

MS-9816

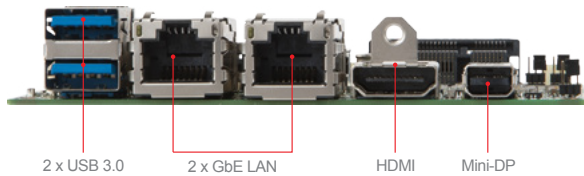
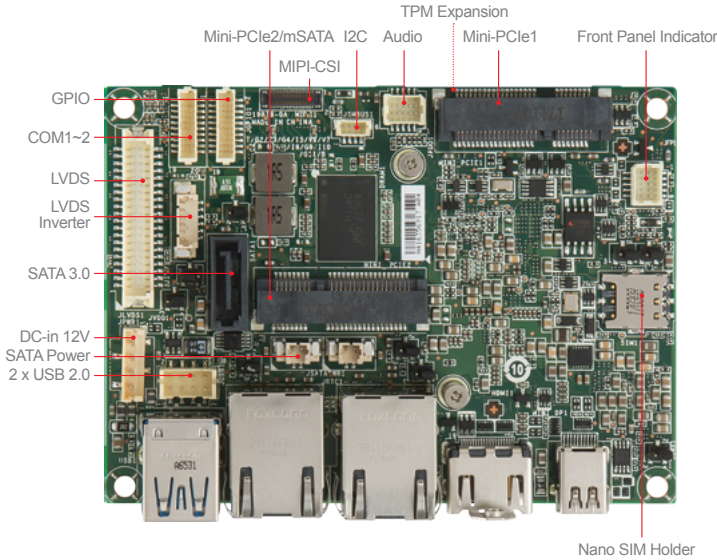
Pico-ITX SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Low-Power, High-Performance, Wide Temperature & harsh environment Solution

NEW

Specifications

		Apollo Lake SKUs		Apollo Lake-I SKUs	
Processor	CPU	Intel® Pentium® Processor N4200, QC, 6W	Intel® Celeron® Processor N3350, DC, 6W	Intel® Atom™ x5 Processor E3940, QC, 9W	Intel® Atom™ x5 Processor E3930, DC, 6W
	Frequency	N4200, 1.5 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.3 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	BIOS	AMI			
	Technology	Single-channel LPDDR4 2400MHz	Single-channel LPDDR4 2133MHz		
	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	N/A			
	HDMI	1			
	DisplayPort	1 (Mini-Displayport)			
	Multiple Display	3 independent displays			
	Display Interface	LVDS up to 1920 x 1200 @ 60 Hz, HDMI up to 3840 x 2160 @ 30 Hz Mini-DP up to 4096 x 2160 @ 60 Hz			
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN		
	Controller	Realtek® ALC887-VD2-CG HD Audio Codec			
Audio	Controller	Fintek F81866AD-I			
Super I/O	Watchdog Timer	256-level Watchdog Timer			
	Smart Fan	N/A			
TPM	Controller	Pin header			
	USB	2 x USB 2.0 (2 x internal) 2 x USB 3.0 (2 x rear)			
I/O Interface	Serial	2 x COM (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V			
	Parallel	N/A			
	PS/2	N/A			
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V			
	PCIe x16	N/A			
	PCI	N/A			
	M.2	N/A			
Expansion Slot	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)			
	SATA	1 x SATA 3.0			
	mSATA	1 (Shared with Mini-PCIe Half-size)			
Power Supply	DC	DC-in 12V			
	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	101mm x 73mm (Pico-ITX)			
	Weight	0.27 kg			
Certification	EMC	FCC, CE, RCM, VCCI, BSMI			
Software Platform	OS Support	Windows 10 (64-bit) Fedora 25 (By Request) Ubuntu 16.04 (By Request)			

*1 x MIPI-CSI 2.0



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- Supports LPDDR4 2133/2400 MHz onboard memory up to 4GB
- 3 independent displays with HDMI, Mini-DP and LVDS outputs
- 2 USB 3.0, 2 USB 2.0, and 2 COM ports
- Dual Mini-PCIe, SATA3.0, mSATA, NANO SIM-Holder
- Apollo Lake-I Series support operating temperature : -40 ~ 85°C
- Supports Dual GbE LAN
- Compact design for size-sensitive & anti-vibration devices in harsh environments

Ordering Information

Part Number	Description
F1 41 F1	Intel® Pentium® Processor N4200, QC, 6W
F1 HJ1 F1	Intel® Celeron® Processor N3350, DC, 6W
F1 HJ1 C1	Intel® Atom™ x5 Processor E3940, QC, 9W
F1 HJ1 I1	Intel® Atom™ x5 Processor E3930, DC, 6W