

MANO521

Thin Mini-ITX SBC with LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3 Processor, DisplayPort++, HDMI, LVDS, VGA, USB 3.0, M.2, and Dual GbE LAN

Features

- LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3 processor
- Intel® H310 chipset (Intel® Q370 optional)
- 2 DDR4 SO-DIMM for up to 64GB of memory
- 4 USB 3.0 and 4 USB 2.0 ports
- 2 COM ports
- 2 SATA-600, mSATA and M.2 Key M (NVMe)
- PCIe x4, M.2 Key E, and PCI Express Mini Card slots

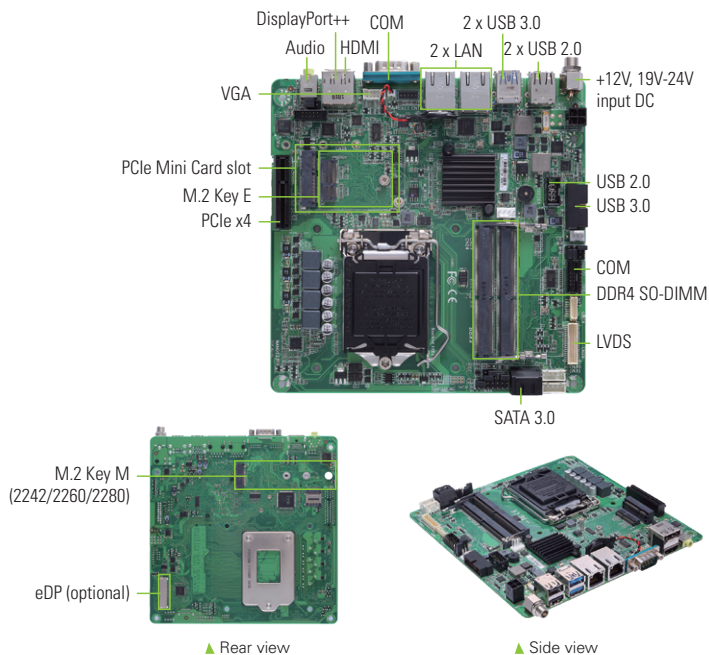


Core System

CPU	LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3, Intel® Pentium® processors Gold/Celeron® processors (up to 65W)
System Memory	2 x 260-pin DDR4-2666/2400 SO-DIMM, up to 64GB
Chipset	Intel® H310 Intel® Q370 (optional)
BIOS	AMI
SSD	1 x mSATA 1 x M.2 Key M (22 x 42/22 x 60/22 x 80); supports NVMe
Watchdog Timer	255 levels, 1 to 255 sec.
Expansion Interface	1 x PCIe x4 1 x M.2 Key E (22 x 30) 1 x full-size PCI Express Mini Card slot
Battery Lithium	Lithium 3V/220mAh
Power Input	DC Power Jack connector ATX 2 x 2-pin vertical/horizontal(optional) connector support 12V, 19 to 24 VDC input AT Auto Power On function supported
Dimensions	170 x 170 mm
Board Thickness	1.6 mm
Operating Temperature	0°C to +60°C (+32°F to +140°F)
Relative Humidity	10% to 95% relative humidity, non-condensing

I/O

SATA	2 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 x 10/100/1000 Mbps Ethernet with Intel® i211-AT; supports Wake-on-LAN, PXE Boot ROM 1 x 10/100/1000 Mbps Ethernet with Intel® i219-V (LM); supports Wake-on-LAN, PXE Boot ROM
Audio	HD Codec audio as MIC-in/Line-in/Line-out with Realtek ALC662
USB	4 x USB 3.0 4 x USB 2.0
Serial	1 x RS-232/422/485 1 x RS-232
PS/2 Combo Port	N/A
TPM	Infineon SLB9665TT2.0 with TPM 2.0 compliant
SMBus	N/A
Digital I/O	8-channel in/out programmed



Display

Chipset	Intel® integrated Gfx graphic engine
Memory Size	Share system memory
Display Interface	1 x DisplayPort++ 1 x HDMI 1.4b (3840 x 2160 @ 30Hz) 1 x LVDS; 18/24-bit single/dual channel 1 x VGA (Wafer connector) 1 x eDP (optional)

**H310: dual-view/Q370: triple-view

Packing List

Standard

I/O bracket

Ordering Information

Standard

MANO521PHGGA-H310 (P/N: E38M521100)	Mini-ITX SBC with LGA1151 9th/8th Gen Intel® Core™ processor, Intel® H310, DisplayPort++, HDMI, LVDS, VGA, 2 COM, USB 3.0, M.2, mSATA, PCI Express Mini Card, 2 GbE LAN and HD audio
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Optional

MANO521PHGGA-Q370	Mini-ITX SBC with LGA1151 8th Gen Intel® Core™ processor, Intel® Q370, DisplayPort++, HDMI, LVDS, VGA, 2 COM, USB 3.0, M.2, mSATA, PCI Express Mini Card, 2 GbE LAN and HD audio
5938A808010E	2 x USB 2.0 cable with bracket, 10P-Key
594N5002800E	USB 3.0 cable 20P/2 x USB A-Type/FE, L=22 cm
59382620000E	COM port with bracket, P=2 mm
59406260610E	SATA power 15P to housing-2.54P, L=10 cm
59384500100E	SBC84500 audio cable with bracket, P=2.0 mm, L=420 mm
5095AD24000E	Adapter 19V 120W with screw FSP
713PL76A000E	LGA1156 1.5U cooler
71070403010E	LGA1156 low profile cooler 15 mm height
710G3118000E	LGA1156 low profile cooler 15 mm height
594K2382000E	VGA D-Sub 15P to PHD2.0, 2x5P, L=8 cm
5077L07C100E	LGA1156 1U cooler, 5500 RPM