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Class: X

***The main difference between AMD and Intel motherboards*** is that they only accept the same kind of processor. Hence, an AMD motherboard would only work with an AMD processor, and likewise, an Intel motherboard will only work with an Intel processor, and not the other way around.

A motherboard is an essential component of any computer. It is a printed circuit board (PCB) that is responsible for holding all of the crucial components of the system, including but not limited to the CPU and memory. The motherboard also provides connectors for other peripherals devices, such as the DVD player, USB drives, sound cards, video cards, network cards, etc. It also provides electrical pathways so that the components attached to it can communicate.

Intel and AMD are two of the many companies that make and sell motherboards. The main difference between AMD and Intel motherboards is that they only accept the same kind of processor. Hence, an AMD motherboard would only work with an AMD processor, and likewise, an Intel motherboard will only work with an Intel processor, and not the other way around.

Other companies also produce motherboards that are compatible with one of the processors. However, till date, there are no motherboards that are compatible with both the processors. The reason for this is the fact that each processor requires a different socket type. Intel motherboards have LGA 1156 and LGA 1366 sockets, while AMD motherboards have AM2 and AM3 sockets.

Motherboard for Intel Processors :

Gigabyte Z370 AORUS Gaming 7 =

CPU :

* Support for 8th Generation Intel® Core™ i7 processors/Intel® Core™ i5 processors/Intel® Core™ i3 processors in the LGA1151 package
* L3 cache varies with CPU

Chipset :

* Intel® Z370 Express Chipset

Memory :

* 4 x DDR4 DIMM sockets supporting up to 64 GB of system memory
* Dual channel memory architecture
* Support for DDR4 4133(O.C.) / 4000(O.C.) / 3866(O.C.) / 3800(O.C.) / 3733(O.C.) / 3666(O.C.) / 3600(O.C.) / 3466(O.C.) / 3400(O.C.) / 3333(O.C.) / 3300(O.C.) / 3200(O.C.) / 3000(O.C.) / 2800(O.C.) / 2666 / 2400 / 2133 MHz memory modules
* Support for ECC Un-buffered DIMM 1Rx8/2Rx8 memory modules (operate in non-ECC mode)
* Support for non-ECC Un-buffered DIMM 1Rx8/2Rx8/1Rx16 memory modules
* Support for Extreme Memory Profile (XMP) memory modules

Onboard Graphics :

Integrated Graphics Processor-Intel® HD Graphics support:

- 1 x DisplayPort, supporting a maximum resolution of 4096x2304@60 Hz

- 1 x HDMI port, supporting a maximum resolution of 4096x2160@30 Hz

- Maximum shared memory of 1 GB

Audio :

* Realtek® ALC1220 codec
* ESS9018Q2C chip
* Support for Sound BlasterX 720°
* High Definition Audio
* 2/4/5.1/7.1-channel
* Support for S/PDIF Out

LAN :

* 1 x Intel® GbE LAN chip (10/100/1000 Mbit) (LAN1)
* 1 x Rivet Networks Killer™ E2500 LAN chip (10/100/1000 Mbit) (LAN2)

Expansion Slots :

- 1 x PCI Express x16 slot, running at x16 (PCIEX16)

- 1 x PCI Express x16 slot, running at x8 (PCIEX8)

- 1 x PCI Express x16 slot, running at x4 (PCIEX4)

- 3 x PCI Express x1 slots

Storage Interface Chipset:

* 2 x M.2 connectors (Socket 3, M key, type 2242/2260/2280/22110 SATA and PCIe x4/x2 SSD support) (M2M\_32G) (M2A\_32G)
* 1 x M.2 connector (Socket 3, M key, type 2242/2260/2280 PCIe x4/x2 SSD support) (M2P\_32G)
* 6 x SATA 6Gb/s connectors
* Support for RAID 0, RAID 1, RAID 5, and RAID 10

\* Refer to "1-9 Internal Connectors," for the installation notices for the PCIEX4, M.2, and SATA connectors.

