

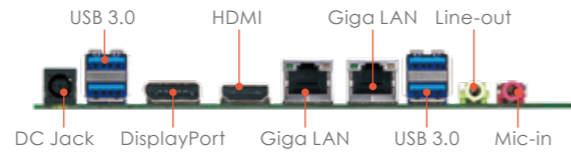
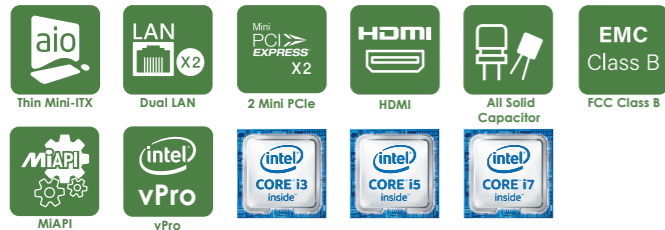
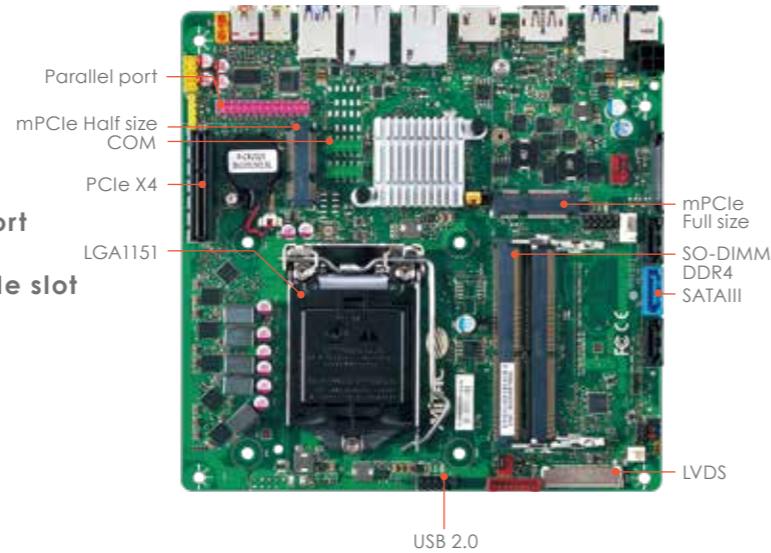
PH12SI

Thin Mini-ITX Form Factor

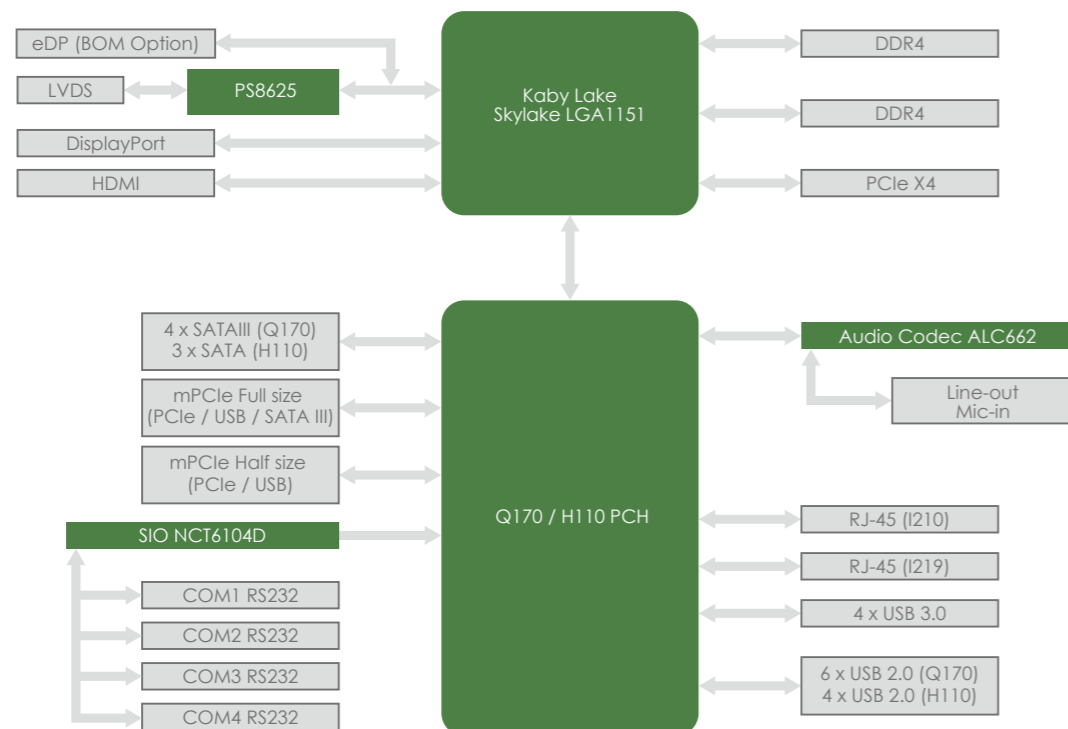
Intel® Kaby Lake / Skylake Processor with Q170 / H110 Chipset

