

Mid-range gaming PCs



Box Cube
Blizzard

£1,099 inc VAT

SUPPLIER www.box.co.uk



Cyberpower Infinity
Achilles XT

£999 inc VAT

SUPPLIER www.cyberpowersystem.co.uk

Following the recent launch of Nvidia's GeForce GTX 960, we invited Box and Cyberpower into Custom PC with their latest mid-range gaming systems. In the Labs this month, we found that AMD's recent aggressive price cuts have made life tough for the GeForce GTX 960 as an individual upgrade at retail cost, since AMD's Radeon R9 280 offers more in terms of bang per buck.

However, the GTX 960 is still a very power-efficient card with formidable 1080p gaming performance, so it still makes sense to use one in a pre-built, mid-range gaming rig, where the manufacturer gets the benefit of cost pricing.

Both firms have supplied traditional tower systems, with prices only £100 apart, but there's plenty to separate the Box Cube Blizzard and Cyberpower Infinity Achilles XT.

The components

The Box machine is pricier, and it's immediately more striking. Its Fractal Design Define R4 case is bright white, and

the interior is dominated by a monochromatic theme. The MSI motherboard is black with white heatsinks, the Kingston HyperX Fury RAM is topped with white metal, and the fan on the black NZXT CPU cooler stands out with its white fins.

That isn't the end of the two-tone colour scheme either. The MSI graphics card has a black and white heatsink, and the modular Super Flower PSU has black cables at the bottom, but white individually threaded cables are used to power the motherboard and the graphics card. Cable routing is top-notch elsewhere too. The Fractal's interior metal is white as well, and its white hard disk cage is loaded with a bevy of black metal storage trays.

Those hard disk bays are side-facing, and the metal trays are stronger than the plastic versions inside Cyberpower's case. They aren't tool-free, but they have rubber washers, and there's plenty of them – because the storage cage hasn't been removed, the Box machine has room for six extra drives too.

The whole lot is illuminated by a white light that runs along the bottom of the case. The Box machine looks fantastic, and Fractal's case excels in practical aspects too; it's very quiet, and the door, side panel and roof all house sound-absorbing material.

The Box system also has plenty of room for additional components elsewhere. Two free DIMM slots can be used to add more memory, and there's a full-sized M.2 socket in the middle of the motherboard. A single 1x PCI-E slot lies above the graphics card, with another below, and the board also offers two PCI slots and a second 16x PCI-E slot. If both 16x PCI-E slots are used, they'll run at 8x speed.

The Blizzard makes a great first impression, and Box has deployed a beefed-up graphics card too. The MSI-made GeForce GTX 960 has seen its stock speed of 1,127MHz raised to 1,178MHz and its boost speed jump from 1,228MHz to 1,241MHz. The GPU is underpinned by Intel's Core i5-4690K. It's one of the firm's latest unlocked Devil's Canyon chips, and has been overclocked from 3.5GHz to 4.6GHz, thanks to a multiplier of 100x and a vcore of 1.27V. It's paired with 8GB of 1,866MHz memory.

The storage situation isn't as impressive though. Windows 8.1 is loaded onto an unremarkable 120GB Kingston HyperX 3K SSD, and the Seagate hybrid hard disk offers the same 2TB capacity as the drive inside the Cyberpower, albeit with solid state hybrid caching.

Cyberpower's PC isn't as striking, but there's no denying the power available. Its Core i7-4790K CPU is overclocked from 4GHz to 4.5GHz, which means it's 100MHz slower than the Box machine, but the Core i7 chip fights back with its support for Hyper-Threading and a larger L3 cache.

