

A520M-HDV
A520M-HVS

1.2 Specifications

- Platform**
- Micro ATX Form Factor
 - Solid Capacitor design

- CPU**
- Supports 3rd Gen AMD AM4 Ryzen™ / future AMD Ryzen™ Processors (3000 and 4000 Series Processors)*
 - * Not compatible with AMD Ryzen™ 5 3400G and Ryzen™ 3 3200G.
 - 6 Power Phase design

- Chipset**
- AMD A520

- Memory**
- Dual Channel DDR4 Memory Technology
 - 2 x DDR4 DIMM Slots
 - AMD Ryzen series CPUs (Matisse) support DDR4 4600+(OC)/4533(OC)/4466(OC)/4400(OC)/4333(OC)/4333(OC)/4266(OC)/4200(OC)/4133(OC)/4000(OC)/3866(OC)/3800(OC)/3733(OC)/3600(OC)/3466(OC)/3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory*
 - AMD Ryzen series APUs (Renoir) support DDR4 4733+(OC)/4666(OC)/4600(OC)/4533(OC)/4466(OC)/4400(OC)/4333(OC)/4266(OC)/4200(OC)/4133(OC)/4000(OC)/3866(OC)/3800(OC)/3733(OC)/3600(OC)/3466(OC)/3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory*
 - * Please refer to Memory Support List on ASRock's website for more information. (<http://www.asrock.com/>)
 - * Please refer to page 21 for DDR4 UDIMM maximum frequency support.
 - Max. capacity of system memory: 64GB
 - Supports Extreme Memory Profile (XMP) memory modules
 - 15μ Gold Contact in DIMM Slots

- Expansion Slot**
- 1 x PCI Express 3.0 x16 Slot (PCIe2: x16 mode)*
 - * Supports NVMe SSD as boot disks
 - 1 x PCI Express 3.0 x1 Slot

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.

A520M-HDV:

- Three graphics output options: D-Sub, DVI-D and HDMI
- Supports Triple Monitor
- Supports HDMI 2.1 with max. resolution up to 4K x 2K (4096x2160) @ 60Hz
- 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 2.1 Port (Compliant HDMI monitor is required)
- Supports HDR (High Dynamic Range) with HDMI 2.1
- Supports HDCP 2.3 with DVI-D and HDMI 2.1 Ports
- Supports 4K Ultra HD (UHD) playback with HDMI 2.1 Port
- Supports Microsoft PlayReady*

A520M-HVS:

- Dual graphics output: support D-Sub and HDMI ports by independent display controllers
- Supports HDMI 2.1 with max. resolution up to 4K x 2K (4096x2160) @ 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 2.1 Port (Compliant HDMI monitor is required)
- Supports HDR (High Dynamic Range) with HDMI 2.1
- Supports HDCP 2.3 with HDMI 2.1 Port
- Supports 4K Ultra HD (UHD) playback with HDMI 2.1 Port
- Supports Microsoft PlayReady*

- Audio**
- 7.1 CH HD Audio (Realtek ALC887 Audio Codec)
 - Supports Surge Protection

- LAN**
- PCIE x1 Gigabit LAN 10/100/1000 Mb/s
 - Realtek RTL8111H
 - Supports Wake-On-LAN
 - Supports Lightning/ESD Protection
 - Supports Energy Efficient Ethernet 802.3az
 - Supports PXE

- Rear Panel I/O**
- 1 x PS/2 Mouse/Keyboard Port
 - 2 x USB 2.0 Ports (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

A520M-HDV:

- 1 x D-Sub Port
- 1 x DVI-D Port
- 1 x HDMI Port

A520M-HVS:

- 1 x D-Sub Port
- 1 x HDMI Port

- Storage**
- 4 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1 and RAID 10), NCQ, AHCI and Hot Plug
 - 1 x Ultra M.2 Socket, supports M Key type 2242/2260/2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s)*

* Supports NVMe SSD as boot disks

* Supports ASRock U.2 Kit

- Connector**
- 1 x SPI TPM Header
 - 1 x COM Port Header
 - 1 x Chassis Intrusion and Speaker Header
 - 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 (4-pin) (Smart Fan Speed Control)

* The Chassis Fan supports the water cooler fan of maximum 1A (12W) fan power.

