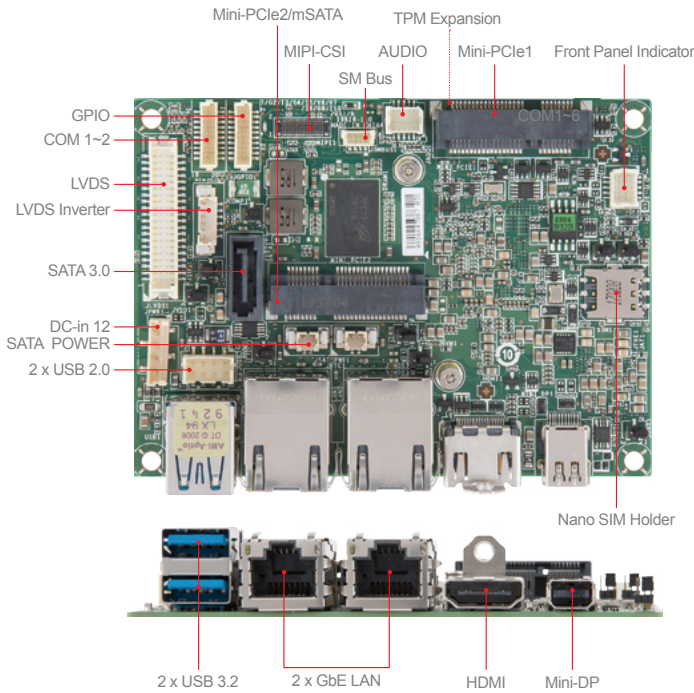


# MS-9816

Pico-ITX SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Low-Power, High-Performance, Wide Temperature & Harsh environment Solution

NEW



## Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- LPDDR4 2400/2133 MHz onboard memory up to 4GB
- Triple independent displays: Mini-DP, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 2 USB 3.2 Gen 1, 2 USB 2.0, 2 COM (RS-485), GPIO, Audio
- 1 Mini-PCIe (Full size with NANO SIM-Holder), 1 Mini-PCIe (Half size with mSATA) Slots
- SATA 3.0 for storage
- Wide operating temperature : -40~85°C
- DC-IN 12V
- MIPI-CSI 2.0 interface for Camera

## Ordering Information

Part Number	Description
T ÜÈÌ ÒÈÈÌ Ğ€€ Art. N° 161019	MS-9816 10, Apollo Lake N4200, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2* USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
T ÜÈÌ ÒÈÈÌ Ĥ€€ Art. N° 161021	MS-9816 10, Apollo Lake N3350, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2* USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
T ÜÈÌ ÒÈÈÌ Ĥ€€ Art. N° 153942	MS-9816 10, Apollo Lake-I E3940, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2* USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
T ÜÈÌ ÒÈÈÌ Ĥ€€ Art. N° 153944	MS-9816 10, Apollo Lake-I E3930, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2*USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE

## Packing List

Part Number	Description	Quantity
K14-3018001-V03	COM PORT Cable, 150mm	1
K1B-3008034-V03	USB Cable, 150mm	1
K1D-3010008-V03	SATA Cable with Power, 150mm	1
K1G-3004057-V03	DC Power Cable, 150mm	1
G71-SEDC177-X03	Driver DVD	1

## Specifications

		Apollo Lake SKUs	Apollo Lake-I SKUs
		<b>Processor</b> CPU Frequency L2 Cache CPU Type Chipset BIOS	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz 2M BGA Integrated in SoC AMI
<b>Memory</b> Technology Max. Capacity Socket	Single-channel LPDDR4 2400MHz Up to 4GB Onboard	Single-channel LPDDR4 2133MHz	
<b>Display</b> Controller Graphic Memory LVDS eDP VGA DVI HDMI DisplayPort Multiple Display Display Interface	Intel® HD Graphics Depends on CPU Dual Channel 18/24-bit N/A N/A N/A 1 1 (Mini-Displayport) 3 independent displays LVDS up to 1920 x 1200 @60Hz HDMI up to 3840 x 2160 @30Hz Mini-DP up to 4096 x 2160 @60Hz		
<b>Ethernet</b> Controller	2 x Intel® I211-AT GbE LAN 2 x Intel® I210-IT GbE LAN		
<b>Audio</b> Controller	Realtek® ALC887-VD2-CG HD Audio Codec		
<b>Super I/O</b> Controller	Fintek F81866AD-I		
<b>H/W Monitor</b> Watchdog Timer Smart Fan	256-level Watchdog Timer N/A		
<b>TPM</b> Controller	Pin header		
<b>I/O Interface</b> USB Serial GPIO	2 x USB 2.0 (internal) 2 x USB 3.2 Gen 1 (rear) 2 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V 16-bits (8 x GPI; 8 x GPO), 5V		
<b>Expansion Slot</b> Mini-PCIe	1 x Full-size 1 x Half-size (Mini-PCIe Full-size Slot w/ NANO SIM-Holder) (Mini-PCIe Half-size Slot w/ mSATA)		
<b>Storage</b> SATA mSATA	1 x SATA 3.0 1 (Shared with Mini-PCIe Half-size)		
<b>Power Supply</b> DC ATX	DC-in 12V N/A		
<b>Environment</b> Operating Temperature Operating Humidity Storage Temperature Storage Humidity	-10 ~ 60°C 10 ~ 90%, non-condensing -20 ~ 80°C 10 ~ 90%, non-condensing	-40 ~ 85°C	
<b>Form Factor</b> Dimensions Weight	101 x 73mm (Pico-ITX) 0.27 kg		
<b>Certification</b> EMC	FCC, CE, RCM, VCCI, BSMI		
<b>Software Platform</b> OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux Fedora 25 (by request) Linux Ubuntu 16.04 (by request)		

## Optional Item

Part Number	Description	Quantity
E31-0805810-K08	Heartspreader for Apollo Lake-I	1
E31-0805820-K08	Heartspreader for Apollo Lak	1