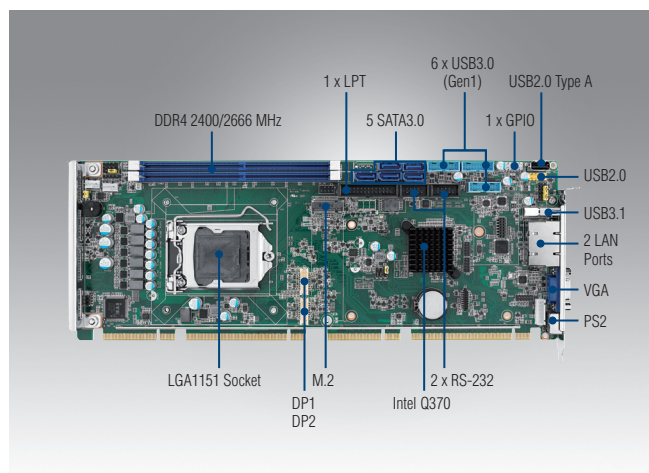


# PCE-5131

## LGA1151 8th and 9th Generation Intel® Core™ i7/i5/i3/Pentium/Celeron System Host Board with DDR4, SATA 3.0, USB 3.1, M.2, Dual GbE, and Triple Displays



### Features

- Intel® Core™ i7/i5/i3 LGA1151 processor with Q370 chipset
- Up to 64 GB of dual-channel (non-ECC) DDR4 2400/2666 MHz
- PCIe 3.0, M.2, USB 3.0, SATA 3.0, and SW Raid 0, 1, 5, 10
- Supports out-of-band remote management with AMT
- Supports Advantech's LPC modules, SUSIAccess, and embedded software APIs

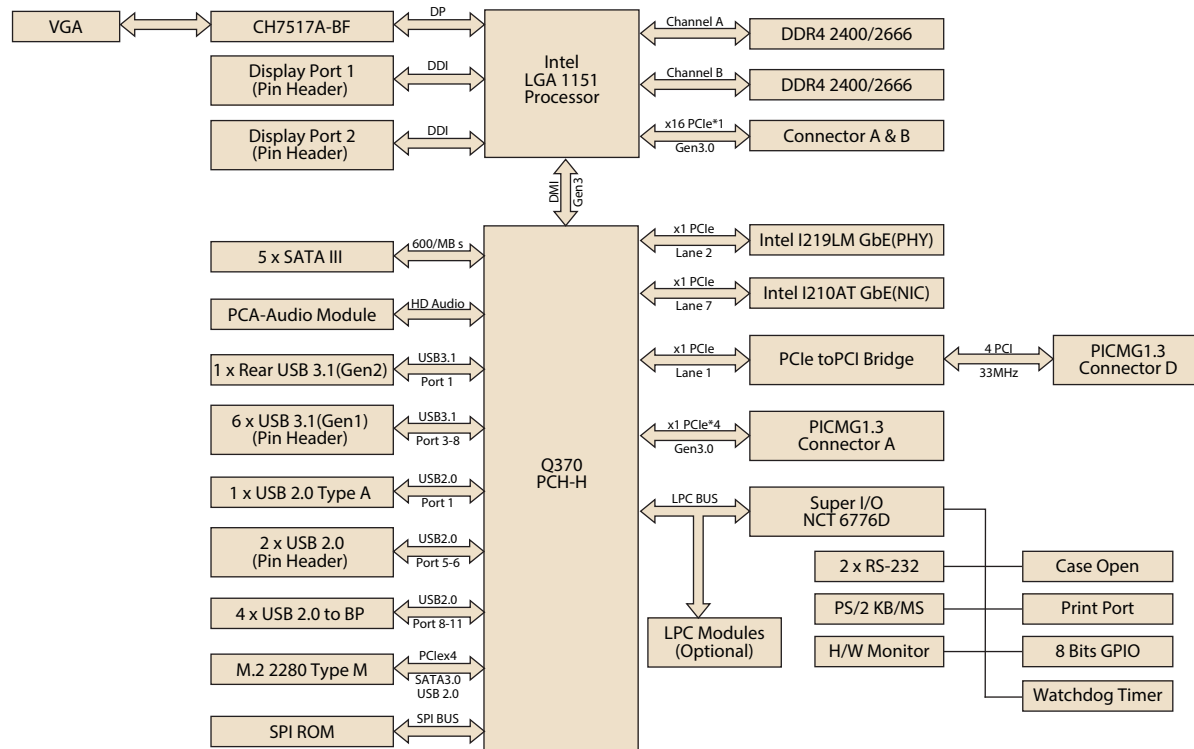
Note 1: Intel 8th and 9th generation processors only support Windows 10 (64-bit) (RS5 version).