* CHA_FAN2 can auto detect if 3-pin or 4-pin fan is in use.

- 1 x 24 pin ATX Power Connector
- 1 x 4 pin 12V Power Connector
- 1 x Front Panel Audio Connector
- 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 GUI support
- Supports “Plug and Play”
- ACPI 5.1 compliance wake up events
- Supports jumperfree
- SMBIOS 2.3 support
- CPU, CPU VDDCR_SOC, DRAM, VDDP Voltage Multi-adjustment

**Hardware
Monitor**

- Temperature Sensing: CPU, Chassis Fans
- Fan Tachometer: CPU, Chassis Fans
- Quiet Fan (Auto adjust chassis fan speed by CPU temperature): CPU, Chassis Fans
- Fan Multi-Speed Control: CPU, Chassis Fans
- CASE OPEN detection
- Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore

OS

- Microsoft® Windows® 10 64-bit

**Certifica-
tions**

- FCC, CE
- ErP/EuP ready (ErP/EuP ready power supply is required)

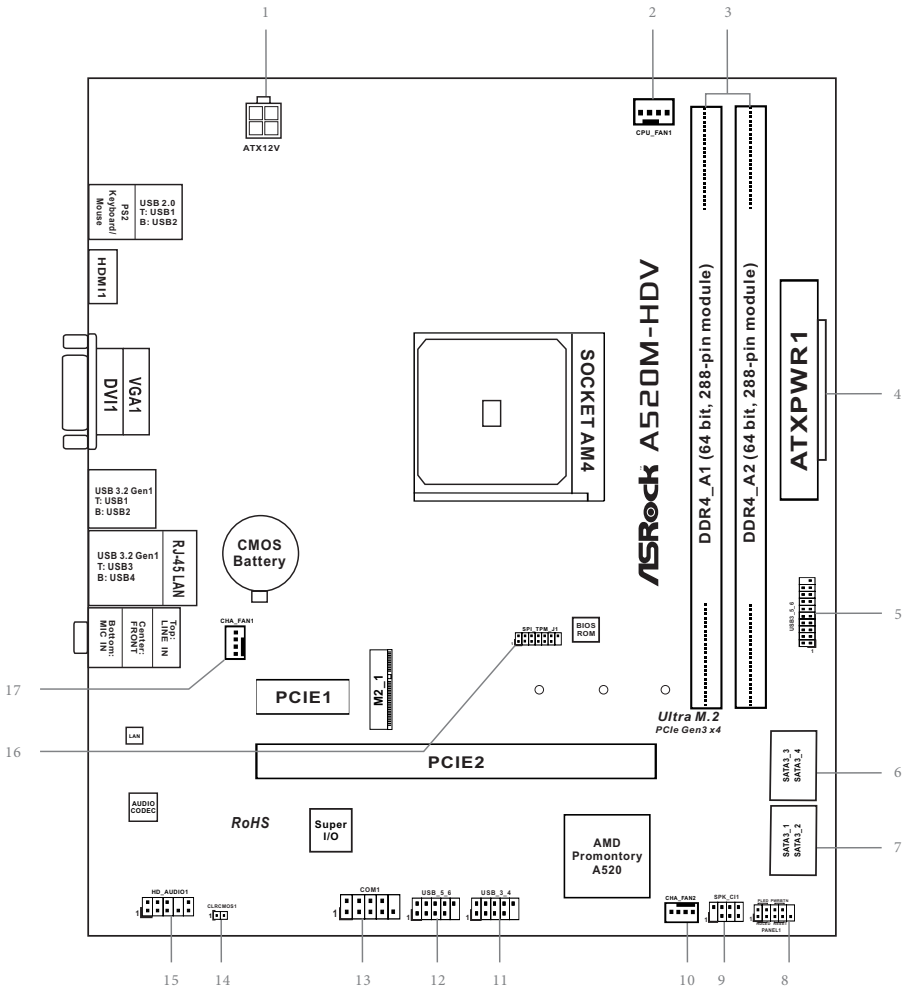
* For detailed product information, please visit our website: <http://www.asrock.com>