Intel® Optane™ Memory Ready

Multi-Graphics Technology :

* Support for NVIDIA® Quad-GPU SLI™ and 2-Way NVIDIA® SLI™ technologies
* Support for AMD Quad-GPU CrossFire™ and 3-Way/2-Way AMD CrossFire™ technologies

USB :

Chipset + 2 ASMedia® USB 3.1 Gen 2 Controllers:

* 1 x USB Type-C™ port with USB 3.1 Gen 2 support, available through the internal USB header
* 1 x USB Type-C™ port on the back panel, with USB 3.1 Gen 2 support
* 1 x USB 3.1 Gen 2 Type-A port (red) on the back panel

Chipset + Realtek® USB 3.1 Gen 1 Hub:

* 2 x USB 3.1 Gen 1 ports available through the internal USB header

Chipset:

* 5 x USB 3.1 Gen 1 ports on the back panel
* 4 x USB 2.0/1.1 ports available through the internal USB headers

Internal I/O Connectors :

* 1 x 24-pin ATX main power connector
* 1 x 8-pin ATX 12V power connector
* 1 x CPU fan header
* 1 x water cooling CPU fan header
* 4 x system fan headers
* 1 x 3 Amp fan/water cooling pump header
* 1 x system fan/water cooling pump header
* 2 x digital LED strip headers
* 2 x digital LED strip power select jumpers
* 2 x RGB (RGBW) LED strip headers
* 3 x M.2 Socket 3 connectors
* 6 x SATA 6Gb/s connectors
* 1 x front panel header
* 1 x front panel audio header
* 1 x S/PDIF Out header
* 1 x USB Type-C™ header, with USB 3.1 Gen 2 support
* 1 x USB 3.1 Gen 1 header
* 2 x USB 2.0/1.1 headers
* 1 x Thunderbolt™ add-in card connector
* 1 x Trusted Platform Module (TPM) header (2x6 pin, for the GC-TPM2.0\_S module only)
* 1 x power button
* 1 x reset button
* 1 x Clear CMOS button
* 1 x OC button
* 2 x temperature sensor headers

Back Panel Connectors :

* 1 x PS/2 keyboard/mouse port
* 1 x DisplayPort
* 1 x HDMI port
* 5 x USB 3.1 Gen 1 ports
* 1 x USB Type-C™ port, with USB 3.1 Gen 2 support
* 1 x USB 3.1 Gen 2 Type-A port (red)
* 2 x RJ-45 ports
* 1 x optical S/PDIF Out connector
* 5 x audio jacks (Center/Subwoofer Speaker Out, Rear Speaker Out, Line In, Line Out, Mic In)

I/O Controller :

* iTE®I/O Controller Chip

H/W Monitoring :

* Voltage detection
* Temperature detection
* Fan speed detection
* Water cooling flow rate detection
* Overheating warning
* Fan fail warning
* Fan speed control

BIOS :

* 2 x 128 Mbit flash
* Use of licensed AMI UEFI BIOS
* Support for DualBIOS™
* PnP 1.0a, DMI 2.7, WfM 2.0, SM BIOS 2.7, ACPI 5.0

Operating System :

* Support for Windows 10 64-bit

Form Factor :

* ATX Form Factor; 30.5cm x 24.4cm

MSI Z370 GODLIKE GAMING =

CPU:

• Supports 8th Generation Intel® Core™ Processors, and Intel® Pentium® and Celeron® Processors for Socket LGA1151

Chipset:

• Intel® Z370 Chipset

Main Memory:

• 4 x DDR4 memory slots, support up to 64GB

- Supports DDR4 4133+(OC)/ 4000(OC)/ 3866(OC)/ 3733(OC)/ 3600(OC)/ 3466(OC)/ 3400(OC)/ 3333(OC)/ 3300(OC)/ 3200(OC)/ 3000(OC) /2800(OC)/ 2667/ 2400/ 2133 MHz\*

• Dual channel memory architecture

• Supports Intel® Extreme Memory Profile (XMP)

Slots:

• 4 x PCIe 3.0 x16 slots\*

• 1 x PCIe 3.0 x1 slot

Multi-GPU :

• Supports 2-Way NVIDIA® SLI™ Technology

• Supports 4-Way AMD® CrossFire™ Technology

Storage:

