

**TUF X299 MARK 1**

Note: The specifications are subject to change without notice.

<b>CPU</b>	Intel® Core™ X-Series Processors Family on LGA 2066 Socket* Supports 14nm CPU Supports Intel® Turbo Boost Max Technology 3.0** *Refer to www.asus.com for Intel® CPU support list. ** The support of these features depends on the CPU types.
<b>Chipset</b>	Intel® X299 Chipset
<b>Memory</b>	Intel® Core™ X-series Processors (6-core above) - 8 x DIMM, max. 128GB DDR4 3600(O.C.)*/3400(O.C.)*/3333(O.C.)*/3300(O.C.)*/3200(O.C.)*/3000(O.C.)*/2800(O.C.)*/2666 MHz, non-ECC, un-buffered memory - Quad channel memory architecture Intel® Core™ X-series Processors (4-core) 4 x DIMM, max. 64GB, DDR4 3600(O.C.)*/3400(O.C.)*/3333(O.C.)*/3300(O.C.)*/3200(O.C.)*/3000(O.C.)*/2800(O.C.)*/2666 MHz, non-ECC, un-buffered memory - Dual channel memory architecture Supports Intel® Extreme Memory Profile (XMP) * Hyper DIMM support is subject to the physical characteristics of individual CPUs. Please refer to Memory QVL(Qualified Vendors List) for details.
<b>Expansion Slots</b>	<b>44-Lane CPU(12-core &amp; 10-core CPU)-</b> 3 x PCI Express 3.0/2.0 x16 slots (single@x16, dual@x16/x16, triple@x16/x16/x8 mode) 2 x PCI Express 3.0/2.0 x4 slots (PCIEX4_1 max. at x1 mode, PCIEX4_2 max. at x4 mode)* <b>28-Lane CPU(6-core &amp; 8-core CPU)-</b> 2 x PCI Express 3.0/2.0 x16 slots (single@x16, dual@x16/x8 mode) 1 x PCI Express 3.0/2.0 x16 slot (PCIEX16_3 max. at x1 mode)** 2 x PCI Express 3.0/2.0 x4 slots (PCIEX4_1 max. at x1 mode, PCIEX4_2 max. at x4 mode)* <b>16-Lane CPU(4-core CPU)-</b> 2 x PCI Express 3.0/2.0 x16 slots (single@x16, dual@x8/x8 mode) 1 x PCI Express 3.0/2.0 x16 slot (PCIEX16_3 max. at x1 mode)** 2 x PCI Express 3.0/2.0 x4 slots (PCIEX4_1 max. at x1 mode, PCIEX4_2 max. at x4 mode)* *PCIEX4_2 shares bandwidth with SATA6G_4/5/6/7. **PCIEX16_3 shares bandwidth with PCIEX4_1
<b>Bluetooth</b>	Bluetooth V4.0 BLE
<b>Multi-GPU support</b>	Supports NVIDIA® Supports NVIDIA® 2-Way/Quad-GPU SLI™ Technology (with 2 PCIe16 graphics card)/ 3-Way SLI™ Supports AMD® 3-Way/Quad-GPU CrossFire™ Technology * This support depends on the CPU types and VGA cards
<b>Storage</b>	<b>Intel® X299 Chipset with RAID 0, 1, 5, 10 and Intel Rapid Storage Technology 15 support</b> - 1 x M.2_1 Socket 3 with M key, type 2242/2260/2280 storage devices support (both SATA & PCIe 3.0 x 4 mode) - 1 x M.2_2 Socket 3 with vertical M Key, type 2242/2260/2280/22110 (Support PCIe storage device only) - Ready for Intel® Optane™ Memory - 8 x SATA 6.0 Gb/s ports** - Supports Intel® Smart Response Technology **The SATA6G_4/5/6/7 share bandwidth with PCIEX4_2.
<b>LAN</b>	Gigabit Intel LAN connection- 802.3az Energy Efficient Ethernet (EEE) appliance Intel® I219-V Gigabit LAN- Dual interconnect between the integrated Media Access Controller (MAC) and physical layer (PHY) Intel® I211 Gigabit LAN controller TUF LANGuard ASUS Turbo LAN Utility
<b>Audio</b>	Realtek® S1220A 8-Channel High Definition Audio CODEC - Power pre-regulator reduces power input noise to ensure consistent performance - Separate layer for left and right track, ensuring both sound deliver equal quality - Impedance sense for front and rear headphone outputs - Audio shielding ensures precise analog/digital separation and greatly reduced multi-lateral interference - Internal audio Amplifier to enhance the highest quality sound for headphone and speakers - Unique de-pop circuit to reduce start-up popping noise to audio outputs - Premium Japan-made audio capacitors provides warm, natural, and immersive sound with exceptional clarity and fidelity - High quality 120dB SNR stereo playback output (Line-out@back) & 113dB SNR recording input (Line-in) support - Supports up to 32-Bit/192kHz playback* - DTS® Headphone:X - DTS® Connect - Supports jack-detection, multi-streaming, front panel jack-retasking (MIC) - Optical S/PDIF out port at back I/O *Due to limitations in HDA bandwidth, 32-Bit/192kHz is not supported for 8-Channel audio
<b>USB</b>	Intel® X299 Chipset- - 8 x USB 3.1 Gen 1 ports (4 ports @mid-board, 4 port @back panel, blue) - 6 x USB 2.0/1.1 ports (2 ports @mid-board, 4 port @back panel, black) ASMedia® USB 3.1 Gen 2 controllers- supports 3A power output - 1 x USB 3.1 Gen 2 front panel connector* - 1 x USB 3.1 Gen 2 ports @back panel (teal blue, Type A) - 1 x USB 3.1 Gen 2 port @back panel (Type C)
<b>Exclusive TUF Features</b>	*Ultimate COOL!™ Thermal Solution - TUF Thermal Armor - TUF Thermal Radar 3 - TUF Ice *We Got Your Back!™ Shape Force - TUF Fortifier - ASUS SafeSlot - TUF VGA holder *TUF ENGINE!™ Power Design - 8+2 Digital Phase Power Design - TUF Components (10K Ti-Cap, TUF Chokes & MOSFET; certified by military-standard) *Safe & Stable!™ Guardian Angel - TUF Detective 2 - TUF ESD Guards 2 - Dust Defenders - MemOK!
	- USB BIOS Flashback with USB BIOS Flashback Wizard for EZ BIOS download scheduling - TPU

