X470GTN Motherboard

- Support AMD Ryzen CPU / APU
- AMD X470 single chip architecture
- Realtek Dragon LAN
- Support 2-DIMM DDR4-3200(OC)/2933(OC)/2667/2400/2133/1866 up to 32GB maximum capacity
- Support USB 3.1 Gen2 Type C
- Support M.2(32Gb/s)
- Support HDMI® 4K resolution

Specifcation	
CPU SUPPORT	Supports AMD AM4 Socket for 3rd, 2nd and 1st Gen Ryzen/2nd and 1st Gen Ryzen with Radeon Vega Graphics/Athlon with Radeon Vega Graphics Processors
MEMORY	Support Dual Channel DDR4 1866/2133/ 2400/ 2667/ 2933(OC)/3200(OC) MHz 2 x DDR4 DIMM Memory Slot Max. Supports up to 32GB Memory * DDR4 2667 for AMD Ryzen CPU ※Athlon 200GE does not support ECC DDR4 memory module.
INTEGRATED VIDEO	By CPU model Supports DX12
STORAGE	4 x SATA III Connectors (6GB/s) Support SATA RAID: 0,1,10 Support Hot-Plug in AHCI mode 1 x M.2 (M Key) 32Gb/s Connector(32Gb/s) Support both PCIE NAND for PCIE SSD and SATA NAND for SATA SSD M.2(32Gb/s):the bandwidth is depended on CPU Ryzen is 32Gb/s;APU & NPU is 16Gb/s.
LAN	Realtek RTL8118AS - 10/100/1000Mb/s Controller
AUDIO CODEC	Realtek ALC892 8-Channel Blu-ray Audio Support Blu-ray Audio
USB	1 x USB 3.1 Gen2 Type-C Port 1 x USB 3.1 Gen2 Type-A Port 4 x USB 3.1 Gen1 Ports 1 x USB 3.1 Gen1 Header 1 x USB 2.0 Header
EXPANSION SLOT	1 x PCI-E 3.0 x16 Slot (When using APU or NPU,the bandwidth is x8 speed)

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REAR I/O	1 x PS/2 Keyboard/Mouse 1 x USB 3.1 Gen2 Type-C Port 1 x USB 3.1 Gen2 Type-A Port 4 x USB 3.1 Gen1 Ports 1 x HDMI® Port 1 x DVI-D Connector 1 x LAN Port 5 x Audio Jacks 1 x S/PDIF Out Port
INTERNAL I/O	1 x USB 3.1 Gen1 Header 1 x USB 2.0 Header(each header support 2 USB 2.0 ports) 4 x SATA III Connectors (6Gb/s) 1 x M.2 Key M 32Gb/s Connector 1 x Front Audio Header 1 x Front Panel Header 1 x CPU Fan Connector 1 x System Fan Connector 1 x LN2 Switch 2 x 5050 LED Header
H/W MONITORING	CPU / System Temperature Monitoring CPU / System Fan Monitoring System Fan Monitoring System Voltage Monitoring
DIMENSION	Mini ITX Form Factor Dimension: 17 cm x 17 cm (W x L)
OS SUPPORT	Supports Windows 10(x64) / 11(x64) Support Windows 7 (x64) for Bristol / Summit /Pinnacle Ridge only
BUNDLE SOFTWARE	Racing GT EVO Utility FLY.NET BullGuard Smart Ear headphone Utility
ACCESSORIES	4 x SATA Cable
FEATURES	VIVID LED DJ Iron Slot Protection

OVERVIEW

AMD SOCKET AM4 X470	**AMD X470 chipset** AMD X470 is the high-end chipset for overclockers and tweakers who need robust platforms. This chip provides the ultimate low-level control to its users and delivers ultimate graphics card bandwidth.
BLU-RAY AUDIO PURE SOUND EFFECT	**Blu-ray Audio** Upgrading your Audio performance in the easiest way is choosing BIOSTAR ultimate Motherboard. It does support Blu-ray audio DRM (compatible driver/software) and provide the higher audio output of 24 bit/ 192KHz than the 16 bit/ 48KHz from the normal MB. You will experience the high quality sound effect with pure Blu-Ray Audio.
Super Hi-Fi Audio Connectors	**Super Hi-Fi Audio Connectors** 30uF “Golden” plated audio connectors provide superb signal conductivity, less oxidation, and best possible studio-grade headgears.

