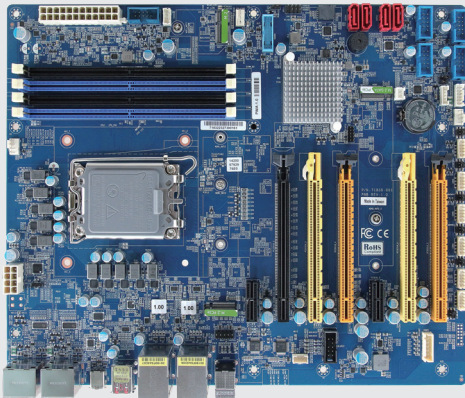


# BC680R

12/13/14th Gen. Intel® Core™ i9/i7/i5/i3 Processors,  
LGA 1700 Socket, ATX Motherboard With Intel® R680E



## Features

- LGA 1700 Socket supports 12/13/14th Generation Intel® Core™ processors, Intel® R680E Chipset
- 4 x 288-Pin DDR5 5600MHz Dual Channel U-DIMM Socket, Support up to 128GB (ECC Memory Support by CPU)
- 2 x HDMI 2.0b and 2 x DP 1.4a, supporting 4K@60Hz.
- 1 x Gen 5 PCIe x16, 2 x Gen 4 PCIe x4, 1 x Gen 3 PCIe x4, 1 x Gen3 PCIe x1, 2 x Gen 3 PCIe x1 Open End.
- 2 x Intel® I225-LM 2.5G Gigabit Controller
- 1 x USB 3.2 Gen 2x2 Type-C, 6 x USB 3.2 Gen 2x, 8 x USB 2.0 (Headers), 2 x USB 3.2 Gen 2 (Headers)
- 1 x M.2 M-Key 2242/2280/22110 NVMe, 1 x M.2 M-Key 2242/2280/22110 NVMe, 1 x M.2 E-Key 2230 with CNVi Support
- 6 x COM
- ATX Power



DDR5 ECC



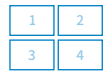
Gen 5 PCIe



USB TYPE-C



2.5GbE LAN



4 Independent Display

## Specifications

### System Information

|                         |                                                                                                                |
|-------------------------|----------------------------------------------------------------------------------------------------------------|
| Processor               | Processor LGA 1700 Socket Supports 12/13/14th Generation Intel® Core™ i9/i7/i5/i3 Processors (Max. TDP at 65W) |
| Platform Controller Hub | Intel® R680E Chipset                                                                                           |
| System Memory           | 4 x 288-Pin DDR5 5600MHz Dual Channel U-DIMM Socket Supports up to 128GB (ECC Memory Support by CPU)           |
| I/O Chipset             | nuvoton NCT6126D                                                                                               |
| Watchdog Timer          | H/W Reset, 5~255 Seconds/5~255 Minutes                                                                         |
| BIOS                    | AMI uEFI BIOS 256Mbit SPI Flash ROM                                                                            |
| H/W Status Monitor      | CPU Temperature Monitoring<br>Voltage Monitoring<br>CPU Fan Speed Control                                      |
| TPM                     | Onboard infineon TPM 2.0 SLB9670VQ2.0                                                                          |
| Board                   | ATX                                                                                                            |

### Expansion

|           |                                                                                                                                                                                                                                                                                         |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expansion | 1 x Gen5 PCIe x16<br>2 x Gen4 PCIe x4<br>1 x Gen3 PCIe x4<br>1 x Gen3 PCIe x1<br>2 x Gen3 PCIe x1, Open End<br>1 x M.2 Key M 2242/2280/22110 NVMe (PCIe x4 + SATA III)<br>1 x M.2 Key M 2242/2280/22110 NVMe (PCIe x4 Only)<br>1 x M.2 Key E 2230 with CNVi Support (PCIe x1 + USB 2.0) |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Storage

|         |                                                                                                                              |
|---------|------------------------------------------------------------------------------------------------------------------------------|
| Storage | 1 x M.2 Key M 2242/2280/22110 NVMe (PCIe x4 + SATA III)<br>1 x M.2 Key M 2242/2280/22110 NVMe (PCIe x4 Only)<br>4 x SATA III |
|---------|------------------------------------------------------------------------------------------------------------------------------|

### Display

|                    |                                                                       |
|--------------------|-----------------------------------------------------------------------|
| Graphic Chipset    | Intel® 12th/13/14th Generation CPU Integrated                         |
| Spec. & Resolution | 2 x HDMI (2.0b): 4K@60Hz<br>2 x Dual Mode DisplayPort (1.4a): 4K@60Hz |
| Multiple Display   | Four Display                                                          |

### Audio

|                 |                                              |
|-----------------|----------------------------------------------|
| Audio Codec     | Realtek ALC888S HD Audio Decoding Controller |
| Audio Interface | Mic-in, Line-out                             |
| Audio Amplifier | 2 x 6W 8Ω Amplifier                          |

