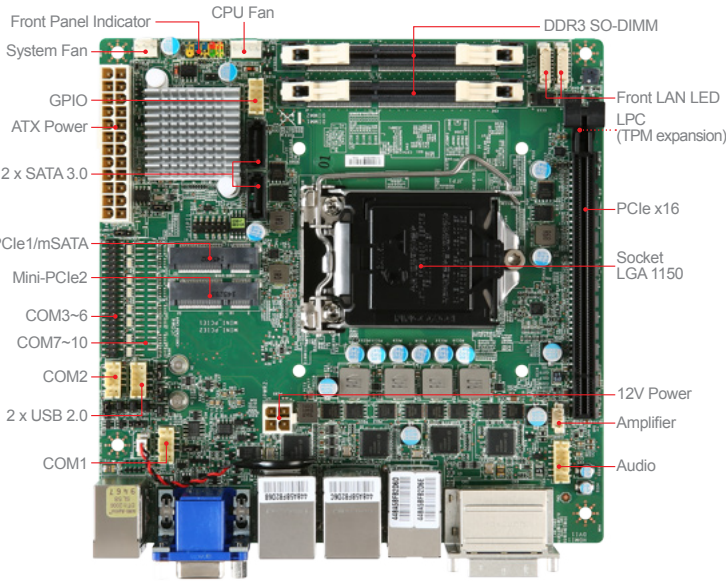
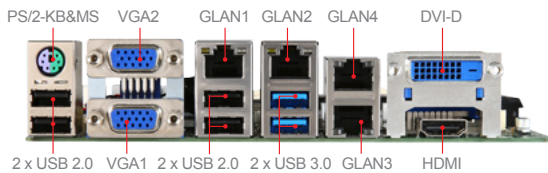


MS-98H1

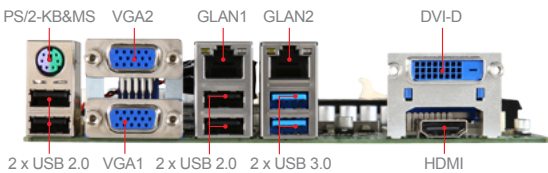
Mini-ITX with 4th Gen Intel® Desktop Haswell/Haswell Refresh Platform for 4 GLAN, 10 COM & 3 Independent Displays



4 LAN+6 COM SKU



2 LAN+10 COM SKU



Features

- Intel® Desktop Haswell & Haswell Refresh Core™ i7/i5/i3/ Pentium®/Celeron® Processor
- Supports 4 Intel® GbE LAN
- 3 or 2 independent displays with dual VGA, DVI-D, and HDMI outputs
- Supports 10 COM ports (all with power)
- 2 SATA 3.0, 6 USB ports, PCIe x16, and Dual Mini-PCIe

Ordering Information

Part Number	Description
919-98H1-101	MS-98H1 V1.0 Mini-ITX, Intel Haswell Processor+Intel H81, 2*DDR3/DDR3L SO-DIMM+1*DVI-D+1*HDMI+2*VGA+4*GbE LAN+6*COM+8*USB Port ,ATX power
919-98H1-102	MS-98H1 V1.0 Mini-ITX, Intel Haswell Processor+Intel H81, 2* DDR3/DDR3L SO-DIMM+1*DVI-D+1*HDMI+2*VGA+2*GbE LAN+10*COM+8*USB Port ,ATX power
919-98H1-103	MS-98H1 V1.0 Mini-ITX, Intel Haswell Processor+Intel Q87, 2* DDR3/DDR3L SO-DIMM+1*DVI-D+1*HDMI+2*VGA+2*GbE LAN+10*COM+8x USB Port ,ATX power

Packing List

Part Number	Description	Quantity
E21-98H10X0-C22	I/O SHEILDING	1

Specifications

Processor	CPU	4th Gen Intel® Desktop Haswell/Haswell refresh Core i7/i5/i3/Pentium/Celeron Processor, Max. 84W
	Frequency	2.4GHz~4.0 GHz (Depends on CPU)
	L2 Cache	2M~8M (Depends on CPU)
	CPU Type	Socket (LGA 1150)
	Chipset	Intel® Q87/H81 Express
Memory	BIOS	AMI
	Technology	Dual-channel DDR3/DDR3L 1066/1333/1600MHz
	Max. Capacity	Up to 16 GB
	Socket	2 x 204-pin SO-DIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Shared system memory up to 1.7 GB SDRAM
	VGA	2
	DVI	1 (DVI-D)
	HDMI	1
	Multiple Display	3 independent displays (Q87 SKU) 2 independent displays (H81 SKU)
	Display Interface	VGA1 up to 1920 x 1080 VGA2 up to 1920 x 1080 DVI-D up to 1920 x 1200 HDMI up to 1920 x 1200
Ethernet	Controller	4 x Intel® I210-AT GbE LAN 2 x Intel® I211-AT GbE LAN (depends on SKU)
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866D
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
I/O Interface	USB	2 x USB 3.0 (rear) 4 x USB 2.0 (2 x rear; 2 x internal)
	Serial	10 x COM (COM1~10: internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V COM7~10: RS-232, 0V/5V/12V (depends on SKU)
	Parallel	N/A
	PS/2	1
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
	PCIe x16	1
	M.2	N/A
	Mini-PCIe	1 x Full-size(W/ mSATA) 1 x Half-size
	SATA	2 x SATA 3.0
	mSATA	1
Power Supply	DC	N/A
	ATX	ATX-Power 24P, 12V-4P
Environment	Operating Temperature	-10 ~ 60°C
	Operating Humidity	10~90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10~90%, non-condensing
Form Factor	Dimensions	170mm x 170mm (Mini-ITX)
	Weight	0.37 kg
Certification	EMC	FCC Class A, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows XP (32-bit) Windows 7 (32/64-bit) Windows 8/8.1 (32/64-bit) Windows 10 (64-bit) Fedora 19 Ubuntu 13.04

Optional Items

Part Number	Description
K14-1036004-V03	COM Port Cable, 200mm