### Quiet Specifications



|                    |                         | i7-                                                                                          | i7-     | i7-     | i7-     | i5-     | i5-     | i5-     | i5-     | i3-     | i3-     | i3-     | i3-     | G5400   | G5400T  | G4900   | G4900T  |
|--------------------|-------------------------|----------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                    |                         | 9700E                                                                                        | 9700TE  | 8700    | 8700T   | 9500E   | 9500TE  | 8500    | 8500T   | 9100E   | 9100TE  | 8100    | 8100T   |         |         |         |         |
| Processor System   | CPU                     |                                                                                              |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Speed                   | 2.6GHz                                                                                       | 1.8 GHz | 3.2 GHz | 2.4 GHz | 3.0 GHz | 2.2 GHz | 3.0 GHz | 2.1 GHz | 3.1 GHz | 2.2 GHz | 3.6 GHz | 3.1 GHz | 3.7 GHz | 3.1 GHz | 3.1 GHz | 2.9 GHz |
|                    | L3 Cache                | 12 MB                                                                                        | 12 MB   | 12 MB   | 12 MB   | 9 MB    | 9 MB    | 9 MB    | 9 MB    | 6 MB    | 6 MB    | 6 MB    | 6 MB    | 4 MB    | 4 MB    | 2 MB    | 2 MB    |
|                    | Cores                   | 8                                                                                            | 8       | 6       | 6       | 6       | 6       | 6       | 6       | 4       | 4       | 4       | 4       | 2       | 2       | 2       | 2       |
|                    | TDP                     | 65 W                                                                                         | 35 W    | 65 W    | 35 W    | 65 W    | 35 W    | 65 W    | 35 W    | 65 W    | 35 W    | 65 W    | 35 W    | 58 W    | 35 W    | 54 W    | 35 W    |
|                    | Socket                  | LGA1151                                                                                      |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Bus                | Chipset                 | Q370                                                                                         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | BIOS                    | AMI 256 Mbit SPI                                                                             |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | PCI-Express             | 1 x PCIe x16 and 1 x PCIe x4 to backplane                                                    |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Memory             | PCI                     | 4 x PCI master to backplane, 32-bit, 33 MHz                                                  |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Technology              | Dual-channel (non-ECC) U-DIMM DDR4 2400/2666 MHz (supports x8 DDR4 1024 M)                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Max. Capacity           | up to 64GB (based on CPU)                                                                    |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Graphics           | Socket                  | 2 x DDR4 288-pin DIMM                                                                        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Controller              | Chipset integrated with Intel® HD Graphics                                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | VRAM                    | Shared system memory is subject to OS                                                        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | VGA                     | Supports resolutions of up to 1920 x 1200 pixel @ 60 MHz                                     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | DVI-D                   | Supports resolutions of up to 1920 x 1200 pixel @ 60 MHz                                     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Display Port            | Supports resolutions of up to 1920 x 1080 pixel @ 60 Hz                                      |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Ethernet           | Triple Display          | CRT+DP/DVI-D+DP/DVI-D                                                                        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Interface               | 10/100/1000 Mbps                                                                             |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Controller              | LAN 1: Intel® I219-LM<br>LAN 2: Intel® I210AT                                                |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Rear I/O           | Connector with LED      | 2 x RJ45                                                                                     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | USB 3.1(Gen2)           | 1                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Ethernet                | 2                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | VGA                     | 1                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Internal Connector | PS/2                    | 1 (PS/2 Y cable supports 1 x keyboard and 1 x mouse)                                         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | USB                     | 7 x USB 2.0 (pin header*2 + USB Type A*1 + 4 on backplane)<br>6 x USB 3.1(Gen1) (pin header) |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | SATA (SW Raid 0,1,5,10) | 5                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | M.2 (2280 Type M)       | 1 (supports SATA 3.0)                                                                        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | DP/DVI-D                | 2 (Pin header)                                                                               |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | COM                     | 2                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Parallel                | 1                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | IrDA                    | 1                                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Watchdog Timer     | GPIO                    | 8bit                                                                                         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Output Interval         | System reset<br>Programmable 1-255 sec                                                       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Miscellaneous      | Audio                   | Intel® High Definition audio interface (requires audio extension module PCA-AUDIO-HDB1E)     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Power Requirement  | Test Environment        | i7-8700, 3.4 GHz, 65 W, with 2 x 8-GB DDR4 2133                                              |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Voltage                 | +12V +5V +3.3V                                                                               |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Current                 | 4.30A 2.15A 0.69A                                                                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Environment        | Operating               |                                                                                              |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Temperature             | 0 ~ 60 °C (dependent on CPU and cooler solution)                                             |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                    | Humidity                | 40 °C @ 85% relative humidity (non-condensing)                                               |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| Physical           | Dimensions (L x H)      | 338 x 122 mm (13.3" x 4.8")                                                                  |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |

