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IoT Solutions  
Alliance

# IMB-1312

Micro-ATX Motherboard



## KEY FEATURES

- Intel® 9<sup>th</sup>/ 8<sup>th</sup> Gen (Coffee Lake-S) Core™ Processors with Q370 chipset
- 4 x 288-pin Long-DIMM up to 128GB\* DDR4 2666 MHz
- 1 x PCIe x16 (Gen3), 1 x PCIe x8 (Gen3), 2 x PCIe x4 (Gen3),  
6 x USB 3.1 Gen1, 6 x USB 2.0, 1 x M.2 Key E, 1 x mini-PCIe, 1 x M.2 Key M,  
6 x COM, 8 x SATA3
- 2 x Intel 1 Gigabit LAN
- Supports triple display, 1 x HDMI 1.4, 1 x DP 1.2, 1 x VGA, 1 x LVDS, 1 x DVI-D
- TPM 2.0 onboard IC
- Supports Intel® vPro, AMT, RAID 0/1/5/10
- ATX PWR

## SPECIFICATIONS

### Form Factor

|            |                             |
|------------|-----------------------------|
| Dimensions | Micro ATX (9.6-in x 9.6-in) |
|------------|-----------------------------|

### Processor System

|         |                                                                                          |
|---------|------------------------------------------------------------------------------------------|
| CPU     | Intel® 9 <sup>th</sup> / 8 <sup>th</sup> Gen (Coffee Lake-S) Core™ Processors, up to 95W |
| Chipset | Intel® Q370                                                                              |
| Socket  | LGA1151                                                                                  |
| BIOS    | AMI SPI 128 Mbit                                                                         |

### Memory

|            |                                                                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Technology | Dual Channel DDR4 2666 MHz                                                                                                                        |
| Capacity   | 128GB*<br>* Intel Core i9/i7/i5 CPUs support up to 128GB (32GB per DIMM)<br>Intel Core i3/Pentium/Celeron CPUs support up to 64GB (16GB per DIMM) |
| Socket     | 4 x 288-pin Long-DIMM                                                                                                                             |

### Graphics

|              |                                                              |
|--------------|--------------------------------------------------------------|
| Controller   | Coffee Lake integrated graphics                              |
| HDMI         | HDMI 1.4<br>Max resolution up to 4096x2160@24Hz              |
| DisplayPort  | DisplayPort 1.2, DP++<br>Max resolution up to 4096x2304@60Hz |
| VGA          | Max resolution up to 1920x1200@60Hz                          |
| LVDS         | Dual channel 24 bit up to 1920x1200@60Hz                     |
| eDP          | N/A                                                          |
| DVI-D        | Max resolution up to 1920x1200@60Hz                          |
| MultiDisplay | Triple Display                                               |

### Expansion Slot

|           |                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------|
| PCIe      | -2 x PCIe 3.0 x16 Slots (PCIe1/PCIe3: single at x16 (PCIe1);<br>dual at x8 (PCIe1) / x8 (PCIe3))<br>-2 x PCIe 3.0 x4 Slots (PCIe2) (PCIe4) |
| PCI       | N/A                                                                                                                                        |
| mini-PCIe | 1 x Full/Half size with PCIe x1 and USB 2.0                                                                                                |
| M.2       | 1 x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless                                                                          |

### Audio

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| Interface | Realtek ALC887, High Definition Audio. Line-out, Mic-in, Line-in |
|-----------|------------------------------------------------------------------|

### Ethernet

|                   |                                                                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------|
| Controller/ Speed | LAN1: 1 x Intel® I210 with 10/100/1000 Mbps<br>LAN2: 1 x Intel® I219LM with 10/100/1000 Mbps, supports AMT/vPro |
| Connector         | 2 x RJ-45                                                                                                       |

### Rear I/O

|             |                               |
|-------------|-------------------------------|
| HDMI        | 1 x HDMI 1.4                  |
| DisplayPort | 1 x DP 1.2                    |
| VGA         | 1                             |
| DVI-D       | 1                             |
| Ethernet    | 2 x 1 Gigabit LAN             |
| USB         | 4 x USB 3.1 (Gen1)            |
| Audio       | 3 (Mic-in, Line-in, Line-out) |
| COM         | COM1(RS-232/422/485)          |
| PS2         | 1                             |

### Internal Connector

|                 |                                                                               |
|-----------------|-------------------------------------------------------------------------------|
| USB             | 2 x USB 3.1 (Gen1) (1 x USB3.1 header)<br>6 x USB 2.0 (3 x 2.54 pitch header) |
| COM             | COM2, 3, 4, 5, 6 (RS-232)                                                     |
| Parallel        | 1 (shared with GPIO)                                                          |
| GPIO            | 8 x GPI, 8 x GPO (shared with LPT header)                                     |
| TPM             | TPM 2.0 onboard IC                                                            |
| LVDS            | 1                                                                             |
| eDP             | N/A                                                                           |
| VGA             | N/A                                                                           |
| SATA PWR Output | N/A                                                                           |
| Speaker Header  | 1                                                                             |

### Storage

|       |                                                                                                          |
|-------|----------------------------------------------------------------------------------------------------------|
| M.2   | 1 x M.2 (Key M, 2242/2260/2280) with PCIe x4 and shared SATA3 for SSD                                    |
| mSATA | N/A                                                                                                      |
| SATA  | 8 x SATA3 (6Gb/s), SATA3_1 shared with M.2 Key M<br>* Only SATA3_1 ~ SATA3_6 Ports support RAID function |
| RAID  | Intel® SATA RAID 0/1/5/10                                                                                |
| eMMC  | N/A                                                                                                      |

### Watchdog Timer

|          |                                    |
|----------|------------------------------------|
| Output   | From Super I/O to drag RESETCON#   |
| Interval | 256 Segments, 0, 1, 2, ..., 255sec |

### Power Requirements

|           |                                                                                                                           |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| Input PWR | ATX PWR (24+8-pin)                                                                                                        |
| Power On  | AT/ATX Supported<br>- AT : Directly PWR on as power input ready<br>- ATX : Press button to PWR on after power input ready |

### Environment

|                    |                |
|--------------------|----------------|
| Operating Temp     | 0°C ~ 60°C     |
| Storage Temp       | -40° C ~ 85° C |
| Operating Humidity | 5% ~ 90%       |
| Storage Humidity   | 5% ~ 90%       |

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