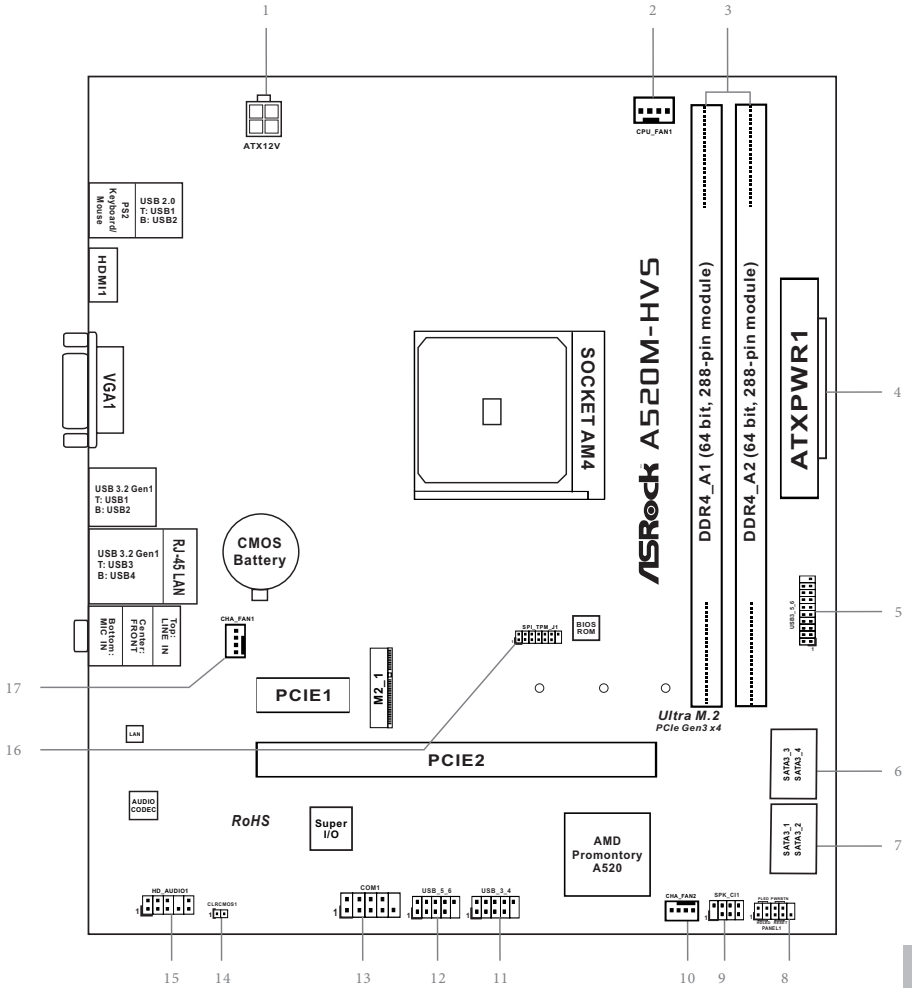
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of 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

A520M-HDV:



A520M-HVS:

