

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 (Q370 optional)
- 2 DDR4 SO-DIMM for up to 32GB 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, PCI Express Mini Card slot

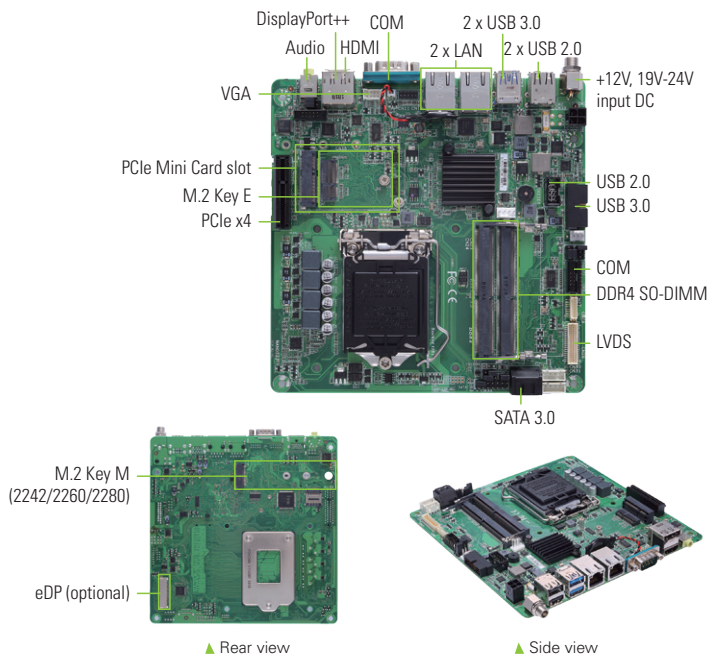


Core System

| | |
|-----------------------|--|
| 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 32GB |
| 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) |
| Humidity | 10% - 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 | Infernon 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 |
|-------------------------------------|--|

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 w/screw FSP |
| 713PL76A000E | LGA1156 1.5U cooler |
| 5077L07C000E | LGA1156 1U cooler |
| 71070403010E | LGA1156 low profile cooler 15 mm height |
| 710G3118000E | LGA1156 low profile cooler 15 mm height |