



## PH12FEI – Thin Mini-ITX Motherboard with Intel® Coffee Lake CPU Support

The PH12FEI is a Thin Mini-ITX motherboard. This form factor allows for this board to be integrated into systems where space is at a premium. This board does not sacrifice on power however, supporting desktop Intel® Coffee Lake CPUs and up to three independent displays. The PH12FEI is the perfect solution for most industrial applications.

### SPECIFICATIONS

<b>CPU</b>	9th & 8th Gen Intel Coffee Lake LGA1151 Socket Processor, Core i7/i5/i3 6-core TDP Max. 65W, Core i9 8-core TDP Max 35W
<b>CPU Socket</b>	LGA 1151
<b>Memory Type</b>	260-pin DDR4 2666MHz SO-DIMM
<b>Memory Slots</b>	2
<b>Maximum Memory Supported</b>	32GB
<b>Chipset</b>	Intel® H310 / Intel® Q370
<b>Integrated Graphics</b>	Intel® HD Graphics
<b>Watchdog Timer</b>	1 ~ 255 steps, programmable
<b>Video</b>	1 x HDMI, 1 x DisplayPort, 1 x LVDS (eDP Optional. Please contact sales for more information.)
<b>LAN Ports</b>	1 x Intel® I219-LM Gigabit LAN, 1 x Intel® I210-AT Gigabit LAN
<b>Serial ATA (SATA)</b>	3 x SATA III (Q370 Supports RAID 0/1/5)
<b>GPIO Interface</b>	1 x Programmable header with 10-bit GPIO support
<b>TPM</b>	Nuvoton NPCT750AAAYX TPM2.0 (Optional)
<b>Extended Interface</b>	1 x M.2 M-Key 2260/2280 (H310 SKUs SATA only), 1 x M.2 E-Key 2230, 1 x PCIe 3.0 x4
<b>Rear I/O</b>	1 x HDMI, 1 x DisplayPort, 2 x LAN, 1 x Mic-In, 1 x Line-Out, 19V SKUs: 19V DC Input Jack, Q370 SKUs: 4 x USB 3.1 Gen 2, H310 SKUs: 4 x USB 3.0
<b>Internal I/O</b>	3 x SATA III, 1 x LVDS, 1 x Audio, 1 x MiAPI Header (GPIO), H310 SKUs: 5 x USB 2.0, Q370 SKUs: 6 x USB 2.0, SKU# 2809136A, 2809136C, & 2809136D: 4 x RS-232, SKU# 2809136B: 2 x RS-232
<b>Audio</b>	Realtek® ALC662
<b>Power Requirement</b>	19V SKUs: DC input 19V (Input Jack), ATX 2-pin 19V, 12V SKUs: DC input 12V (DIN 4-pin power cable), ATX 4-pin 12V
<b>Dimensions</b>	6.7" x 6.7" (170mm x 170mm)

<b>Operating Temperature</b>	32 ~ 140°F (0 ~ 60°C)
<b>Storage Temperature</b>	-4 ~ 176°F (-20 ~ 80°C)
<b>Relative Humidity</b>	10 ~ 95% (non-condensing)
<b>OS Software Supported</b>	Windows 10 64-bit, Linux by request
<b>Global P/N / SKU</b>	2809136

## Ordering Options

PH12FEI-H310-19V (SKU# 2809136A): Motherboard with 4 x USB 3.0, 5 x USB 2.0, 4 x RS-232, 19V DC Input Jack  
PH12FEI-Q370-19V (SKU# 2809136B): Motherboard with 4 x USB 3.1 Gen 2, 6 x USB 2.0, 2 x RS-232, 19V DC Input Jack, RAID Support, NVMe Support  
PH12FEI-Q370-12V (SKU# 2809136C): Motherboard with 4 x USB 3.1 Gen 2, 6 x USB 2.0, 4 x RS-232, 12V ATX to DIN cable, RAID Support, NVMe Support  
PH12FEI-H310-12VC (SKU# 2809136D): Motherboard with 4 x USB 3.0, 5 x USB 2.0, 4 x RS-232, 12V ATX to DIN cable  
Note: eDP and TPM are optional. Please contact sales for more information.