• Intel® Z370 Chipset

• 6 x SATA 6Gb/s ports\*

• 3 x M.2 slots (Key M)\*

- Supports up to PCIe 3.0 x4 NVMe U.2 SSD

- Supports up to PCIe 3.0 x4 and SATA 6Gb/s

- M2\_1, M2\_3 slots support 2242/ 2260 /2280/ 22110 storage devices

- M2\_2 slot supports 2242/ 2260 /2280 storage devices

- Intel® Optane™ Memory Ready\*\*

• 1 x U.2 port

- Supports PCIe 3.0 x4 NVMe storage

RAID:

• Intel® Z370 Chipset

• Supports RAID 0, RAID 1, RAID 5 and RAID 10 for SATA storage devices

• Supports RAID 0, RAID 1 and RAID5 for M.2 PCIe storage devices\*

USB:

• ASMedia® ASM3142 Chipset

- 3 x USB 3.1 Gen2 (SuperSpeed USB 10Gbps) ports (1 Type-A port and 1 Type-C port on the back panel, 1 Type-C port available through the internal USB connector)

• ASMedia® ASM1074 Chipset

- 4 x USB 3.1 Gen1 (SuperSpeed USB) ports on the back panel

• Intel® Z370 Chipset

- 6 x USB 3.1 Gen1 (SuperSpeed USB) ports (2 Type-A ports on the back panel, 4 ports available through the internal USB connectors)

- 6 x USB 2.0 (High-speed USB) ports available through the internal USB connectors

Audio:

• Dual Realtek® ALC1220 Codec

- 7.1-Channel High Definition Audio

• ESS® E9018 Codec

- Supports 6.3mm Gold-plated stereo headphone out

Wirsless LAN & Bluetooth® :

• Killer® 1535

- The Wireless module is pre-install in the M2\_4 (Key-E) slot.

- Supports Wi-Fi 2x2 802.11 AC

- Supports Bluetooth® 4.1, 3.0+HS

LAN:

• 3 x Killer™ E2500 Gigabit LAN controller

Internal I/O Connectors:

- 1 x 24-pin ATX main power connector

- 1 x 8-pin ATX 12V power connector

- 1 x 4-pin ATX 12V power connector

- 1 x 6-pin ATX PCIe power connector

- 6 x SATA 6Gb/s connectors

- 4 x M.2 slots (M Key x3 ,E Key x1)

- 1 x U.2 port

- 1 x USB 3.1 Gen2 Type-C port

- 2 x USB 3.1 Gen1 connectors (supports additional 4 USB 3.1 Gen1 ports)

- 3 x USB 2.0 connectors (supports additional 6 USB 2.0 ports)

- 1 x 4-pin CPU fan connector

- 1 x 4-pin Water Pump connector

- 8 x 4-pin system fan connectors

- 2 x Front panel connectors

- 1 x Front panel audio connector

- 1 x TPM module connector

- 1 x Chassis Intrusion connector

- 3 x 2-pin Thermal Sensors connectors

- 1 x 5050 RGB LED 12V connector (JRGB1)

- 1 x Rainbow 5050 RGB LED 5V connector (JRAINBOW1)

Back Panel I/O Ports:

- 1 x Clear CMOS button

- 2 x Wi-Fi Antenna connectors

- 1 x PS/2 keyboard/ mouse combo port

- 6 x USB 3.1 Gen1 Type-A ports

- 3 x LAN (RJ45) ports

- 1 x USB 3.1 Gen2 Type-A port

- 1 x USB 3.1 Gen2 Type-C port

- 1 x 6.3mm Gold-plated stereo headphone jack

- 5 x OFC audio jacks

- 1 x Optical S/PDIF OUT connector

Dimension:

• 12 in. x 10.7 in. (30.5 cm x 27.2 cm)

• E-ATX Form Factor

Mounting:

• 9 mounting holes

Motherboard for AMD Processor:

CPU:

• Supports AMD® Ryzen ThreadRipper Processor for SocketTR4

Chipset:

• AMD® X399 Chipset

Main Memory:

