

INTEL Z690 GAMING PC

CYBERPOWER HYDRO-X INFINITY RTX / £4,699 incVAT

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CyperPower's Hydro-X Infinity RTX has a massive price tag of £4,699, which is about as expensive as PCs get before you head into dream PC territory, and that's no wonder when you consider the components. This machine pairs a beefy Intel Core i9-12900KS CPU with an overclocked Nvidia GeForce RTX 3090 Ti GPU.

The MSI-made graphics card runs its boost clock at 1920MHz rather than the conventional 1860MHz, and the GPU packs 10,752 stream processors and 24GB of GDDR6X memory. Meanwhile, Intel's top-of-the-line Alder Lake chip has eight Hyper-Threaded P-Cores that theoretically peak at 5.4GHz, or 5.5GHz with Thermal Velocity Boost.

The rest of the hardware is suitably muscular, with 32GB of dual-channel DDR5 memory running at 4800MHz and a 2TB Kingston Fury Renegade PCI-E 4 SSD with impressive read and write speeds of 7,106MB/sec and 6,801MB/sec. It's all powered by an MSI MPG A850GF, which is a fully modular 80 Plus Gold PSU with an 850W power rating – no issues there.

Meanwhile, the serious-looking MSIMAG Z690 Tomahawk motherboard sports huge black heatsinks and no RGB LEDs. It has three 16x PCI-E slots, one of which supports PCI-E 5, and three of its four M.2 slots use PCI-E 4. The PCB also serves up decent Realtek ALC4080 audio, while networking comes from 2.5Gbps Ethernet and dual-band 802.11ax Wi-Fi. The rear I/O panel is solid too, with a USB 3.2 Gen 2x2 Type-C port that rattles along at 20Gbps, and there are three USB 3.2 Gen 2 Type-A ports and four slower ports.

CyberPower's rig has an imposing specification, but this isn't the only recent system we've seen in



this price range. Scan's £4,899 3XS Torrent Ti used an RTX 3090 Ti and a marginally slower i9-12900K, but it had 64GB of 5200MHz DDR5 memory. It had a better motherboard too, but it only had an air cooler on the CPU, compared with the CyberPower's brilliant hard-tube custom water-cooling system.

That's a highly potent cooling system for just the CPU, but our tests have shown the Core i9-12900KS to be a toasty customer, and this custom loop will be able to cool it properly. The GPU isn't water-cooled, but on the plus side, that means you can easily upgrade the graphics card at a later date. CyberPower has also added RGB LED lighting strips, and the machine's eight case fans glow with coloured illumination – the interior looks fantastic.

All this gear is housed in a Corsair 7000D Airflow chassis. It measures 600mm tall and 550mm deep, so it's huge, and it has impeccable build quality and mature looks. Both the side panels are hinged, the roof and front panels pop free, and CyberPower has kept the interior tidy.

You get a decent warranty as well, with two years of the all-important parts and labour cover, plus a further three years labour only, including six months of collect and return service. The Scan is better here, though, offering three years of parts and labour cover, and a year of on-site repairs.

SPEC

CPU	3.4GHz Intel Core i9-12900KS
Motherboard	MSI MAG Z690 Tomahawk WiFi
Memory	32GB Corsair Vengeance 4800MHz DDR5
Graphics	MSI GeForce RTX 3090 Ti 24GB
Storage	2TB Kingston Fury Renegade M.2 SSD
Networking	2.5Gbps Ethernet, dual-band 802.11ax Wi-Fi, Bluetooth 5.2
Case	Corsair 7000D
Cooling	CPU: 2 x Corsair Hydro-X XR7 360mm radiators, Corsair Hydro XD5 RGB pump/reservoir, Corsair Hydro XC5 waterblock, 7 x 120mm fans; GPU: 3 x 90mm fans; rear: 1 x 120mm fan
Ports	Front: 4 x USB 3.1, 1 x USB 3.2 Gen 1 Type-C, 1 x audio; rear: 1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2, 2 x USB 3.2 Gen 1, 2 x USB 2, 1 x optical S/PDIF, 5 x audio
Operating system	Windows 11 Home 64-bit
Warranty	Two years parts and labour, plus three years labour only. Six months collect and return, then return to base

