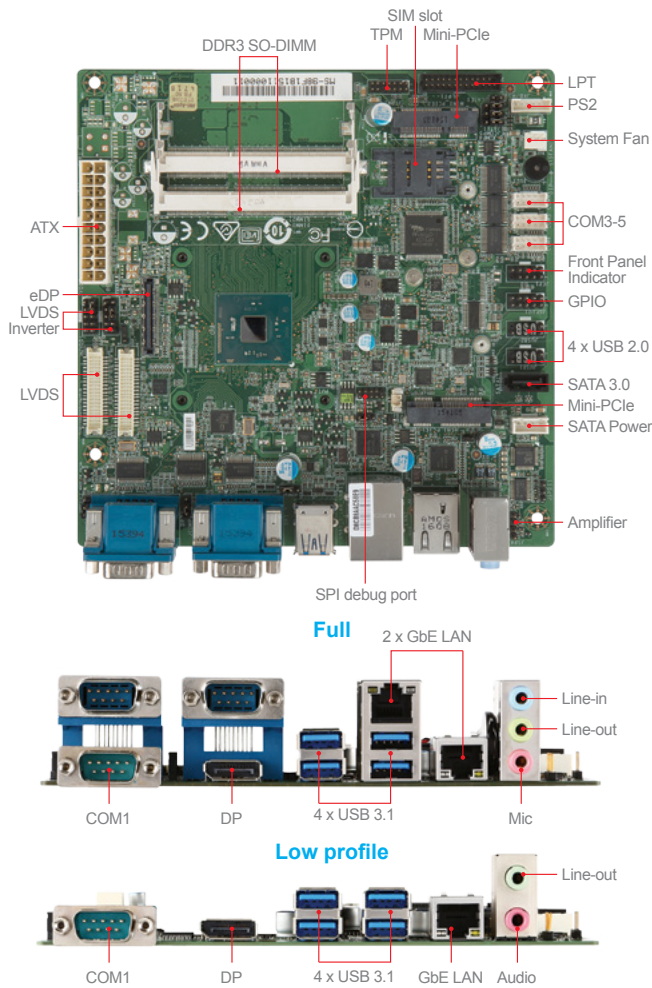


# MS-98F1

Mini-ITX with Intel® Atom™ Braswell Platform for Rich I/O ports, Multi-Displays, Low-Power, Fanless & DC/ATX Solution



## Features

- Intel® Braswell Series SoC
- 2 DDR3L 1600/1333 MHz SODIMM slots up to 8GB
- Triple independent displays: DP, LVDS, LVDS(eDP by option)
- 2 GbE LAN with RJ-45
- 1 Mini-PCIe (Full/Half size, with SIM Holder), 1 Mini-PCIe (Full/Half size, with mSATA) slots
- mSATA, SATA 3.0 for storage SATA RAID 0/1
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM(2 RS485, 4 ports by option), GPIO, LPT, PS/2, Audio, S/PDIF, System FAN
- Onboard TPM 1.2 (by option)
- 2 LVDS for dual independent panels
- DC-IN 12V/19V/24V (ATX Power by option)

## Ordering Information

Part Number	Description
919-98F1-104	MS-98F1 609-98F1-040\809-98F1-105\VER 11 OPT:D Intel N3160,2*DDR3L,1*DP,1*LVDS,1*LVDS colay eDP,6*COM,4*USB3.0, 4*USB2.0, 2*Gbe LAN, 1*SATA3.0, 2*Mini-PCIe,ATX Power,1*SATA cable,1*CD,1*I/O Shield, Bulk, For channel
919-98F1-103	MS-98F1 609-98F1-030\809-98F1-104\VER 11 OPT:C Intel N3060,2*DDR3L,1*DP,1*LVDS,1*LVDS colay eDP,4*COM,4*USB3.0, 4*USB2.0, 1*Gbe LAN, 1*SATA3.0, 2*Mini-PCIe,DC Power, 1*SATA cable,1*Power cable, 1*CD,1*I/O Shield,Bulk, For Channel

## Packing List

Part Number	Description
K1D-1012064-V03	SATA CABLE
K10-3004215-V03	DC POWER CABLE For OPT: C
E21-98F1010-C22	I/O SHIELDING For OPT: C
E21-98F1020-C22	I/O SHIELDING For OPT: D
G71-SEDC153-N56/X03	DRIVER CD

## Specifications

<b>Processor</b>	CPU	Intel® Pentium processor N3710, QC, 6W Intel® Celeron processor N3160, QC, 6W Intel® Celeron processor N3060, DC, 6W Intel® Celeron processor N3010, DC, 4W	
	Frequency	N3710, 1.6 GHz, up to 2.56 GHz N3160, 1.6 GHz, up to 2.24 GHz N3060, 1.6 GHz, up to 2.48 GHz N3010, 1.04 GHz, up to 2.24 GHz	
	L2 Cache	2MB	
	CPU Type	BGA	
	Chipset	Integrated	
<b>Memory</b>	BIOS	AMI	
	Technology	Dual-channel DDR3L 1333/1600 MHz	
	Max. Capacity	Up to 8GB	
<b>Display</b>	Socket	2 x 204-pin SO-DIMM	
	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	2 x dual channel 18/24-bit	
	eDP	1 (colay with LVDS)	
<b>Ethernet</b>	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz DP up to 3840 x 2160 @30Hz eDP up to 2560 x 1600 @60Hz	
<b>Audio</b>	Controller	2 x Intel® i210-AT GbE LAN	
	Controller	1 x Intel® i210-AT GbE LAN	
<b>Super I/O</b>	Controller	Realtek® ALC887 co-layer ALC888S	
	Watchdog Timer	256-level Watchdog Timer	
<b>H/W Monitor</b>	Smart Fan	Yes	
	Controller	Pin header (default) Infineon SLB9635TT 1.2 (by BOM option) Pin header	
<b>I/O Interface</b>	USB	4 x USB 2.0 (internal)	2 x USB 2.0 (internal)
		4 x USB 3.1 Gen 1 (rear)	4 x USB 3.1 Gen 1 (rear)
	Serial	6 x COM ports (COM1~3: rear, COM4~6: internal)	4 x COM ports (COM1: rear, COM4~6: internal)
		COM1&5: RS-232/422/485, 0V/5V/12V	COM1&5: RS-232/422/485, 0V/5V/12V
		COM2~4: RS-232, 0V/5V/12V	COM4: RS-232, 0V/5V/12V
Parallel	COM6: RS-232 w/o power	COM6: RS-232 w/o power	
	Parallel	1	
<b>Expansion Slot</b>	PS/2	1 (pin header)	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	
	M.2	N/A	
	Mini-PCIe	2 x Full/Half-size (one w/ SIM holder & one w/mSATA)	
<b>Storage</b>	SATA	1 x SATA 3.0	
	mSATA	1 (support by mini PCIe slot)	
<b>Power Supply</b>	CompactFlash	N/A	
	DC	DC-in 12V/19V/24V	
<b>Environment</b>	ATX Power	ATX Power 20P	
	Operating Temperature	0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing	
<b>Form Factor</b>	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
<b>Certification</b>	Dimensions	170 x 170mm (Mini-ITX)	
	Weight	0.37 kg	
<b>Software Platform</b>	EMC	FCC, CE, RCM, VCCI, BSMI	
	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux Fedora 23 Linux Ubuntu 15.10	

## Optional Item

Part Number	Description
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 Cable, 330mm