ASRock

B450M PRO4-F

User Manual

1.2 Specifications

Platform	• Micro ATX Form Factor • Solid Capacitor design
CPU	• AMD AM4 Socket • Digi Power design • 9 Power Phase design
Chipset	• AMD Promontory B450
Memory	• Dual Channel DDR4 Memory Technology • 4 x DDR4 DIMM Slots • AMD Ryzen series CPUs (Matisse) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Pinnacle Ridge) support DDR4 3200+(OC)/2933(OC)/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Picasso) support DDR4 2933/2667/2400/2133 non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Summit Ridge) support DDR4 3200+(OC)/2933(OC)/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Raven Ridge) support DDR4 3200+(OC)/2933/2667/2400/2133 non-ECC, un-buffered memory* * For Ryzen Series CPUs (Picasso and Raven Ridge), ECC is only supported with PRO CPUs. * Please refer to Memory Support List on ASRock's website for more information. (http://www.asrock.com/) * Please refer to page 22 for the table for AMD non-XMP memory frequency support. For more details, please refer to the QVL on ASRock's website. • Max. capacity of system memory: 64GB • Supports Extreme Memory Profile (XMP) memory modules • 15µ Gold Contact in DIMM Slots

Expansion Slot

AMD Ryzen series CPUs (Matisse, Summit Ridge and Pinnacle Ridge)

- 1 x PCI Express 3.0 x16 Slot (PCIE2: x16 mode)*
- 1 x PCI Express 2.0 x16 Slot (PCIE3: x4 mode)

AMD Ryzen series CPUs (Picasso, Raven Ridge)

- 1 x PCI Express 3.0 x16 Slot (PCIE2: x8 mode)*
- 1 x PCI Express 2.0 x16 Slot (PCIE3: x4 mode)

AMD Athlon series CPUs

- 1 x PCI Express 3.0 x16 Slot (PCIE2: x4 mode)*
- 1 x PCI Express 2.0 x16 Slot (PCIE3: x4 mode)

* Supports NVMe SSD as boot disks

- 1 x PCI Express 2.0 x1 Slot
- Supports AMD Quad CrossFireX™ and CrossFireX™

Graphics

- Integrated AMD Radeon™ Vega Series Graphics in Ryzen Series APU*

* Actual support may vary by CPU

- DirectX 12, Pixel Shader 5.0
- Shared memory default 2GB. Max Shared memory supports up to 16GB.

* The Max shared memory 16GB requires 32GB system memory installed.

- Three graphics output options: D-Sub, DVI-D and HDMI
- Supports Triple Monitor
- Supports HDMI 1.4 with max. resolution up to 4K x 2K (4096x2160) @ 24Hz / (3840x2160) @ 30Hz
- Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz
- Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
- Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI 1.4 Port (Compliant HDMI monitor is required)
- Supports HDCP 1.4 with DVI-D and HDMI 1.4 Ports
- Supports Full HD 1080p Blu-ray (BD) playback with DVI-D and HDMI 1.4 Ports

Audio	• 7.1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec) • Premium Blu-ray Audio support • Supports Surge Protection • ELNA Audio Caps
LAN	• PCIE x1 Gigabit LAN 10/100/1000 Mb/s • Realtek RTL8111GR • Supports Wake-On-LAN • Supports Lightning/ESD Protection • Supports LAN Cable Detection • Supports Energy Efficient Ethernet 802.3az • Supports PXE
Rear Panel I/O	• 1 x PS/2 Mouse Port • 1 x PS/2 Keyboard Port • 1 x D-Sub Port • 1 x DVI-D Port • 1 x HDMI Port • 2 x USB 2.0 Ports (Supports ESD Protection) • 1 x USB 3.2 Gen1 Type-C Port (Supports ESD Protection) • 4 x USB 3.2 Gen1 Ports (Supports ESD Protection) • 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) • HD Audio Jacks: Line in / Front Speaker / Microphone
Storage	• 4 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1 and RAID 10), NCQ, AHCI and Hot Plug* * M2_2 and SATA3_3 share lanes. If either one of them is in use, the other one will be disabled. • 1 x Ultra M.2 Socket (M2_1), supports M Key type 2242/2260/2280 M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Matisse, Picasso, Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with Athlon series APU)** ** Supports NVMe SSD as boot disks ** Supports ASRock U.2 Kit • 1 x M.2 Socket (M2_2), supports M Key type 2230/2242/2260/2280 M.2 SATA3 6.0 Gb/s module

