB 2.0			4 x USB 2.0			
	USB	2 x USB 3.2 Gen 1 6 x COM ports			4 x USB 3.2 Gen 1			
	Serial	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						
Power Supply	Antenna	4 openings reserved for antennas						
	DC Input	DC-IN 12V~24V						
Environment	Operating Temperature	-10~45°C (HDD) -20~70°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s				
	Operating Humidity	10 ~ 90%, non-condensing						
	Storage Temperature	-20 ~ 80°C						
	Storage Humidity	10 ~ 90%, non-condensing						
Form Factor	Vibration	IEC61373 Category 1, Class B						
	Shock	IEC61373 Category 1, Class B						
	Dimensions (Wx DxH)	215 x 155 x 55 mm						
Certification	Weight	1.55 kg						
	Mounting	Wall mount (STD)/ DIN-rail mount(STD)/ VESA mount(by BOM option)						
Software Platform	EMC	CE, FCC, VCCI, RCM, BSMI, EN50155						
	Safety	BSMI						

Ordering Information

Part Number Description

Please check MSI IPC website at <http://ipc.msi.com> for details.

Packing List

Part Number Description

Please check MSI IPC website at <http://ipc.msi.com> for details.

Optional Item

Part Number Description

Please check MSI IPC website at <http://ipc.msi.com> for details.