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	Hi-Fi Ground BIOSTAR Hi-Fi Ground (Golden Line) is noise-blocking multi-layer PCB design to isolates analog audio signals from digital sources. Unique PCB layout is ideal for exceptional clarity and high fidelity sound.
	Hi-Fi AMP The built-in amplifier can drive major high-end headphones with over 100dB loads and offer wide band-width, low noise, high slew rate and low distortion audio source from front panel I/O. Gaming enthusiasts can enjoy a fuller range of dynamic sound with crisper details and less distortion.
	Smart Ear Smart EAR is a windows-based audio utility which allows you to easily adjust system volume. With its user-friendly GUI, you can also increase or decrease impedance setting (Low/High Gain) to optimize your headphone performance. You can easily enjoy high-quality and awesome sound.
	Hi-Fi Cap BIOSTAR Hi-Fi series motherboards come with high quality 'Non-Polarized Electrolysis Electric audio capacitors' for each audio channel circuit. The customized audio capacitors deliver low noise, low distortion, and wide bandwidth to achieve the highest sound resolution and sound expansion. The critical component will ensure the most realistic sound effects to gaming enthusiasts.
	S/P DIF Output on board Onboard Optical & Coaxial connector supports your desktop in transferring the non-distortion digital audio output to the AV amplifier and professional speaker system.
	HDMI® 4K2K The new 4K2K resolution enables high-definition image display with four times the resolution of full HD, 4K2K display is faithfully express bright, highly detailed content that fills the entire screen with lifelike images. Connectivity with PCs via a single HDMI® cable for displaying 4K2K data.
	HDMI® 3D Visual The HDMI® 3D Visual provides a level of interoperability for devices designed to deliver 3D content over the HDMI® connection. The latest HDMI® Specification adds key enhancements to support the market requirements for bringing broadcast 3D content into the home featuring key enhancements for 3D applications including the addition of mandatory 3D formats for broadcast content.
	DVI DVI is better than VGA for LCD displays since it is digital while VGA is analog. For LCD displays, the picture is digitized pixel per pixel. Through DVI, the panel gets data for each pixel, so the picture generated in the Graphics device matches the pixels on the panel itself.
	DX12 DirectX 12 introduces the next version of Direct3D, the graphics API at the heart of DirectX. Direct3D is one of the most critical pieces of a game or game engine, and we've redesigned it to be faster and more efficient than ever before. Direct3D 12 enables richer scenes, more objects, and full utilization of modern GPU hardware.

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ATI CrossFire X™ Technology

ATI CrossFireX™ is the ultimate multi-GPU performance gaming platform. With game-dominating power, ATI CrossFireX technology enables two or more discrete graphics processors to work together to improve system performance. It supports up to four ATI Radeon™ HD graphics cards, making it the most scalable gaming platform ever!

FLY.NET

This exclusive utility will automatically detect the bandwidth of other software and increase the internet speed for online games.

USB 3.1 Gen 2 Type-A

USB 3.1 Gen 2 is a new standard known as SuperSpeed+, in order to highlight the improvement from USB3.1 Gen 1(SuperSpeed) transmission speed. The new standard doubles data transfer rate from 5Gbps to 10Gbps. It is also backward compatible with existing USB3.0 connectors and all the USB 2.0 devices.

USB 3.1 Gen 2 Type-C

USB 3.1 Gen 2 doubles the data transfer rate from 5Gbps to 10Gbps compared with USB 3.1 Gen 1. The Type-C connector is fully reversible which makes it convenient, and it also can save your charging time on portable devices up to 50% compared with Type-A connector.

PCIe M.2 32Gb/s

PCI-e M.2 32Gb/s delivers the highest bandwidth and lower latency. It is 3 times faster compared with PCI-e M.2 10Gb/s.

PCIe 3.0

PCIe 3.0 is the ubiquitous and general-purpose PCI Express I/O standard. At 8GT/s bit rate, the interconnect performance bandwidth is doubled over PCIe 2.0, while preserving compatibility with software and mechanical interfaces.

SATAIII 6Gbps

SATAIII 6Gbps provides a higher bandwidth to retrieve and transfer HD media. With this super speed data transfer, SATAIII allows an incredible data boost which is 2x faster than the SATA II.