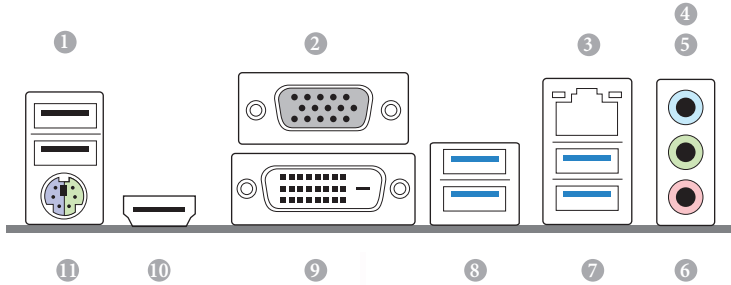


No.	Description
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- | | |
|----|--|
| 1 | ATX 12V Power Connector (ATX12V1) |
| 2 | CPU Fan Connector (CPU_FAN1) |
| 3 | 2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1) |
| 4 | ATX Power Connector (ATXPWR1) |
| 5 | USB 3.2 Gen1 Header (USB3_5_6) |
| 6 | SATA3 Connector (SATA3_3) (Upper), SATA3 Connector (SATA3_4) (Lower) |
| 7 | SATA3 Connector (SATA3_4) (Upper), SATA3 Connector (SATA3_2) (Lower) |
| 8 | System Panel Header (PANEL1) |
| 9 | Chassis Intrusion and Speaker Header (SPK_C11) |
| 10 | Chassis Fan Connector (CHA_FAN2) |
| 11 | USB 2.0 Header (USB_3_4) |
| 12 | USB 2.0 Header (USB_5_6) |
| 13 | COM Port Header (COM1) |
| 14 | Clear CMOS Jumper (CLRCMOS1) |
| 15 | Front Panel Audio Header (HD_AUDIO1) |
| 16 | SPI TPM Header (SPI_TPM_J1) |
| 17 | Chassis Fan Connector (CHA_FAN1) |

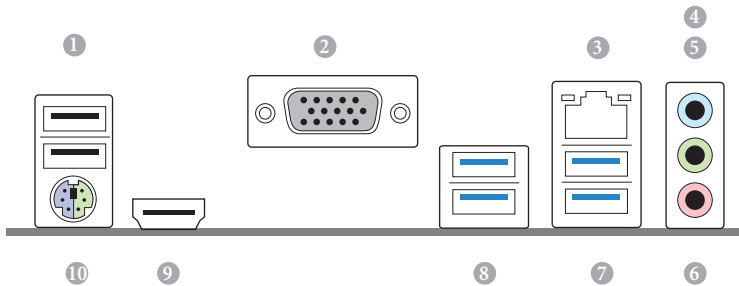
1.4 I/O Panel

A520M-HDV:



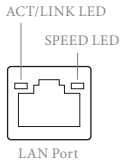
No.	Description	No.	Description
1	USB 2.0 Ports (USB_12)	7	USB 3.2 Gen1 Ports (USB3_34)
2	D-Sub Port	8	USB 3.2 Gen1 Ports (USB3_12)
3	LAN RJ-45 Port*	9	DVI-D Port
4	Line In (Light Blue)**	10	HDMI Port
5	Front Speaker (Lime)**	11	PS/2 Mouse/Keyboard Port
6	Microphone (Pink)**		

A520M-HVS:



No.	Description	No.	Description
1	USB 2.0 Ports (USB_12)	6	Microphone (Pink)**
2	D-Sub Port	7	USB 3.2 Gen1 Ports (USB3_34)
3	LAN RJ-45 Port*	8	USB 3.2 Gen1 Ports (USB3_12)
4	Line In (Light Blue)**	9	HDMI Port
5	Front Speaker (Lime)**	10	PS/2 Mouse/Keyboard Port

* 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

** *Function of the Audio Ports in 7.1-channel Configuration:*

Port	Function
Light Blue (Rear panel)	Rear Speaker Out
Lime (Rear panel)	Front Speaker Out
Pink (Rear panel)	Central /Subwoofer Speaker Out
Lime (Front panel)	Side Speaker Out