# PRIME Z590-P One Page Spec

Note: The specifications are subject to change without notice.

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| **CPU** | Intel® Socket LGA1200 for 11<sup>th</sup> Gen Intel® Core™ processors & 10<sup>th</sup> Gen Intel® Core™, Pentium® Gold and Celeron® Processors*<br>Supports Intel® 14 nm CPU<br>Supports Intel® Turbo Boost Technology 2.0 and Intel® Turbo Boost Max Technology 3.0**<br>* Refer to www.asus.com for CPU support list.<br>** Intel® Turbo Boost Max Technology 3.0 support depends on the CPU types. |
| **Chipset** | Intel® Z590 Chipset |
| **Memory** | 4 x DIMM, Max. 128GB, DDR4<br>5133(OC)/5000(OC)/4800(OC)/4700(OC)/4600(OC)/4500(OC)/4400(OC)/4266(OC)/4133(OC)/4000(OC)/3866(OC)/3733(OC)/3600(OC)/3466(OC)/3400(OC)/3333(OC)/3200/3000/2933/2800/2666/2400/2133 MHz Non-ECC, Un-buffered Memory*<br>Dual Channel Memory Architecture<br>Supports Intel® Extreme Memory Profile (XMP)<br>OptiMem II<br>* 10<sup>th</sup> Gen Intel® Core™ i7/i9 processors support 2933/2800/2666/2400/2133 natively, others will run at the maximum transfer rate of DDR4 2666MHz.<br>* 11<sup>th</sup> Gen Intel® processors support 3200/2933/2800/2666/2400/2133 natively.<br>* Refer to www.asus.com for the Memory QVL (Qualified Vendors Lists), and memory frequency support depends on the CPU types. |
| **Graphics** | 1 x DisplayPort 1.4**<br>1 x HDMI™ 1.4 / 2.0***<br>* Graphics specifications may vary between CPU types.<br>** Intel® 11<sup>th</sup> & 10<sup>th</sup> Gen processors support DisplayPort 1.4 with max. resolution of 4096 x 2304 @60Hz. Please refer to www.intel.com for any updates.<br>*** Only Intel® 11<sup>th</sup> Gen processors support HDMI™ 2.0 with max. resolution of 4K@60Hz, others will only support HDMI™ 1.4 with max. resolution of 4K@30Hz. Please refer to www.intel.com for any updates. |
| **Expansion Slots** | **Intel® 11<sup>th</sup> & 10<sup>th</sup> Gen Processors***<br>1 x PCIe 4.0/3.0 x16 slot<br>- Intel® 11<sup>th</sup> Gen processors support PCIe 4.0 x16 or x8/x8 or x8/x4/x4 modes<br>- Intel® 10<sup>th</sup> Gen processors support PCIe 3.0 x16 or x8/x8 or x8/x4/x4 modes<br>**Intel® Z590 Chipset**<br>1 x PCIe 3.0 x16 slot (supports x4 mode)<br>2 x PCIe 3.0 x1 slots<br>* Supports PCIe bandwidth bifurcation for RAID on CPU function. |

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| **Storage** | **Total supports 3 x M.2 slots and 4 x SATA 6Gb/s ports**<br>**Intel® 11th Gen Processors**<br>M.2_1 slot (Key M), type 2242/2260/2280/22110<br>- Only Intel® 11th Gen processors support PCIe 4.0 x4 mode, this slot will be disabled for other CPUs<br>**Intel® Z590 Chipset**<br>M.2_2 slot (Key M), type 2242/2260/2280 (supports PCIe 3.0 x4 & SATA modes)*<br>M.2_3 slot (Key M), type 2242/2260/2280/22110 (supports PCIe 3.0 x4 & SATA modes)<br>4 x SATA 6Gb/s ports<br>Raid function for PCIe mode SSD in Intel® Rapid Storage Technology is available with either 1. Intel® SSDs installed in both CPU-attached and PCH-attached slots, or 2. any other 3rd party SSDs installed in PCH-attached slots.<br>To enable Intel® Optane™ Memory (Hybrid Storage device), it must be installed in PCH-attached slots with Intel® Rapid Storage Technology.<br>* When a device in SATA mode is installed on the M.2_2 slot, SATA6G_2 port cannot be used. |
| **Ethernet** | 1 x Realtek 2.5Gb Ethernet |
| **Wireless & Bluetooth** | V-M.2 slot only (Key E, CNVi & PCIe)*<br>* Wi-Fi module and vertical M.2 Key E bracket set are purchased separately. |
| **USB** | **Rear USB (Total 6 ports)**<br>1 x USB 3.2 Gen 2x2 port (1 x USB Type-C®)<br>1 x USB 3.2 Gen 2 port (1 x Type-A)<br>2 x USB 3.2 Gen 1 ports (2 x Type-A)<br>2 x USB 2.0 ports (2 x Type-A)<br>**Front USB (Total 9 ports)**<br>1 x USB 3.2 Gen 1 connector (supports USB Type-C®)<br>2 x USB 3.2 Gen 1 headers support additional 4 USB 3.2 Gen 1 ports<br>2 x USB 2.0 headers support additional 4 USB 2.0 ports*<br>* USB_E1 port, USB_E2 port, USB_E3 port and USB_E4 port share the bandwidth. |
| **Audio** | Realtek ALC897 7.1 Surround Sound High Definition Audio CODEC<br>- Supports: Jack-detection, Multi-streaming, Front Panel Jack-retasking<br>- Supports up to 24-Bit/192 kHz playback<br>**Audio Features**<br>- Audio Shielding<br>- Rear optical S/PDIF out port<br>- Premium Japanese audio capacitors<br>- Dedicated audio PCB layers |
| | 1 x USB 3.2 Gen 2x2 port (1 x USB Type-C®) |