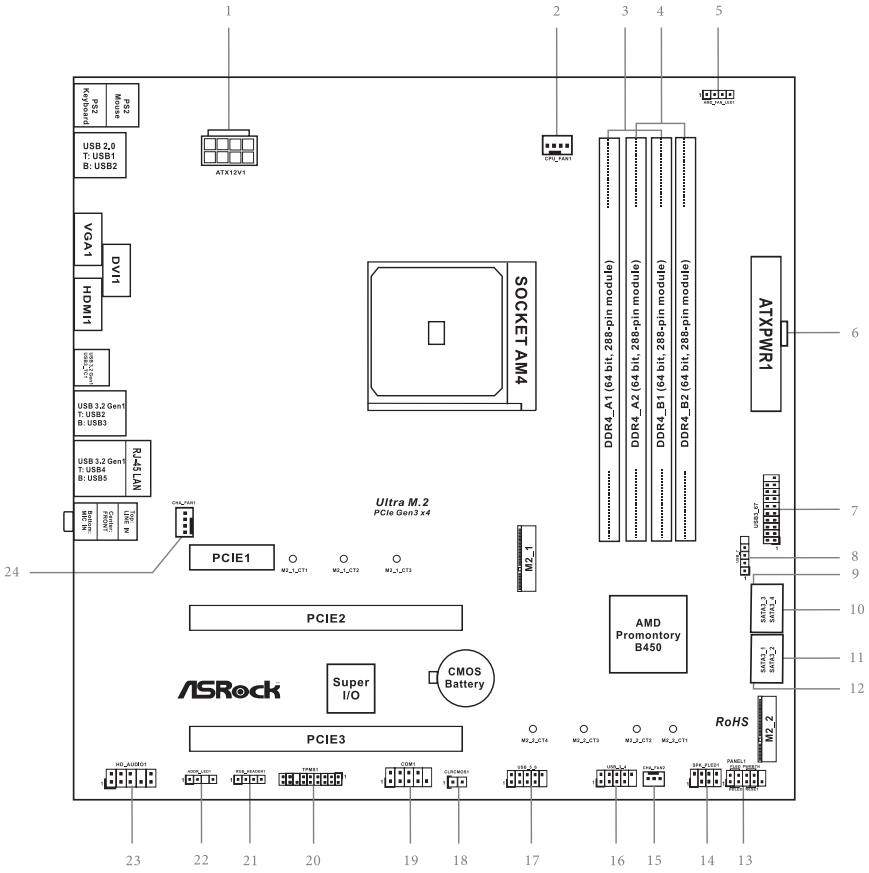
Connector	• 1 x COM Port Header • 1 x TPM Header • 1 x Power LED and Speaker Header • 1 x RGB LED Header * Supports in total up to 12V/3A, 36W LED Strip • 1 x Addressable LED Header * Supports in total up to 5V/3A, 15W LED Strip • 1 x AMD Fan LED Header * The AMD Fan LED Header supports LED strips of maximum load of 3A (36W) and length up to 2.5M. • 1 x CPU Fan Connector (4-pin) * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 2 x Chassis Fan Connectors (1 x 4-pin, 1 x 3-pin) (Smart Fan Speed Control) * CHA_FAN1 can auto detect if 3-pin or 4-pin fan is in use. • 1 x 24 pin ATX Power Connector • 1 x 8 pin 12V Power Connector • 1 x Front Panel Audio Connector • 1 x AMD LED Fan USB Header • 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) (Supports ESD Protection) • 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports) (Supports ESD Protection)
BIOS Feature	• AMI UEFI Legal BIOS with multilingual GUI support • Supports “Plug and Play” • ACPI 5.1 compliance wake up events • Supports jumperfree • SMBIOS 2.3 support • DRAM Voltage multi-adjustment
Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan • CPU/Chassis Fan multi-speed control • Voltage monitoring: +12V, +5V, +3.3V, Vcore

OS	• Microsoft® Windows® 10 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

** For detailed product information, please visit our website: http://www.asrock.com*

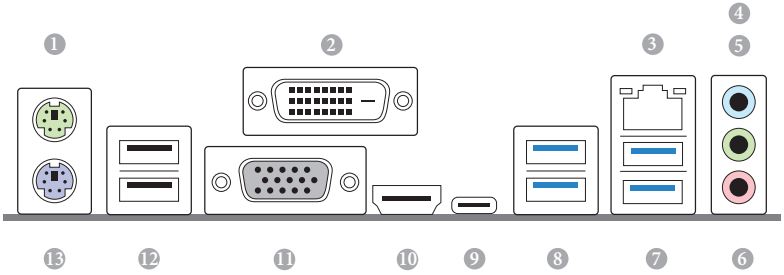
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

1.3 Motherboard Layout



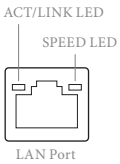
No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
4	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2)
5	AMD Fan LED Header (AMD_FAN_LED1)
6	ATX Power Connector (ATXPWR1)
7	USB 3.2 Gen1 Header (USB3_67)
8	AMD LED Fan USB Header (USB_7)
9	SATA3 Connector (SATA3_3) (Upper)
10	SATA3 Connector (SATA3_4) (Lower)
11	SATA3 Connector (SATA3_2) (Lower)
12	SATA3 Connector (SATA3_1) (Upper)
13	System Panel Header (PANEL1)
14	Power LED and Speaker Header (SPK_PLED1)
15	Chassis Fan Connector (CHA_FAN2)
16	USB 2.0 Header (USB_3_4)
17	USB 2.0 Header (USB_5_6)
18	Clear CMOS Jumper (CLRCMOS1)
19	COM Port Header (COM1)
20	TPM Header (TPMS1)
21	RGB LED Header (RGB_HEADER1)
22	Addressable LED Header (ADDR_LED1)
23	Front Panel Audio Header (HD_AUDIO1)
24	Chassis Fan Connector (CHA_FAN1)

1.4 I/O Panel



No.	Description	No.	Description
1	PS/2 Mouse Port	8	USB 3.2 Gen1 Ports (USB3_23)
2	DVI-D Port	9	USB 3.2 Gen1 Type-C Port (USB3_TC1)
3	LAN RJ-45 Port*	10	HDMI Port
4	Line In (Light Blue)	11	D-Sub Port
5	Front Speaker (Lime)	12	USB 2.0 Ports (USB_1_2)**
6	Microphone (Pink)	13	PS/2 Keyboard Port
7	USB 3.2 Gen1 Ports (USB3_45)		

** There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.*



Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

*** Please note that the USB_1_2 consume auxiliary power (+5VSB) while the other USB ports consume DUAL Power (+5VDUAL). The USB_1_2 are optimal for connecting the USB Type speaker and headset.*