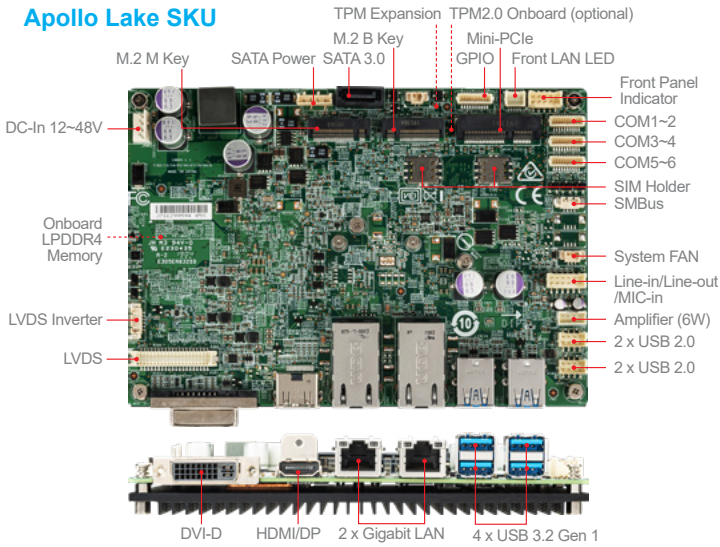


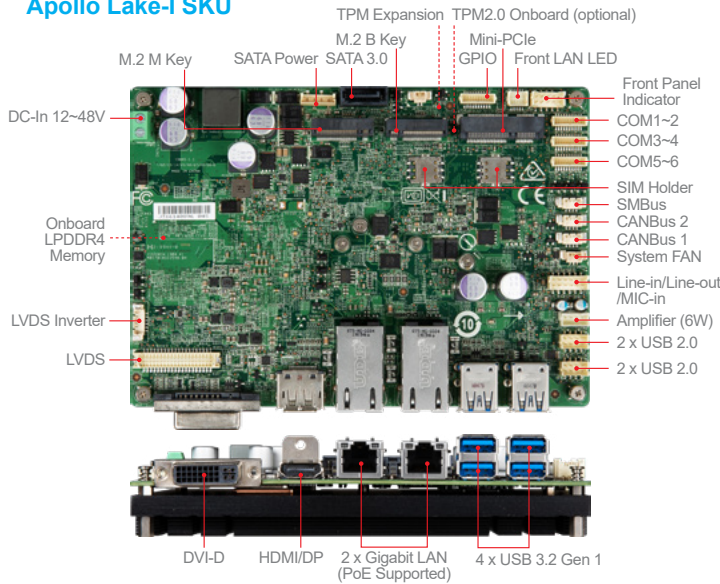
MS-98H5

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

Apollo Lake SKU



Apollo Lake-I SKU



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- LPDDR4 2133 MHz onboard memory up to 8GB
- Triple independent displays : DVI-D, HDMI 1.4 (DP by option), LVDS
- 2 PoE/GbE LAN with RJ-45 (IEEE 802.11af compliant)
- 1 Mini-PCIe (Full size, with NANO SIM-Holder), 1 M.2 B Key (with NANO SIM-Holder)
- SATA 3.0, M.2 M Key for storage
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM (2 RS-485), GPIO, Audio
- Onboard TPM 2.0 (by option)
- ESD: Contact 6KV/ Air 8KV
- Dual channel CANBus 2.0B
- Wide operating temperature : -40~85°C
- Wide voltage DC-IN 12~48V

Packing List

Part Number	Description	Quantity
K1B-3008034-V03	USB Cable, 150mm	1
K14-3018001-V03	COM Cable, 150mm	1
K1G-3002031-V03	DC Power Cable, 150mm (for 919-98H5-002)	1
K1G-3004069-V03	DC Power Cable, 150mm (for 919-98H5-004)	1
K1D-3012023-V03	SATA Cable with Power, 230mm	1
G71-SEDC206-N56	Driver CD	1

Specifications

		Apollo Lake SKUs	Apollo Lake-I SKUs	
Processor	CPU	Intel® Celeron® Processor J3455, QC, 10W	Intel® Atom™ x7 Processor E3950, QC, 12W Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5W	
	Frequency	J3455, 1.5 GHz, up to 2.3 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		
Memory	Technology	Single-channel LPDDR4 2133 MHz		
	Max. Capacity	Up to 4 GB (8GB by option)		
	Socket	Onboard		
	Controller	Intel® HD Graphics		
Display	Graphic Memory	Depends on CPU		
	LVDS	Dual-channel 18/24-bit		
	eDP	N/A		
	VGA	N/A		
	DVI	1 (DVI-D)		
	HDMI	1		
	DisplayPort	1 (Co-lay HDMI, by BOM option)		
	Multiple Display	3 independent displays		
	Display Interface	LVDS up to 1920 x 1200 @60 Hz	2 x Intel® I210-T GbE LAN (w/ PoE IEEE 802.3af)	
		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		
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)	
	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)		
I/O Interface	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V		
	PS/2	N/A		
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
	PCIe x 16	N/A		
	PCIe x 4	N/A		
Expansion Slot	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)		
	SATA	1 x SATA 3.0		
Storage	IDE	N/A		
	eSATA	N/A		
	CFast	N/A		
	mSATA	N/A		
	CompactFlash	N/A		
	Power Supply	DC	DC-in 12V~48V	
Environment	Operating Temperature	-10 ~ 60°C	-40 ~ 85°C	
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C	
Form Factor	Storage Humidity	10 ~ 90%, non-condensing		
	Dimensions	165 x 115mm (EPIC)		
Certification	Weight	0.41 kg		
	EMC	FCC, CE, RCM, VCCI, BSMI		
Software Platform	OS Support	Windows 10 IoT Enterprise (64-bit, RS5) Linux Fedora 25 (by request) Linux Ubuntu 16.04 (by request)		

Ordering Information

Part Number	Description
919-98H5-002	MS-98H5\609-98H5-020\809-98H5-005 VER:11 OPT B,4 Inches, Intel Apollo Lake-I E3940, F1 Stepping, 4GB LPDDR4, 4*USB3.0+4*USB2.0+6*COM+HDMI+DVI+2*I210 LAN with POE+1*LVDS+1*mini-PCIe+1*SATA, 2*M.2, 2*CANBUS DC12~48V, WT for channel
919-98H5-004	MS-98H5\609-98H5-050\809-98H5-004 VER:11 OPT E,4 Inches, Intel Apollo Lake J3455, F1 Stepping, 4GB LPDDR4, 4*USB3.0+4*USB2.0+6*COM+HDMI+DVI+2*I211 LAN+1*LVDS+1*mini-PCIe+1*SATA,2*M.2, DC12~48V, Non-WT for channel

Optional Item

Part Number	Description
E31-0806200-K08	Heatspreader for Apollo Lake
E31-0806210-K08	Heatspreader for Apollo Lake-I