HERCULES

- + Awesome water-cooling system
- + Superb content creation performance
- + Fast in games

HYDRA

- CPU still can't hit peak speed
- Very high price
- Noticeable fan noise

PERFORMANCE

With its huge cooling system and top-end CPU, CyberPower's PC overhauled the Scan in application benchmarks. The i9-12900KS scored 82,455 in our image editing test, which stresses single-threaded performance, and 1,165,921 in our heavily multi-threaded Handbrake benchmark – a 12.5 per cent improvement on the Scan in the first test and a 5.5 per cent gain in the second.

That said, even this monster cooling system couldn't enable the CPU to get beyond 5.2GHz in our benchmarks, and it still peaked at 77°C during stress tests, which is right at this CPU's thermal limit. Also, while the CyberPower is never ruinously noisy, it's consistently audible when idle, and it's louder in gaming and multi-threaded tests. If you play loud music, use a headset or have your PC hidden away behind a desk, it's not an issue, but this system isn't suitable for near-silent working conditions. Scan's PC might not have the sheer CPU grunt or high-powered cooling system, but it's quieter.

Where this PC does excel, though, is in games. In our 4K Assassin's Creed Valhalla benchmark, the Hydro-X returned a 99th percentile of 52fps with an average of 68fps, and its 264fps average in Doom Eternal at 4K is superb – you can easily play undemanding games at 4K on monitors with high refresh rates.

There's room to enable ray tracing at 4K too, with the CyberPower averaging 62fps in Metro Exodus with High



BENCHMARK RESULTS

DOOM ETERNAL

2,560 x 1,440, Vulkan, Ultra Nightmare settings



3,840 x 2,160, Vulkan, Ultra Nightmare settings

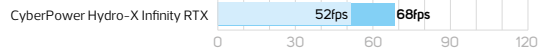


ASSASSIN'S CREED VALHALLA

2,560 x 1,440, Ultra High settings, High AA



3,840 x 2,160, Ultra High settings, High AA



CYBERPUNK 2077

2,560 x 1,440, Ultra preset, no ray tracing



3,840 x 2,160, Ultra preset, no ray tracing



METRO EXODUS

2,560 x 1,440, Ultra, HairWorks off, Advanced PhysX off, High RT



3,840 x 2,160, Ultra, HairWorks off, Advanced PhysX off, High RT



99th percentile Average

82,455

GIMP IMAGE EDITING

1,165,921

HANDBRAKE H.264 VIDEO ENCODING

376,472

HEAVY MULTI-TASKING

416,627

SYSTEM SCORE

ray tracing, and it will be even quicker with DLSS enabled. The only game where the CyberPower struggled at 4K was Cyberpunk 2077 but, to be fair, all systems struggle with this test, and you'll be able to get it running if you drop the settings a little. Comparatively, the CyberPower was marginally slower than the Scan in many tests, but only by a couple of frames per second here and there.

CONCLUSION

CyberPower's Hydro-X Infinity RTX offers sensational application and gaming speed, along with a great-looking water-cooling system. Given the cost of the latter, and the superior CPU, it's a better buy than the pricier Scan. The only disappointments are that even a custom water-cooling loop with two radiators can't free up the toasty Core i9-12900KS to hit its peak boost clock, and it's also a bit noisy. The price is also astronomical, of course, but buying the very fastest components always demands a premium, and CyberPower has housed them in a well-built, good-looking and very fast machine.

MIKE JENNINGS

VERDICT

Fantastic performance and an awesome water-cooling system, but you pay a premium for these top-line components.

PERFORMANCE

25/25

FEATURES

23/25

FEATURES

23/25

VALUE

19/25

OVERALL SCORE

90%