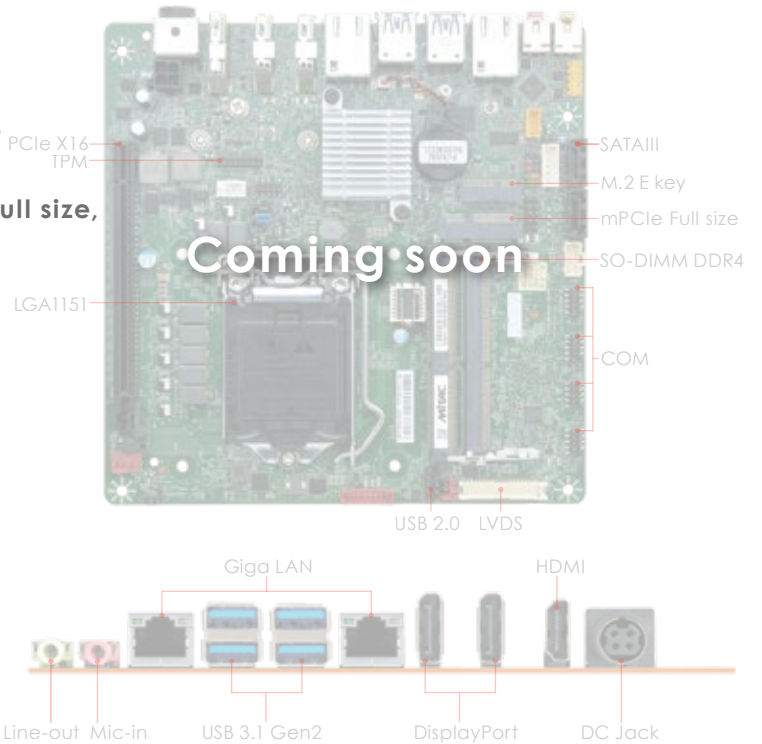


PH12CMI

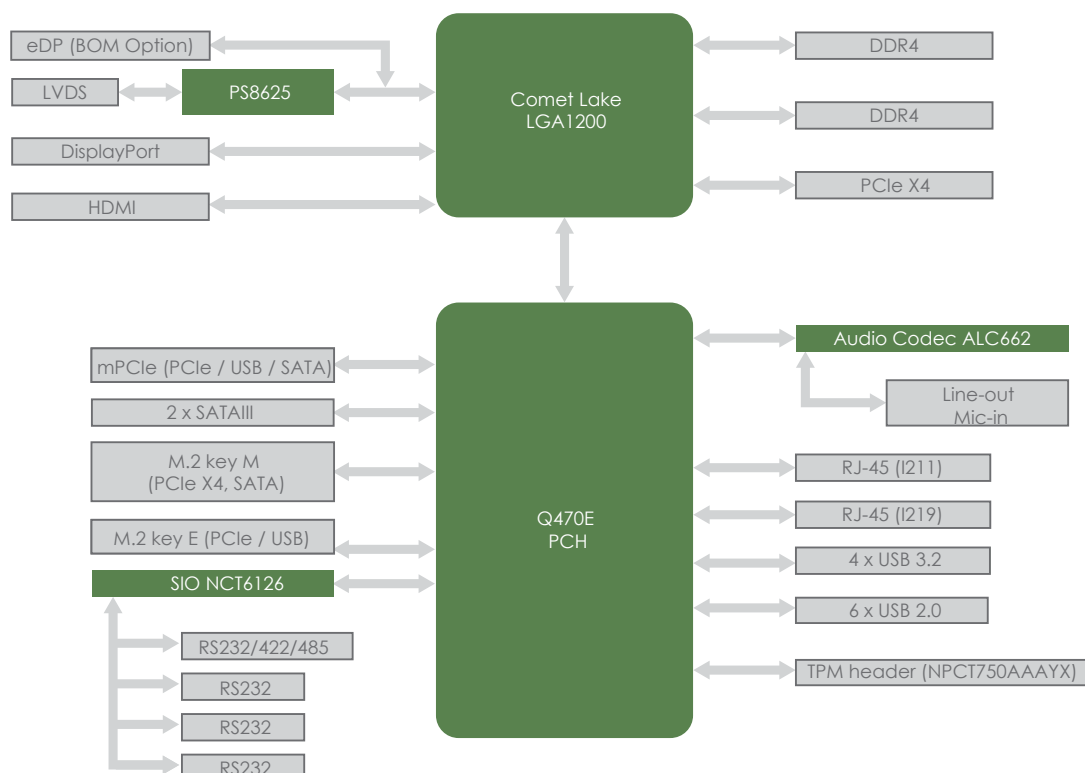
Mini-ITX Form Factor
Intel® Comet Lake Processor with Q470E Chipset

Features

- Intel® Comet Lake 10th 65W(10cores) LGA processor
- Intel® Q470E Chipset
- Intel® vPro technology support (Q470E)
- 2 x DDR4 SO-DIMM up to 32GB
- Support triple display for HDMI, DisplayPort and LVDS / eDP
- 1 x M.2 M 2280, 1 x M.2 E 2230, 1 x mPCIe Full size, 1 x PCIe X4
- 2 x Intel® Gigabit Ethernet
- DC-in 12V / 19V