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| **Back Panel I/O Ports** | 1 x USB 3.2 Gen 2 port (1 x Type-A)<br>2 x USB 3.2 Gen 1 ports (2 x Type-A)<br>2 x USB 2.0 ports (2 x Type-A)<br>1 x DisplayPort<br>1 x HDMI™ port<br>1 x V-M.2 slot (Key E)<br>1 x Realtek 2.5Gb Ethernet port<br>5 x Audio jacks<br>1 x Optical S/PDIF out port<br>1 x PS/2 Keyboard/Mouse combo port |
| **Internal I/O Connectors** | **Fan and Cooling related**<br>1 x 4-pin CPU Fan header<br>1 x 4-pin AIO Pump header<br>3 x 4-pin Chassis Fan headers<br>**Power related**<br>1 x 24-pin Main Power connector<br>1 x 8-pin +12V Power connector<br>1 x 4-pin +12V Power connector<br>**Storage related**<br>3 x M.2 slots (Key M)<br>4 x SATA 6Gb/s ports<br>**USB**<br>1 x USB 3.2 Gen 1 connector (supports USB Type-C®)<br>2 x USB 3.2 Gen 1 headers support additional 4 USB 3.2 Gen 1 ports<br>2 x USB 2.0 headers support additional 4 USB 2.0 ports<br>**Miscellaneous**<br>2 x AURA Addressable Gen 2 headers<br>2 x AURA RGB headers<br>1 x Clear CMOS header<br>1 x COM Port header<br>1 x Front Panel Audio header (AAFP)<br>1 x SPI TPM header (14-1pin)<br>1 x 20-5pin System Panel header<br>1 x Thunderbolt™ header |
| | **ASUS 5X PROTECTION III**<br>- DIGI+ VRM (- Digital power design with DrMOS) |

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| **Special Features** | - LANGuard<br>- Overvoltage Protection<br>- SafeSlot Core+<br>- Stainless-Steel Back I/O<br>**ASUS Q-Design**<br>- Q-DIMM<br>- Q-Slot<br>**ASUS Thermal Solution**<br>- Flexible M.2 heatsink<br>- VRM heatsink design<br>**ASUS EZ DIY**<br>- ProCool<br>**AURA Sync**<br>- AURA RGB headers<br>- Addressable Gen 2 RGB headers | |
| **Software Features** | **ASUS Exclusive Software**<br>Armoury Crate<br>- AURA Sync<br>AI Suite 3<br>- Performance And Power Saving Utility<br>  TurboV EVO<br>  EPU<br>  DIGI+ VRM<br>  Fan Xpert 4<br>- EZ update<br>ASUS CPU-Z<br>AI Charger<br>DAEMON Tools<br>Norton Anti-virus software (Free Trial version)<br>WinRAR<br>**UEFI BIOS**<br>ASUS EZ DIY<br>- ASUS CrashFree BIOS 3<br>- ASUS EZ Flash 3<br>- ASUS UEFI BIOS EZ Mode | |
| **BIOS** | 192 (128+64) Mb Flash ROM, UEFI AMI BIOS | |

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| **Manageability** | WOL by PME, PXE |
| **Accessories** | **Cables**<br>2 x SATA 6Gb/s cables<br>**Miscellaneous**<br>1 x I/O Shield<br>1 x M.2 Rubber Package<br>2 x M.2 SSD screw packages<br>**Installation Media**<br>1 x Support DVD<br>**Documentation**<br>1 x User manual |
| **Operating System** | Windows® 10 64-bit |
| **Form Factor** | ATX Form Factor<br>12 inch x 9.2 inch ( 30.5 cm x 23.4 cm ) |