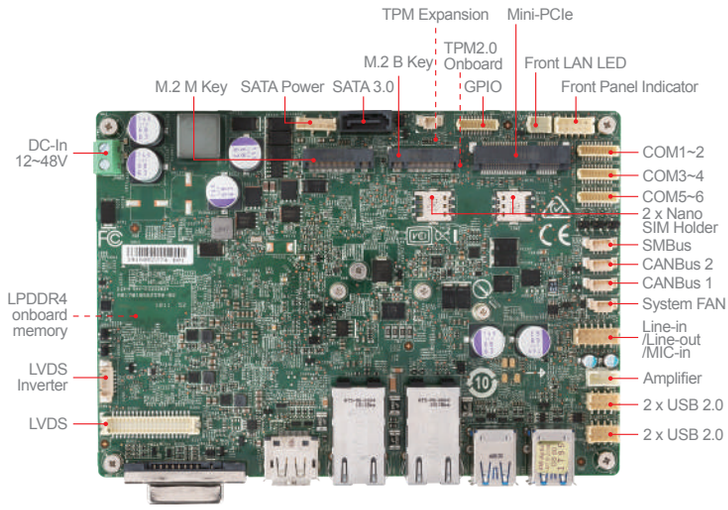
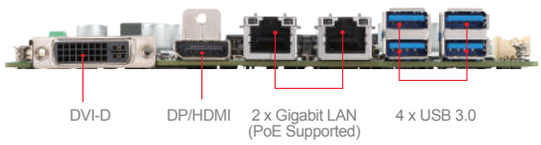
MS-98H5

EPIC SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Low-Power, PoE, CANBus & Wide Temperature Solution

NEW





Features

- Supports Dual GbE LAN with IEEE PoE 802.3af & 2 channel CANBus 2.0B
- Supports 3 independent displays : DVI-D, DP (Co-Lay HDMI) and LVDS
- Supports LPDDR4 2133/2400 MHz onboard memory up to 4GB
- Supports 4 USB 3.0, 4 USB 2.0, and 6 COM ports (all with power)
- Mini-PCIe & M.2 B Key 3042 with NANO SIM-Holder , SATA 3.0, M.2 M Key 2242 for storage
- Apollo Lake-I Series support wide operating temperature : -40 ~ 85°C
- Supports wide voltage 12~48V for in-vehicle application
- Compact design for anti-vibration devices in harsh environments

Ordering Information

Nr.	Model	Description
156873	MS-98H5-E3940	Board, EPIC, x5-E3940, DVI-D, HDMI, mPCIe, M.2
156872	MS-98H5-E3950	Board, EPIC, x7-E3950, DVI-D, HDMI, mPCIe, M.2
156874	MS-98H5-J3455E	Board, EPIC, J3455, DVI-D, HDMI, mPCIe, M.2

Specifications

Processor	CPU	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W	Intel® Atom™ x7 Processor E3950, QC, 12W Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz	E3950, 1.6 GHz, up to 2.0 GHz E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	2M	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Single-channel LPDDR4 2400MHz	Single-channel LPDDR4 2133/2400MHz
	Max. Capacity	Up to 4 GB	
	Socket	Onboard	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Shared system memory up to 1.7 GB SDRAM	
	LVDS	Dual Channel 18/24-bit	
	eDP	N/A	
	VGA	N/A	
	DVI	1 (DVI-D)	
	HDMI	1 (by BOM option)	
	DisplayPort	1 (Co-lay HDMI)	
	Multiple Display	3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60 Hz DVI-D up to 1920 x 1200 @60 Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 x 2160 @60Hz	
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN (W/ PoE IEEE 802.3af)
Audio	Controller	Realtek® ALC887 HD Audio Codec	
Super I/O	Controller	Fintek F81867D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Pin header (Default) Infineon SLB9665TT 2.0 (by BOM option)	Infineon SLB9665XT 2.0 (Default)
I/O Interface	USB	4 x USB 3.0 (rear) 4 x USB 2.0 (internal)	
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V	
	Parallel	N/A	
	PS/2	N/A	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x 16	N/A	
	PCIe x 4	N/A	
	PCIe x 1	N/A	
	PCI	N/A	
	M.2	1 x M Key (SATA 3.0), 2242 1 x B Key (PCIe x1, USB2.0), 3042	
	Mini-PCIe	1 x Full-size (w/ SIM holder)	
Storage	SATA	1 x SATA 3.0	
	IDE	N/A	
	eSATA	N/A	
	CFast	N/A	
	mSATA	N/A	
	CompactFlash	N/A	
Power Supply	DC	DC-in 12V~48V	
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C	-40 ~ 85°C
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	165 x 115mm (EPIC)	
	Weight	0.42 kg	0.67 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 (64-bit) Linux Fedora 25 (by request) Linux Ubuntu 16.04 (by request)	

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