Features

- Intel® Skylake / Kaby Lake Core i7/i5/i3 / Pentium / Celeron LGA1151 processors
- Intel® H110/Q170 Chipset
- Intel® vPro technology support (Q170)
- 2 x DDR4 SO-DIMM, support up to 32GB
- Support triple display for HDMI, DisplayPort and LVDS/eDP
- Support PCIe X4 (Gen 3) slot and Mini PCIe slot
- 4 x SATA III support RAID 0, 1, 5, 10
- 2 x Intel® Gigabit Ethernet
- 6 x USB 2.0, 4 x USB 3.0, 4 x COM and 1 x MiAPI (configurable digital IO)
- DC-in 12/19V power input



Block Diagram



PH12SI Thin Mini-ITX

MECHANICAL	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
SYSTEM	
Processor	7/6th Gen Intel® Kaby Lake/Skylake LGA1151 Socket Processor, TDP Max. 65W
Chipset	Intel® Q170 (Support RAID 0 / 1 / 5 / 10) / Intel® H110
Memory	DDR4 1866/2133MHz, 2 x 260-pin SO-DIMM, Max. 32GB (Non-ECC)
Graphics	Intel® HD Graphics
Ethernet	Intel® I219-LM Giga LAN + Intel® I210-AT Giga LAN
Audio	Realtek® ALC662
I/O Chipset	Nuvoton NCT6104D
TPM	Nuvoton NPCT650AAAYX TPM2.0 (Optional)
Expansion Slot	1 x PCIe X4 slot 1 x PCIe Full/Half size (PCIe / USB / SATA) 1 x PCIe Half size (PCIe / USB)
BIOS	128 Mbit SPI, AMI BIOS
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 (3840 x 2160) @30 Hz
DisplayPort	Up to 4K (4096 x 2304) @60 Hz
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 3.0
Display I/O	1 x HDMI 1.4, 1 x DisplayPort 1.2
Audio I/O	1 x Mic-in, 1 x Line-out
Lan I/O	2 x RJ-45
Serial Port	—
PS/2 Port	—
Others	1 x DC Jack
INTERNAL CONNECTORS	
Storage	3 x SATAIII (H110) , 4 x SATAIII (Q170)
USB	4 x USB 2.0 (H110) , 6 x USB 2.0 (Q170)
Display I/O	1 x LVDS (Optional eDP SKU available) 1 x Backlight Connector
Audio I/O	1 x Line-out
Serial Port	4 x RS232
PS/2 Port	—
Parallel Port	1 x Parallel Port
GPIO	1 x MiAPI Header (Programmable)
Fan	1 x 4-pin CPU Fan Connector, 1x 4-pin System Fan Connector
Power	1 x ATX Power Connector, 1 x AT/ATX Mode Select Jumper (Optional)
Others	1 x Front Audio Header (Mic-in/Line-out), 1 x CMOS Jumper
POWER REQUIREMENT	
Power Input	DC-in 19V(5.1mm/ ID, 7.4mm/ OD)/ ATX 2-pin 19V DC-in 12V(2.5mm/ ID, 5.5mm/ OD)/ ATX 4-pin 12V
ENVIRONMENTAL	
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10% ~ 95% R/H, non-condensing
Certification	CE & FCC Class B
OS	
OS Support	Kaby Lake: Windows® 10 64bit, Linux (support by request) Skylake: Windows® 7 32 / 64bit, Windows® 10 64bit, Linux (support by request)

Ordering Information

Model Number	Chipset	DisplayPort / HDMI	LVDS / eDP	USB 3.0 / 2.0	SATA	Mic-in / Line out	RS232	LAN	PCIe Full/ Half size	PCIe X4	Power
PH12SI-H110-19V	Intel® H110	1 / 1	1 / 0	4 / 4	3	1 / 1	2	2	1 / 1	1	DC-in 19V
PH12SI-Q170-19V	Intel® Q170	1 / 1	1 / 0	4 / 6	4	1 / 1	2	2	1 / 1	1	DC-in 19V
PH12SI-Q170-12V	Intel® Q170	1 / 1	1 / 0	4 / 6	4	1 / 1	4	2	1 / 1	1	DC-in 12V

Packing List

Packing		
• 1 x Motherboard	• 1 x 50cm SATA Cable	• 1 x 45cm SATA Power Cable
• 2 x I/O Bracket (Half and Full Height)	• 1 x Driver CD	• 1 x Quick Guide