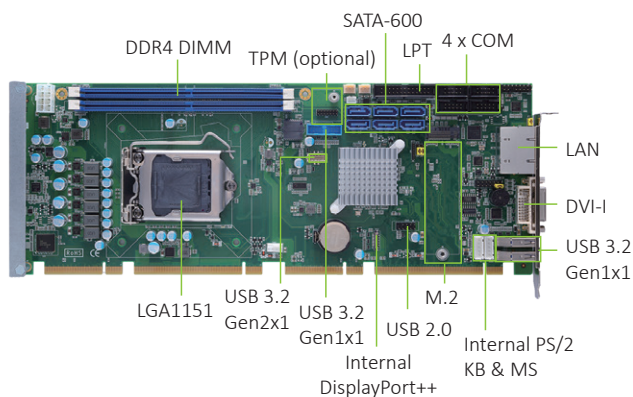


# SHB150R

PICMG 1.3 Full-size CPU Card with LGA1151 Socket 9th/8th Gen Intel® Core™ i7/i5/i3, Xeon® E, Pentium® or Celeron® Processor, Intel® C246/Q370/H310, SATA 3.0, USB 3.2 Gen1/Gen2, Dual LAN, and DVI-I



## Features

- LGA1151 socket 9th/8th gen Intel® Core™ i7/i5/i3, Xeon® E (Intel® C246), Pentium® or Celeron® processor (up to 95W)
- Intel® C246/Q370/H310 chipset
- 2 DDR4-2666/2400 Long-DIMM for up to 64GB of memory
- Supports Intel® AMT and vPro (Intel® C246/Q370)
- Supports TPM 2.0 (optional)
- Supports M.2 Key M (Intel® C246/Q370)



## Specifications

### Core System

CPU	LGA1151 9th/8th gen Intel® Core™ i7/i5/i3, Xeon® E (Intel® C246), Pentium® or Celeron® processor (up to 95W)
System Memory	Intel® C246: 2 x 288-pin 2666/2400 with ECC un-buffered Long-DIMM (Intel® Core™ i7/i5 only supports non-ECC), up to 64GB Intel® Q370/H310: 2 x 288-pin 2666/2400 un-buffered Long-DIMM, up to 64GB
Chipset	Intel® C246/Q370 (with Intel® vPro supported) Intel® H310
BIOS	AMI UEFI BIOS
SSD	M.2 Key M 2280, PCIe x4 signal (Intel® C246/Q370)
Watchdog Timer	225 levels, 1 to 255 sec.
Expansion Interface	1 x PCIe x16 Gen3 1 x PCIe x4 or 4 x PCIe x1 Gen3 4 x 32-bit PCI bus masters
Battery	Lithium 3V/220 mAh
Power Consumption	Intel® Core™ i7-9700TE with 32GB 2 x DDR4-2666 +12V @ 2.8A, +5V @ 2.4A, +3.3V @ 1.3A

### Display

Graphic	Intel® HD Graphic
Memory Size	Share system memory
Display Interface	1 x DVI-I 1 x DisplayPort++ (internal header)

### I/O

SATA	Intel® C246/Q370: 6 x SATA-600, support RAID 0/1/5/10 Intel® H310: 4 x SATA-600
Hardware Monitoring	Detect CPU/system temperature, voltage and fan speed
Ethernet	1 x 10/100/1000 Mbps Ethernet with Intel® I219-LM; supports Wake-on-LAN, RPL/PXE Boot ROM, Intel® AMT 1x 10/100/1000 Mbps Ethernet with Intel® I210-AT; supports Wake-on-LAN, PXE Boot ROM
Audio	HD Codec audio as MIC-in/Line-in/Line-out/Speaker-out with audio kit AX93242 (optional)
USB	Intel® C246/Q370: 2 x USB 3.2 Gen2x1, 4 x USB 3.2 Gen1x1 & 6 x USB 2.0 (2 ports onboard, 4 ports on SHB connector-C golden fingers) Intel® H310: 4 x USB 3.2 Gen1x1 & 6 x USB 2.0 (2 ports onboard, 4 ports on SHB connector-C golden fingers)
Serial	2 x RS-232 2 x RS-232/422/485, mode selection by SW
PS/2 Combo Port	1 x PS/2 keyboard internal connector 1 x PS/2 mouse internal connector
TPM	TPM 2.0 module (optional)
Others	1 x LPT 1 x Smart CPU fan 1 x Smart system fan