### Ethernet

|             |                                         |
|-------------|-----------------------------------------|
| LAN Chipset | 2 x Intel® I225LM 2.5G Gigabit Ethernet |
| LAN Port    | 2 x RJ-45                               |

### Power Requirement

|            |                               |
|------------|-------------------------------|
| Power Mode | AT/ATX (Default Setting: ATX) |
|------------|-------------------------------|

### Software Support

|    |                               |
|----|-------------------------------|
| OS | Windows 10, Windows 11, Linux |
|----|-------------------------------|

### Certification

|                           |                               |
|---------------------------|-------------------------------|
| Certification Information | CE, FCC Class, RoHS Compliant |
|---------------------------|-------------------------------|

### I/O

|          |                                                                                                                |
|----------|----------------------------------------------------------------------------------------------------------------|
| USB      | 6 x USB 3.2 Gen2x1<br>1 x USB 3.2 Gen2x2 Type-C<br>8 x USB 2.0 by pin header<br>2 x USB 3.2 Gen2 by pin header |
| COM Port | 5 x RS-232<br>1 x RS-232/422/485                                                                               |
| SATA     | 4 x SATA III                                                                                                   |
| RAID     | Support RAID 0, 1, 5, 10                                                                                       |
| DIO      | 1 x 8-bit GPIO                                                                                                 |
| MIO      | 1 x PS/2 Header                                                                                                |

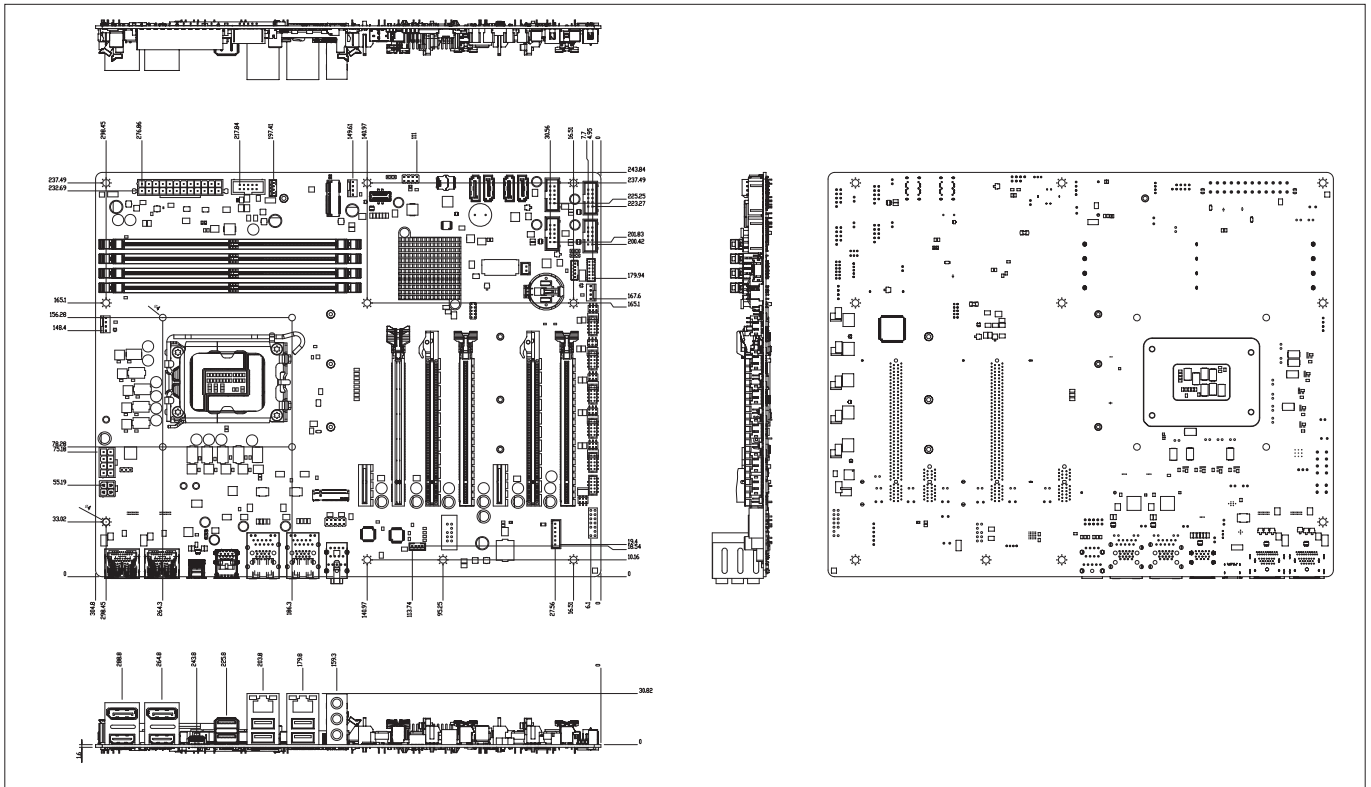
### Mechanical & Environmental

|                    |                                 |
|--------------------|---------------------------------|
| Operating Temp.    | 0 ~ 60°C (32 ~ 140°F)           |
| Storage Temp.      | -20 ~ 80°C (-4 ~ 176°F)         |
| Operating Humidity | 5% to 90% non-condensing        |
| Weight             | 1.85lbs (0.85kg)                |
| Power Requirement  | +12V/+5V/5VSB/+3.3V/-12V        |
| Power Mode         | AT/ATX (Default Setting: ATX)   |
| Dimension (L x W)  | 12" x 9.6" (304.8mm x 243.84mm) |