## Block Diagram



## Ordering Information

| Part Number     | PCH  | Memory  | Backplane | LAN | VGA | DP/DVI-D | COM | SATA III | M.2 | USB 2.0 | USB 3.1 | USB 3.1 (Gen2) | S/W Raid | AMT |
|-----------------|------|---------|-----------|-----|-----|----------|-----|----------|-----|---------|---------|----------------|----------|-----|
| PCE-5131G2-00A1 | Q370 | Non-ECC | PCE-5BXX  | 2   | Yes | 2*       | 2   | 5        | 1   | 7       | 6       | 1              | Yes      | Yes |

Note: DP/DVI-D cable is optional

## Packing List

| Part Number   | Description                   | Quantity |
|---------------|-------------------------------|----------|
| 1700003194    | Serial ATA HDD data cable     | x2       |
| 1700022749-11 | Serial ATA HDD power cable    | x1       |
| 1701260305    | COM + printer ports cable kit | x1       |
| 1700060202    | Keyboard and mouse Y-cable    | x1       |
| 1700002204    | 2-port USB cable kit          | x1       |
| 2190000902    | Warranty card                 | x1       |
| 2001512910    | Startup manual                | x1       |
| 2061512900    | Utility CD                    | x1       |

## Optional Accessories

| Part Number      | Description                              |
|------------------|------------------------------------------|
| 1960049408N001   | CPU cooler for 1U Chassis and 84W TDP    |
| 1960050255N001   | CPU cooler for 2U Chassis and 95W TDP    |
| 1960052651N021   | CPU cooler for 2U/4U Chassis and 80W TDP |
| PCA-AUDIO-HDB1E  | Audio module                             |
| PCA-COM232-00A1E | 4-port RS-232 LPC module                 |
| PCA-COM485-00A1E | 4-port RS-422/485 LPC module             |
| 1700031719-01    | 4-port USB 3.0 cable w/ BKT (30cm)       |
| 1700020277-01    | 2-port USB 3.0 cable w/ BKT (30 cm)      |
| 1700021831-01    | DP to DVI-D cable w/ BKT                 |
| PCE-DP10-00A1E   | DP to DP cable w/ BKT                    |
| PCA-TPM-00B1E    | TPM 2.0 Module                           |

## I/O View



PCE-5131G2-00A1E