## Mechanical and Environmental

Dimensions	338 x 126 mm
Board Thickness	1.6 mm
Operating Temperature	0°C to +60°C (+32°F to +140°F)
Humidity	10% to 95% relative humidity, non-condensing

## Packing List

### Standard

CPU card	
59380402010E	COM cable with bracket
59415318000E	SATA signal cable, 460 mm

## Ordering Information

### Standard

SHB150RDGG-Q370 (P/N: E38C150106)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® Q370, DVI-I, 2 GbE LAN, and PCIe x4
SHB150RDGG-Q370 (P/N: E38C150107)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® Q370, DVI-I, 2 GbE LAN, and PCIe x1
SHB150RDGG-H310 (P/N: E38C150108)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® H310, DVI-I, 2 GbE LAN, and PCIe x4
SHB150RDGG-H310 (P/N: E38C150109)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® H310, DVI-I, 2 GbE LAN, and PCIe x1
SHB150RDGG-C246 (P/N: E38C150110)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® C246, DVI-I, 2 GbE LAN, and PCIe x4
SHB150RDGG-C246 (P/N: E38C150111)	PICMG 1.3 full-size CPU card with LGA1151 socket, Intel® C246, DVI-I, 2 GbE LAN, and PCIe x1

### Optional

5938A808010E	2 x USB 2.0 cable with bracket, P=2.54 mm, L=190 mm
5948C122800E	1 x Dual USB 3.2 (Gen1x1) cable with bracket, L=400 mm
59401502800E	1 x Dual USB 3.2 (Gen2x1) cable with bracket, L=400 mm
59380000290E	PS/2 keyboard & mouse cable with bracket
593826A0000E	SATA signal cable/red, L=500mm
E393242100	AX93242-RC HD audio converter kit
59380402010E	1 x COM port cable with bracket, P=2.54 mm, L=300 mm
59380703000E	2 x COM port cable with bracket, P=2.54 mm, L=300 mm
594826A0010E	DVI-I to DVI-D+VGA Y cable
83935151000E	TPM 2.0 module (AX93515)
83987091000E	DisplayPort++ kit with bracket

## Processor List

CPU	Speed	Cache	Cores	TDP
Intel® Core™ i7-9700TE Processor	1.8 GHz	12 MB	8	35 W
Intel® Core™ i7-8700K Processor	3.7 GHz	12 MB	6	95 W
Intel® Core™ i7-8700 Processor	3.2 GHz	12 MB	6	65 W
Intel® Core™ i7-8700T Processor	2.4 GHz	12 MB	6	65 W
Intel® Core™ i5-9500E Processor	3.0 GHz	9 MB	6	65 W
Intel® Core™ i5-9500TE Processor	2.2 GHz	9 MB	6	35 W
Intel® Core™ i5-9400 Processor	2.9 GHz	9 MB	6	65 W
Intel® Core™ i5-8400 Processor	2.8 GHz	9 MB	6	65 W
Intel® Core™ i5-8500T Processor	2.1 GHz	9 MB	6	35 W
Intel® Core™ i3-9100 Processor	3.6 GHz	6 MB	4	65 W
Intel® Core™ i3-9100E Processor	3.1 GHz	6 MB	4	65 W
Intel® Core™ i3-9100TE Processor	2.2 GHz	6 MB	4	35 W
Intel® Core™ i3-8100 Processor	3.6 GHz	6 MB	4	65 W
Intel® Core™ i3-8100T Processor	3.1 GHz	6 MB	4	35 W
Intel® Xeon® E-2176G Processor*	3.7 GHz	12 MB	6	80 W
Intel® Xeon® E-2278GE Processor*	3.3 GHz	16 MB	8	80 W
Intel® Pentium® Gold G5400T Processor	3.1 GHz	4 MB	2	35 W
Intel® Celeron® G4900T Processor	2.9 GHz	2 MB	2	35 W

\* C246 use only