Block Diagram



PH12CMI Mini-ITX

| MECHANICAL | |
|-----------------------|---|
| Form Factor | Mini-ITX: 6.7" x 6.7" (170mm x 170mm) |
| SYSTEM | |
| Processor | 10th Gen Intel® Comet Lake LGA1200 Socket Processor, 10core TDP Max 35W / 8ccore TDP 65W |
| Chipset | Intel® Q470E (Support RAID 0 / 1 / 5, VPro) |
| Memory | DDR4 2933/2666/2400MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC) |
| Graphics | Intel® HD Graphics |
| Ethernet | Intel® I219-LM Giga LAN + Intel® I211-AT Giga LAN |
| Audio | Realtek® ALC662 |
| I/O Chipset | Nuvoton NCT6126D (eSPI) |
| TPM | TPM Header (support TPM module board PCT750) |
| Expansion Slot | 1 x PCIe X4 slot Mini PCIe Full size (PCIe / USB / SATA) 1 x M.2 2242 / 2280 M key (PCIe X4, SATA) 1 x M.2 2230 E key (PCIe, USB 2.0) |
| BIOS | AMI BIOS, 128 Mbit SPI |
| H / W Monitor | Temperature Monitor, Voltage Monitor, Fan Monitor |
| Watchdog Timer | 1~255 Steps by Software Program |
| Smart Fan Control | CPU Fan / System Fan |
| GRAPHICS | |
| VGA | — |
| DVI | — |
| HDMI | Up to 4K (4096 x 2160) @30 Hz |
| DisplayPort | Up to 4K (4096 x 2304) @60 Hz |
| 2nd DisplayPort | — |
| LVDS | Up to 1920 x 1200 @60 Hz |
| eDP (Option) | Up to 4K (4096 x 2304) @60 Hz |
| REAR I/O | |
| USB | 4 x USB 3.2 Gen 2 (Q470E) |
| Display I/O | 1 x HDMI 1.4, 1 x DisplayPort 1.2 |
| Audio I/O | 1 x Mic-in, 1 x Line-out |
| LAN I/O | 2 x RJ-45 |
| Serial Port | — |
| PS/2 Port | — |
| Others | DC-in 12V (DIN 4-pin power cable) / DC-in 19V (5.1 mm / ID, 7.4 mm / OD) |
| INTERNAL CONNECTORS | |
| Storage | 2 x SATAIII / 1 x SATA power header |
| USB | 6 x USB 2.0 |
| Display I/O | 1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector |
| Audio I/O | — |
| Serial Port | 4 x RS232 |
| PS/2 Port | — |
| Parallel Port | — |
| GPIO | 1 x MiAPI Header (Programmable) |
| Fan | 1 x 4-pin CPU Fan Connector, 1 x 4-pin System Fan Connector |
| Power | 1 x ATX 4-pin Power Connector, 1 x AT / ATX Mode Select Jumper |
| Others | 1 x Front Audio Header (Mic-in / Line-out), 1 x CMOS Jumper, 1 x panel power select header, 1 x backlight power select header, 1 x buzzer header, 1 x Digital MIC |
| POWER REQUIREMENT | |
| Power Input | DC-in 19V (5.1 mm / ID, 7.4 mm / OD) / ATX 2-pin 19V DC-in 12V (DIN 4-pin power cable) / ATX 4-pin 12V |
| ENVIRONMENTAL | |
| Operating Temperature | 0 ~ 60°C (32 ~140°F) |
| Storage Temperature | -40 ~ 85°C (-40 ~185°F) |
| Operating Humidity | 10% ~ 95% R/H, non-condensing |
| Certification | CE & FCC Class B |
| OS | |
| OS Support | Windows® 10 64-bit Linux (support by request) |

Ordering Information

| Model Number | Chipset | DisplayPort / HDMI | LVDS / eDP | USB 3.2 / 2.0 | Mic-in / Line-in | RS-232 | LAN | M.2 2230 E key / M.2 2280 M key | PCIe X4 | Power |
|------------------|-------------|--------------------|------------|---------------|------------------|--------|-----|---------------------------------|---------|-----------|
| PH12CMI-Q470-12V | Intel® Q470 | 1 / 1 | 1 / 0 | 4 / 6 | 1 / 1 | 4 | 2 | 1 / 1 | 1 | DC-in 12V |
| PH12CMI-Q470-19V | Intel® Q470 | 1 / 1 | 1 / 0 | 4 / 6 | 1 / 1 | 4 | 2 | 1 / 1 | 1 | DC-in 19V |

Packing List

Packing

- 1 x Motherboard
- 1 x I/O Bracket (Full Height)
- 1 x SATA & SATA Power Cable
- 1 x ATX 4-pin to DIN 4-pin Cable (12v SKU only)
- 1 x Driver CD
- 1 x Quick Guide