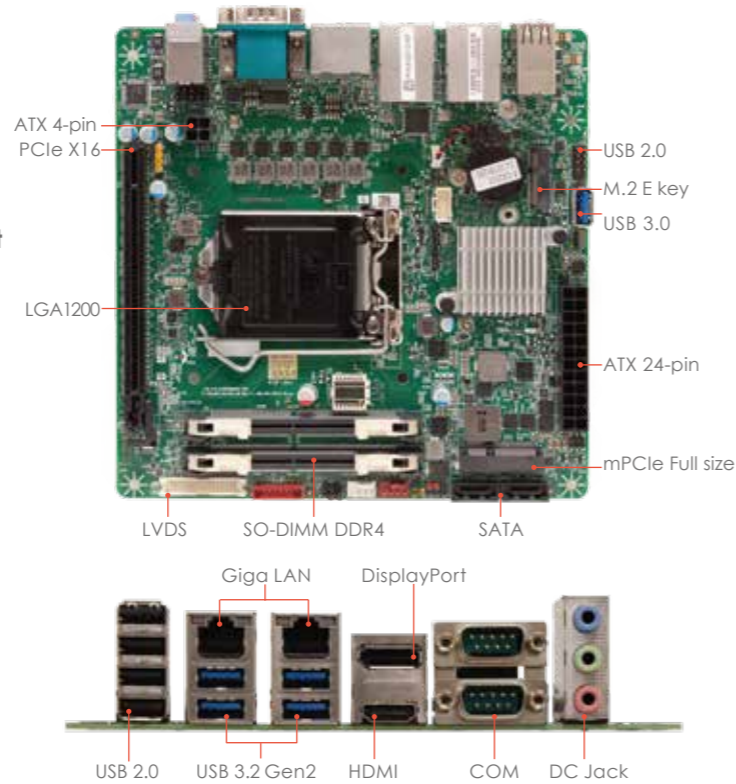


PH13CMI

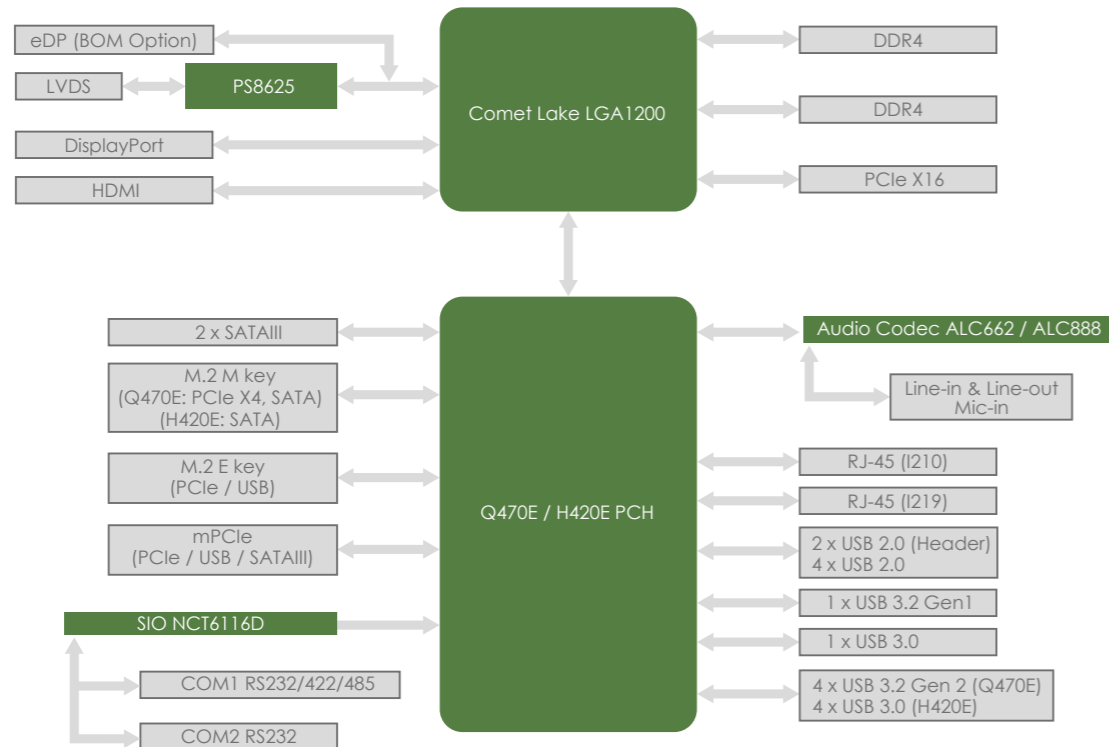
Mini-ITX Form Factor
Intel® Comet Lake Processor with Q470E/H420E Chipset

Features

- Up to Intel® Comet Lake 10th i9 35W & i5 95W LGA processor
- Intel® Q470E / H420E Chipset
- Intel® vPro technology support (Q470E)
- 2 x DDR4 SO-DIMM up to 64GB
- Support triple display for HDMI, DisplayPort and LVDS/Edp (Q470E)
- 1 x M.2 M 2280, 1 x M.2 E 2230,
- 1 x mPCIe Full size, 1 x PCIe X16
- 2 x Intel® Gigabit Ethernet
- ATX or single 12V DC input



Block Diagram



PH13CMI 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 / 8 core TDP 65W / (ATX support 6core 95W)
Chipset	Intel® Q470E (Support RAID 0 / 1 / 5, VPro) / colay H420E
Memory	DDR4 2933/2666/2400MHz / 2 x 260-pin SO-DIMM / Max. 64GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662 / ALC888
I/O Chipset	Nuvoton NCT6126D (eSPI)
TPM	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X16 slot 1 x Mini PCIe Full size (SATA, USB, PCIe) M.2 2242 / 2280 M key (PCIe, SATA) 1 x M.2 2230 E key (PCIe, USB)
BIOS	AMI BIOS, 256 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) / 4 x USB 2.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out, 1 x Line-in
LAN I/O	2 x RJ-45
Serial Port	2 x RS232 (one support RS422/485)
PS/2 Port	—
Others	—
INTERNAL CONNECTORS	
Storage	2 x SATAIII
USB	1 x USB 3.0, 2 x USB 2.0
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	—
Serial Port	—
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 Power Connector, 1 x AT / ATX Mode Select Jumper, ATX 12V Power Connector (24-pin + 4-pin)
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 SPDIF
POWER REQUIREMENT	
Power Input	ATX 24-pin + 4-pin / 12V DC ((3-pin terminal connector via cable by connecting to ATX 24-pin + 4-pin)
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-out / Line-in	RS-232	LAN	M.2 2230 E key / M.2 2280 M key / mPCIe	PCIe X16	Power
PH13CMI-H420E-12V	Intel® H420E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	DC-in 12V
PH13CMI-Q470-12V	Intel® Q470E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	DC-in 12V
PH13CMI-Q470-ATX	Intel® Q470E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	ATX
PH13CMI-H420E-ATX	Intel® H420E	1 / 1	1 / 0	5 / 6	1 / 1 / 1	2	2	1 / 1 / 1	1	ATX

Packing List

- Packing
- 1 x Motherboard
 - 1 x 8-pin ATX female to 24p ATX + 4-pin ATX + SATA power convert cable (12V SKU)
 - 1 x 50cm SATA Cable
 - 1 x I/O Bracket (Half and Full Height)