<b>ASUS Features</b>	<ul style="list-style-type: none"> <li>- EPU</li> <li>- AURA SYNC</li> <li>- ASUS UEFI BIOS EZ Mode featuring friendly graphics user interface</li> <li>- Turbo LAN to experience smooth online gaming with lower pings and less lags</li> <li>- Intel® VROC Ready</li> <li>- AI Suite 3</li> <li>- ASUS Q-Connector</li> <li>- ASUS Q-Shield</li> <li>- ASUS Q-LED (CPU, DRAM, VGA, Boot Device LED)</li> <li>- ASUS Q-Slot</li> <li>- ASUS Q-DIMM</li> <li>- ASUS O.C. Profile</li> <li>- ASUS CrashFree BIOS 3</li> <li>- EZ Update</li> <li>- ASUS EZ Flash 3</li> <li>- Multi-language BIOS</li> </ul>
<b>Back Panel I/O Ports</b>	<ul style="list-style-type: none"> <li>1 x TUF Detective USB port</li> <li>1 x USB BIOS Flashback Button</li> <li>1 x Optical S/PDIF out</li> <li>2 x LAN (RJ45) ports</li> <li>1 x USB 3.1/3.0/2.0 port (teal blue, Type A)</li> <li>1 x USB 3.1/3.0/2.0 port (Type C)</li> <li>4 x USB 3.0/2.0 ports</li> <li>4 x USB 2.0/1.1 ports (black, one supports USB BIOS Flashback)</li> <li>8-channel Audio I/O ports</li> </ul>

<b>Internal I/O Connectors</b>	2 x USB 3.0/2.0 connectors support additional 4 USB ports (19-pin) 1 x USB 2.0/1.1 connectors support additional 2 USB ports 1 x M.2_1 Socket 3 (for M Key, type 2242/2260/2280 devices) 1 x vertical M.2_2 Socket 3 (for M Key, type 2242/2260/2280/22110 devices) 8 x SATA 6.0Gb/s connectors 1 x CPU Fan connector (4-pin) for both 3-pin(DC mode) and 4-pin(PWM mode) CPU coolers control with auto detection support 1 x CPU OPT Fan connector (4-pin) 1 x W_Pump+ header (4-pin) 5 x Chassis Fan connectors (4-pin) for both 3-pin(DC mode) and 4-pin(PWM mode) coolers control 1 x H_AMP_FAN (4-pin) for both 3-pin(DC mode) and 4-pin(PWM mode) control 1 x Assistant Fan connectors (4-pin) 1 x Front panel audio connector (AAFP) 1 x Thunderbolt header (5-pin) for ASUS ThunderboltEX series support 1 x TPM connector 1 x 24-pin EATX Power connector 1 x 8-pin EATX 12V Power connector 1 x 4-pin EATX 12V Power connector 1 x System Panel(Q-Connector) 1 x COM port 1 x MemOK! button 1 x Clear CMOS jumper 3 x T_Sensor (Thermal Sensor) headers
<b>BIOS</b>	128 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.0, WfM2.0, SM BIOS 3.0, ACPI 6.0, Multi-language BIOS, ASUS EZ Flash 3, CrashFree BIOS 3, F11 EZ Tuning Wizard, F6 Qfan Control, F3 My Favorites, Last Modified log, F12 PrintScreen and ASUS DRAM SPD (Serial Presence Detect) memory information
<b>Manageability</b>	WfM 2.0, DMI 3.0, WOL by PME, PXE
<b>Accessory</b>	1 x M.2 screw 4 x Serial ATA 6Gb/s cables 1 x SLI HB BRIDGE(2-WAY-M) 1 x SLI HB BRIDGE(3-WAY) 1 x ASUS Q-Shield 1 x Q-connector 1 x vertical M.2 bracket set 1 x TUF Accessory Package - 3 x PCIe x16 slot dust covers - 2 x PCIe x4 slot dust covers 1 x TUF VGA holder 1 x TUF Dongle 1 x TUF INSIDE sticker 1 x TUF Certification card 1 x TUF 5 Year Warranty manual (by region) User's manual
<b>Support DVD</b>	Drivers ASUS Utilities EZ Update Anti-virus software (OEM version)
<b>Operating System Support</b>	Windows® 10 64-bit
<b>Form Factor</b>	ATX Form Factor, 12"x 9.6" (30.5cm x 24.4cm)