• 8 x DDR4 memory slots, support up to 128GB\*

• Quad channel memory architecture\*\*

• Supports DDR4 3600+(OC)/ 3466(OC)/ 3333(OC)/ 3200(OC)/ 3066(OC)/ 2933(OC)/ 2667/ 2400/ 2133 MHz\*

Slots:

• 4 x PCIe 3.0 x16 slots

• 2 x PCIe 2.0 x1 slots

Multi-GPU:

• Supports 4-Way AMD® CrossFire™ Technology

• Supports 4-Way NVIDIA® SLI™ Technology

Storage:

• AMD® X399 Chipset

- 8 x SATA 6Gb/s ports\*

• AMD® RYZEN THREADRIPPER Series Processors

- 3 x M.2 slots (Key M)\*

- Supports up to PCIe 3.0 x4 and SATA 6Gb/s

- M2\_1, M2\_3 slots support 2242/ 2260 /2280 storage devices

- M2\_2 slot supports 2242/ 2260 /2280/ 22110 storage devices

- Supports PCIe 3.0 x4 NVMe storage

RAID:

• AMD® X399 Chipset

- Supports RAID 0, RAID 1 and RAID 10 for SATA storage devices

USB:

• ASMedia® ASM3142 Chipset

- 1 x USB 3.1 Gen2 (SuperSpeed USB 10Gbps) Type-C port on the back panel

- 1 x USB 3.1 Gen2 (SuperSpeed USB 10Gbps) Type-A port on the back panel

• AMD® X399 Chipset

- 1 x USB 3.1 Gen2 (SuperSpeed USB 10Gbps) Type-C port through the internal USB connector

- 4 x USB 3.1 Gen1 (SuperSpeed USB) ports available through the internal USB connectors

- 6 x USB 2.0 (High-speed USB) ports (2 Type-A ports on the back panel, 4 ports available through the internal USB connectors)

• AMD® CPU

- 8 x USB 3.1 Gen1 (SuperSpeed USB) Type-A ports on the back panel

Wirsless LAN & Bluetooth®:

• Intel® Dual Band Wireless-AC 8265 card

- Supports Wi-Fi 802.11 a/b/g/n/ac, dual band (2.4GHz, 5GHz) up to 867 Mbps speed.

- Supports Dual Mode Bluetooth® 2.1, 2.1+EDR, 3.0, 4.0, BLE, 4.2

Audio:

• Realtek® ALC1220 Codec

- 7.1-Channel High Definition Audio

- Supports S/PDIF output

LAN:

• 1 x Intel® I211 Gigabit LAN controller

Internal I/O Connectors:

- 1 x 24-pin ATX main power connector

- 2 x 8-pin ATX 12V power connector

- 1 x 6-pin ATX 12V power connector\*

- 8 x SATA 6Gb/s connectors

- 2 x USB 2.0 connectors (supports additional 4 USB 2.0 ports)

- 2 x USB 3.1 Gen1 connectors (supports additional 4 USB 3.1 Gen1 ports)

- 1 x USB 3.1 Gen2 Type-C port

- 1 x 4-pin CPU fan connector

- 1 x 4-pin Water Pump connector

- 4 x 4-pin system fan connectors

- 2 x Front panel connectors

- 1 x Front panel audio connector

- 2 x RGB LED connector

- 1 x TPM module connector

- 1 x LED demo connector

- 1 x Rest Button

- 1 x Power Button

- 1 x OC Button

- 1 x Chassis Intrusion connector

- 1 x clear CMOS header

\* Provides additional power to PCIe x16 slots

Back Panel I/O Ports:

- 1 x Clear CMOS button

- 1 x BIOS FLASHBACK+ button

- 1 x PS/2 keyboard/ mouse combo port

- 2 x USB 2.0 Type-A ports

(1 x BIOS FLASHBACK+ port)

- 8 x USB 3.1 Gen1 Type-A ports

- 1 x LAN (RJ45) port

- 1 x USB 3.1 Gen2 Type-A port

- 1 x USB 3.1 Gen2 Type-C port

- 5 x OFC audio jacks

- 1 x Optical S/PDIF OUT connector

Dimension:

• 12 in. x 9.6 in. (30.4 cm x 24.3 cm)

• ATX Form Factor

Mounting:

• 9 mounting holes