Digital PWM

Digital PWM controller is with dual-output multiphase that faster transient performance and accurately regulated frequency control. It can be enabled to greatly increase system efficiency.

Super Durable Ferrite Choke

Super Durable Ferrite Choke brings the benefits of higher current capacity, lower energy loss and better power stability.

Super Durable Solid Caps

The best quality solid state capacitors with ultra low ESR design, the Super Durable Solid Caps doubles the lifespan.

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Moistureproof of PCB

The popularity of PC usage and working environment is getting deteriorating and moist (rural, coastal, etc.). The PCB will be oxidizing easily by damp or absorbed moisture, and ionic migration or CAF (Conductive Anodic Filament) will be generated. Moisture-proof PCB meets high density and high reliability requirements for moisture proof.

Low RdsOn P-Pak MOS

Low resistance design can significantly reduce the current out of energy loss. Low temperature, small size, excellent thermal conductivity.

Super Anti-Surge Protection

BIOSTAR exclusive Anti-Surge design provides the best protection of board and extends the product life. Having the latest model of "Transient Voltage Suppressor" on- board can effectively protect the board circuit, reducing the shocks caused by ESD as well as other damages arising from overvoltage transients to enhance system durability.

ESD Protection

ESD (Electrostatic Discharge) is the major factor to destroy the PC by electrical overstress (EOS) condition. ESD occurred by PC users when touch any devices connect to a PC, which may result in damage to the motherboard or parts. ESD protection is designed to protect the motherboard and equipment from damage by EOS.

USB Polyswitch

On board dedicated power fuse to help prevent USB port failure. It prevents USB Port overcurrent and safe guard your system and device lifespan.

OC / OV / OH Protection

OC / OV / OH Protection design detects overvoltage conditions and prevents voltage surges from spreading in real time. It also actively cuts off the overvoltage supply to protect your system.

BullGuard Internet Security (90 days FREE trial)

BullGuard Internet Security comes with the broadest line-up of internet security features on the market, including: a cutting-edge dual Antivirus engine, Online Backup for your precious files, PC Tune Up to speed up your system, a Game Mode for a seamless gaming experience, Parental Control, Firewall, Safe Browsing and many more. Make the most of your digital life with Bullguard!

VIVID LED DJ

New VIVID LED DJ with more customizability and options to control multiple RGB LED lighting zones independently. Users can control color, speed and brightness for different modes at ease. Moreover,have more possibilities for users to create unlimited creativity with 5050 LED FUN ZONE which comes with dual RGB LED products.

5050 LED Fun ZONE

The brand-new 5050 LED FUN ZONE comes with two 5050 LED headers to bring more colorful lighting options to DIY lovers. They can fully enjoy the DIY fun of modding their PCs with uniquely personal style and LED strip or any kind of LED product to adjust the color of LED and change system color scheme by VIVID LED DJ application. Vivid LED DJ fun, Vivid LED lighting style!

BIOSTAR Intellectual Property
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	UEFI BIOS Unified Extensible Firmware Interface (UEFI) is a brand new framework that provides a revolutionary interface. It is a modern clear and easy-to-use graphical user interface. The UEFI comes with a colorful easy-understand icons leads users into the setup layer directly.
	Header Zone Users can easily assemble their own computer, a simple-swap data discs and other accessories.
	BIO-Flasher BIO-Flasher is a convenient BIOS update tool. Just launch this tool and put the BIOS on USB pen driver before entering the OS. You can update your BIOS with only a few clicks without preparing an additional floppy disk or other complicated flash utility.
	BIOScreen Utility Personalize your desktop with customizable boot logo. BIOScreen is the new feature that lets you personalize and create your own style with unique, custom-made boot logo.
	Super Durable Box Header Super Durable Box Header provides solid, secure and durable connections between motherboard and peripheral cables.
	LN2 Switch With LN2 mode activated the BIOSTAR motherboard is optimization to remedy the cold boot bug during POST at an extremely low temperature and help the system boot successfully.
	HDMI® The terms HDMI® and HDMI® High-Definition Multimedia Interface, and the HDMI® Logo are trademarks or registered trademarks of HDMI® Licensing Administrator, Inc. in the United States and other countries.

*The specification and pictures are subject to change without notice and the package contents may differ by area or your motherboard version!

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