

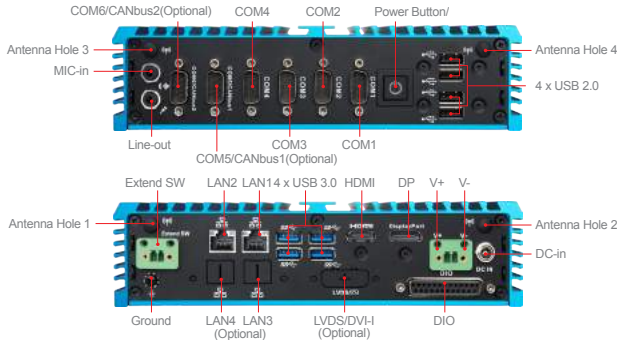
# MS-9A89

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

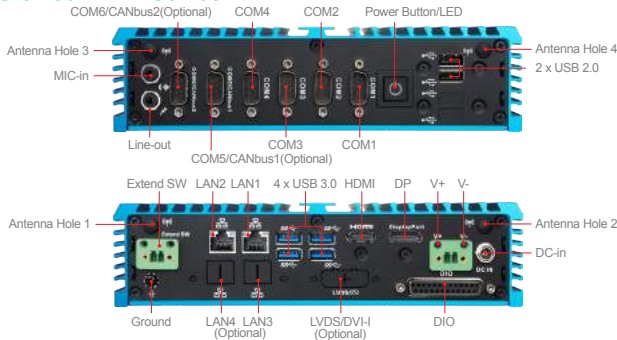
NEW



## MS-9A89-U1/ MS-9A89-U2/ MS-9A89-U3



## MS-9A89-A1/ MS9A89-A2



## Specifications

|                   |                       | MS-9A89-U1  | MS-9A89-U2                                     | MS-9A89-U3                                     | MS-9A89-A1  | MS-9A89-A2                                |
|-------------------|-----------------------|---|--|--|---|---|
| Processor         | CPU                   | Intel® KBL-U Core™ i3-7100U Processor, DC, 15W  | Intel® SKL-U Core™ i5-6300U Processor, DC, 15W | Intel® SKL-U Core™ i3-6100U Processor, DC, 15W | Intel® Atom™ x7 Processor E3950, QC, 12W  | Intel® Atom™ x5 Processor E3940, QC, 9.5W |
|                   | Frequency             | 2.4GHz  |  |  | 1.6GHz up to 2.0GHz   |   |
|                   | L2 Cache              | 3MB   |  |  | 2MB   |   |
|                   | CPU Type              | BGA   |  |  |   |   |
|                   | Chipset               | Integrated in Process   |  |  | Integrated in SoC Process   |   |
| Memory            | BIOS                  | AMI   |  |  |   |   |
|                   | Technology            | Single channel for DDR4 2133 MHz  |  |  | Single channel for DDR3L 1866/1600 MHz  |   |
|                   | Max. Capacity         | Up to 16GB  |  |  | Up to 8GB   |   |
| Display           | Socket                | 1 x 260-pin SO-DIMMs  |  |  | 1 x 204-pin SO-DIMMs  |   |
|                   | Controller            | Intel® HD Graphics  |  |  |   |   |
|                   | Graphic Memory        | Shared system memory up to 1.7 GB SDRAM   |  |  |   |   |
|                   | Multiple Display      | 2 or 3 independent displays   |  |  | 2 or 3 independent displays   |   |
| Ethernet          | Display Interface     | HDMI1.4 up to 4096 x 2160 @24Hz<br>DP up to 3840 x 2160 @60Hz (Support DP++)<br>LVDS up to 1920 x 1200 @60Hz (optional by cable)<br>DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0) |  |  | HDMI up to 3840 x 2160 @30Hz<br>DP up to 4096 x 2160 @60Hz (optional by cable)<br>LVDS up to 1920 x 1200 @60Hz (optional by cable)<br>DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0) |   |
|                   | Controller            | 1 x Intel® I210-AT GbE LAN PHY<br>1 x Intel® I219-LM GbE LAN PHY  |  |  | 2 x Intel® I210-IT GbE LAN<br>2 x Intel® I210-AT GbE LAN  |   |
| Audio             | Controller            | Realtek® ALC887-VD2-CG HD Audio Codec   |  |  |   |   |
| H/W Monitor       | Watchdog Timer        | 256-level Watchdog Timer  |  |  |   |   |
| TPM               | Controller            | N/A   |  |  |   |   |
| Expansion Slot    | Controller            | N/A   |  |  |   |   |
|                   | 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   |  |  |   |   |
|                   | RJ-45                 | 4 (LAN1/2 Standard, LAN3/4 by Option)   |  |  |   |   |
| I/O Interface     | PoE                   | 2 x 802.11af (by request)   |  |  |   |   |
|                   | Audio                 | 1 x Line-out / 1 x Mic-in   |  |  |   |   |
|                   | USB                   | 4 x USB 3.0, 4 x USB 2.0  |  |  | 4 x USB 3.0, 2 x USB 2.0  |   |
|                   | Serial                | 6 x COM ports<br>COM1: RS-232/422/485, 0V/5V/12V<br>COM2-6: RS-232, 0V/5V/12V   |  |  |   |   |
|                   | GPIO                  | 16-bit (8*GPI; 8*GPO), 5V   |  |  |   |   |
|                   | CANbus                | 2 x CAN 2.0B (optional)   |  |  |   |   |
|                   | 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)<br>-10~60°C (w/ WT SSD/mSATA)  |  |  | -10~45°C (HDD)<br>-20~70°C (w/ WT SSD/mSATA)  |   |
|                   | 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 55mm  |  |  |   |   |
| 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  |  |  |   |   |
| OS Support        | OS Support            | Windows 7(For Skylake-U SKUs)<br>Windows 8.1(For Skylake-U SKUs)<br>Windows 10 (64-bit)<br>Linux Fedora 25 (by request)<br>Linux Ubuntu 16.04 (by request)                              |  |  |   |   |

## Features

- Ultra low power with fanless design
- Support DDR4 2133MHz SO-DIMM Memory up to 16GB(For KBL-U Series)
- Support DDR3L 1866/1600MHz SO-DIMM Memory up to 8GB(For APL-I Series)
- Support operating temperature: -20~70°C (w/ WT SSD or mSATA For MS-9A89A1 SKU)
- 3 independent displays: HDMI, DP and LVDS/DVI-I(Optional)
- Supports 16-bit GPIO (8\*GPI; 8\*GPO)
- Dual GbE LAN and 4\*USB 3.0 and 4\*USB2.0(APL-I Series support 2\*USB2.0) and 6\*COM ports
- Dual Mini-PCIe for expansion
- Support DC in 12V~24V
- 4 openings reserved for antennas
- Anti-Vibration & Shockproof Design
- EN50155 Compliance

## Ordering Information

| Part Number  | Description |
|--|-------------|
| Please check MSI IPC website at <a href="http://ipc.msi.com">http://ipc.msi.com</a> for details. |             |

## Packing List

| Part Number  | Description |
|--|-------------|
| Please check MSI IPC website at <a href="http://ipc.msi.com">http://ipc.msi.com</a> for details. |             |

## Optional Item

| Part Number  | Description |
|--|-------------|
| Please check MSI IPC website at <a href="http://ipc.msi.com">http://ipc.msi.com</a> for details. |             |