

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

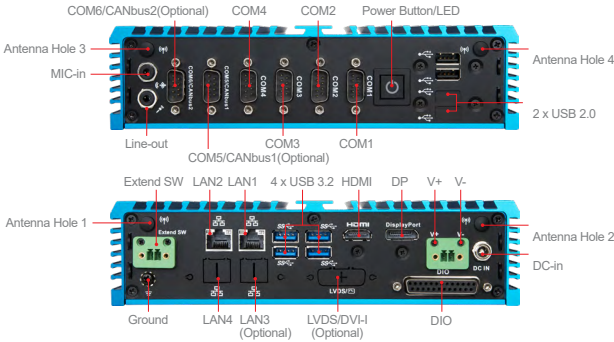
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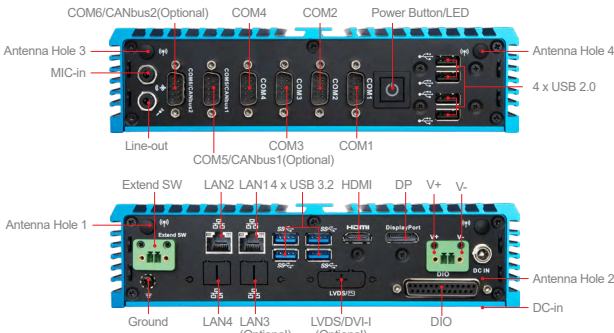
EN50155



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-H (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
- 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-H (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
- 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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- 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	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			
Max. Capacity	Up to 8GB			Up to 16GB			
Socket	1 x 204-pin SO-DIMMs			1 x 260-pin SO-DIMMs			
Display	Controller						
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)			HDMI 1.4 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-H up to 1920 x 1200 @60Hz (optional by MS-99C0)			
Ethernet	Controller		2 x Intel® I210-IT GbE LAN		1 x Intel® I210-AT GbE LAN		
Audio	Controller						
H/W Monitor	Realtek® ALC887-VD2-CG HD Audio Codec						
Watchdog Timer	256-level Watchdog Timer						
TPM	Controller						
Expansion Slot	Mini-PCIe						
Storage	SATA						
mSATA	1 x Full-size						
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						
I/O Interface	GPIO						
CANbus	2 x CAN 2.0B (Option)						
HDMI	1						
LVDS	1 (optional)						
DVI	1 (DVI-H by option)						
DisplayPort	1						
Antenna	4 openings reserved for antennas						
Power Supply	DC Input						
DC Input	DC-IN 12V~24V						
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		
Environment	Operating Humidity						
Storage Temperature	10 ~ 90%, non-condensing						
Storage Humidity	-20 ~ 80°C						
Vibration	10 ~ 90%, non-condensing						
Shock	IEC61373 Category 1, Class B						
Form Factor	Dimensions (Wx DxH)						
Weight	215 x 155 x 55 mm						
Mounting	1.55 kg						
Certification	EMC						
Safety	Wall mount (STD)/DIN-rail mount(STD)/VESA mount(by BOM option)						
Software Platform	OS Support						
OS Support	CE, FCC, VCCI, RCM, BSMI, EN50155 BSMI Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux Fedora 25 (by request) Linux Ubuntu 16.04 (by request)						

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.	