# BC680R

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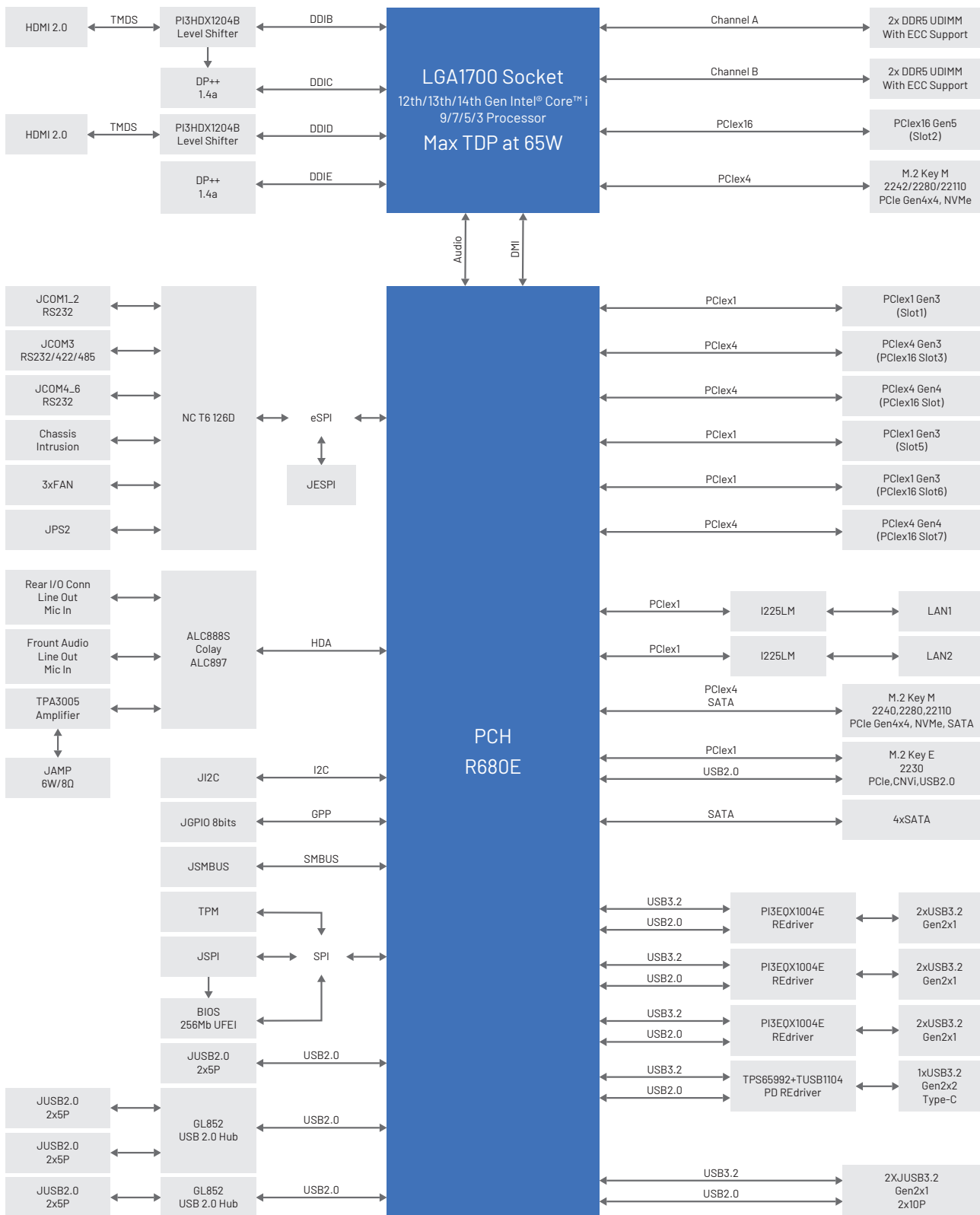
## Mechanical Drawing



## Ordering Information

| P/N               | Processor                                                                        | Chipset      | LAN | USB | COM | PCIe Slot | Power Input | Temp.                    |
|-------------------|----------------------------------------------------------------------------------|--------------|-----|-----|-----|-----------|-------------|--------------------------|
| 71832-1A (BC680R) | 12th/13th/14th Gen Intel® Core™ i9/i7/i5/i3 Processors, LGA 1700 Socket, 65W TDP | Intel® R680E | 2   | 17  | 6   | 7         | ATX Power   | 0°C ~ 60°C<br>(32~140°F) |

## Block Diagram



## I/O Overview

