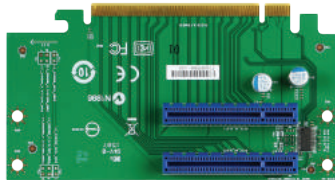
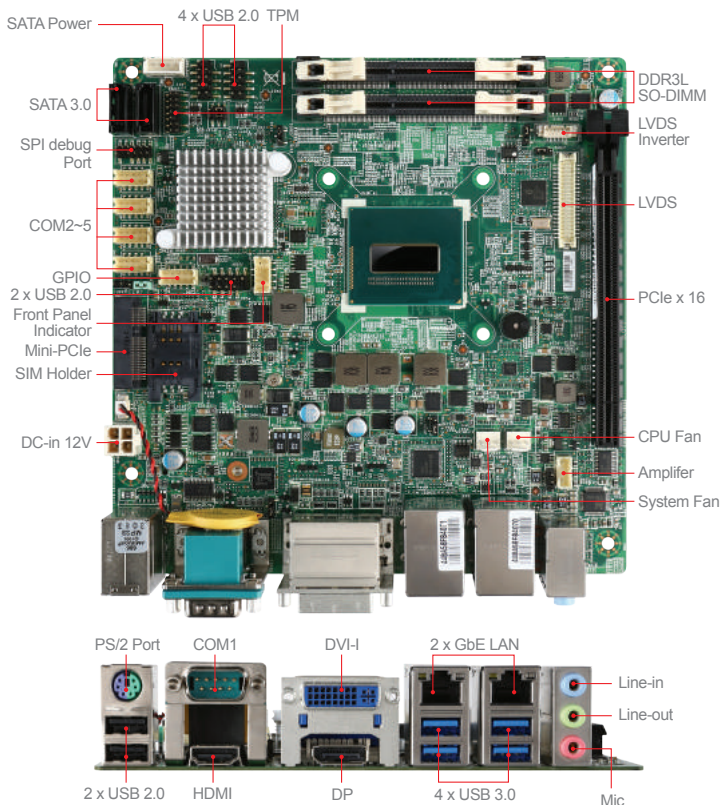


# MS-98G5

Mini-ITX SBC with 4th Gen Intel® Core™, Intel® HM86/QM87, Multi-Displays & High-Performance for Digital Signage & Gaming Solution



**609-99A2-A10:**  
optional PCIe x16 to  
2\*PCIe x8 Riser Card

## Features

- Embedded Motherboard for high graphic performance application, medical, gaming or high-end digital signage
- Intel Haswell/Broadwell Mobile Core i7/i5/i3/Celeron Processor
- 3 independent displays with HDMI, DP, DVI-I, and LVDS
- Dual GbE LAN with iAMT (EIA+QM87)
- 2 x DDR3L 1333/1600 MHz memory up to 16GB
- 1 x PCIe(x16) with riser card extends to x8+x8 or x8+x4+x4
- 8 x USB 2.0; 4 x USB 3.0; 5 x COM; SATA 3.0 supported
- 2 x full-size Mini-PCle (one shared mSATA or SIM holder)
- Auto-switch DC power 12/19V

## Ordering Information

Part Number	Description
919-98G5-001	MS-98G5/609-98G5-010/809-98G5-003 STD VER 1.0, OPT A, Intel i5-4210H, HM86, 2*DDR3L, 1*COOLER, 1*COM CABEL, 1*I/O SHIELD, 1*SATA CABLE, 1*PS2 Y CABLE
919-98G5-002	MS-98G5/609-98G5-020/809-98G5-003 STD VER 1.0, OPT E, Intel i5-4410E, QM87, 2*DDR3L, 1*COOLER, 1*COM CABEL, 1*I/O SHIELD, 1*SATA CABLE, 1*PS2 Y CABLE
919-98G5-003	MS-98G5/609-98G5-030/809-98G5-003 STD VER 1.0, OPT F, Intel i7-4700EQ, QM87, 2*DDR3L, 1*COOLER, 1*COM CABEL, 1*I/O SHIELD, 1*SATA CABLE, 1*PS2 Y CABLE

## Packing List

Part Number	Description
E32-2100030-K08	Cooler
E21-98G5010-C22	I/O Shielding
K39-3002004-E06	PS2 Y-cable, 190mm
K14-1018003-V03	COM Port Cable, 300mm
K1D-1012064-V03	SATA Cable, 200mm
G71-SEDC140-X03	CD

## Specifications

<b>Processor</b>	CPU	4th Gen Intel® Mobile Haswell-H Core™ i7/i5/i3/Celeron® Mobile Processor, Max. 47W
	Frequency	2.2GHz~3.6 GHz (Depends on CPU)
	L2 Cache	3M~6M (Depends on CPU)
	CPU Type	BGA
	Chipset	Intel® HM86/QM87 Express
<b>Memory</b>	BIOS	AMI
	Technology	Dual-channel DDR3L 1333/1600 MHz SDRAM
	Max. Capacity	Up to 16GB
<b>Display</b>	Socket	2 x 204-pin SO-DIMMs
	Controller	Intel® HD Graphics
	Graphic Memory	Shared system memory up to 1.7 GB SDRAM
	LVDS	Dual channel 24-bit
	DVI	1 (DVI-I)
	HDMI	1
	DisplayPort	1
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz DVI up to 1920 x 1200 @60Hz DP up to 3840 x 2160 @60Hz HDMI up to 3840 x 2160 @24Hz
	Ethernet	Controller
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
<b>H/W Monitor</b>	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
<b>I/O Interface</b>	USB	4 x USB3.0 (rear) 8 x USB2.0 (6 x internal; 2 x rear)
	Serial	5 x COM ports (COM1: rear, COM2~5: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~5: RS-232
	PS/2	1
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
<b>Expansion Slot</b>	PCIe x16	1 (up to 75W, w/ riser card to extend to x8+x8 or x8+x4+x4)
	PCI	N/A
	M.2	N/A
	Mini-PCle	QM87: 1 x Full-size, mSATA (w/ SIM Holder) 1 x Half-size HM86: 1 x Half-size
<b>Storage</b>	SATA	QM87: 2 x SATA 3.0 HM86: 1 x SATA 3.0; 1 x SATA 2.0
	mSATA	1
<b>Power Supply</b>	DC	DC-in 12V/19V
	ATX	N/A
<b>Environment</b>	Operating Temperature	0 ~ 60°C
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
<b>Form Factor</b>	Storage Humidity	10 ~ 90%, non-condensing
	Dimensions	170 x 170mm (Mini-ITX)
	Weight	0.35 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
<b>Software Platform</b>	OS Support	Windows 7 (32/64-bit) Windows 8 (32-bit)

Semi-rugged Terminal  
POS System  
HMI Panel PC  
Embedded System  
Embedded Board  
COM Express Board  
Oseven Board  
Pico-ITX Board  
3.5" Board  
EPIC Board  
PICMG 1.0 Board  
Mini-ITX Board  
Micro-ATX Board  
ATX Board  
Mini-PCle Module