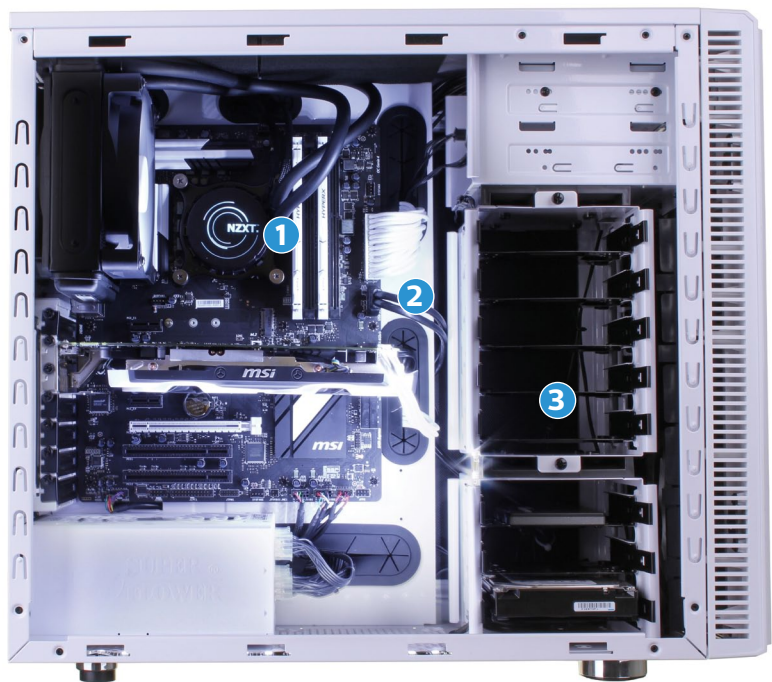
The 8GB of RAM is clocked to 2,133MHz – faster than the Box's memory, and there's a 128GB Samsung XP941M.2 SSD. Elsewhere, there's a 2TB Seagate Barracuda hard disk, and Cyberpower's Gigabyte Z97X-SLI motherboard offers a similar feature set to the MSI hardware inside the Box system, as it's also able to handle two-way graphics setups.

The Infinity Achilles XT doesn't have the striking looks of the Cube Blizzard, but there's a definite theme at work and its brooding, matt material looks undeniably classy. The interior is black, but it's lit from below by a red strip light. The Gigabyte motherboard sports black and red heatsinks, and the memory is topped with red heatspreaders too.

Cyberpower's machine is built impeccably as well. The Corsair PSU isn't modular, but its cables are immaculately tied together and hidden behind the motherboard tray, and cables only pop up discreetly – the GPU power cable is tied in a straight line, and all the other wires emerge from rubber-ringed cable-routing holes. The connectors used for the headers at the bottom of the board are also routed beneath the PCB to keep them out of the way.

The careful cabling makes this an easy system to work inside, but it doesn't have as much room to grow as the Box PC. Cyberpower has removed the upper hard disk cage to improve airflow to the GPU, but that leaves only three free hard disk bays, and they use tool-free plastic caddies that aren't as sturdy as the metal units in the Cube Blizzard – in all likelihood, though, most people are very unlikely to need more than three hard drive bays. Meanwhile, the motherboard's top 1x PCI-E slot is already occupied by a wireless card, and the M.2 slot is already used by the SSD.

Box



1

NZXT's excellent Kraken X41 helps to keep down the CPU temperature

2

The monochromatic colour scheme is illuminated with white light

3

There's plenty of room for extra hard drives in these solid trays

BOX / SPECIFICATIONS

CPU 3.5GHz Intel Core i5-4690K
overclocked to 4.6GHz

Motherboard MSI Z97S Krait Edition

Memory 8GB 1,866MHz Kingston HyperX
Fury DDR3

Graphics MSI GeForce GTX 960 2GB

Sound On-board

Storage 120GB Kingston HyperX 3K SSD,
2TB Seagate hybrid hard disk, DVD writer

Case Fractal Design Define R4 White Edition

Cooling CPU: NZXT Kraken X41, 2 x 140mm fans; GPU: 2 x 100mm fans; Front: 1 x 140mm fan

PSU Super Flower Leadex 650W Gold

Ports Front: 2 x USB 3, 2 x USB 2, 2 x audio; rear: 4 x USB 3, 2 x USB 2, Gigabit Ethernet, 1 x PS/2, 6 x audio

Operating system Windows 8.1 64-bit

Warranty Two year parts and labour, one year collect and return and one year return to base



Beneath the graphics card lies a 16x PCI-E slot that runs at 8x speed if two cards are used, a vacant 1x PCI-E slot and two PCI slots, while two memory slots are free. The mid-range specification means that overly complex cooling isn't required. The overclocked CPU is chilled by a Corsair H55 with a single 120mm fan, and there are two 120mm spinners in the front, but that's it.

Performance

These machines may both include GTX 960 cards, but the overclocked version inside the Box system gave it the slight edge over the Cyberpower. The Box machine's 38fps minimum in Battlefield 4 at 1080p was 3fps quicker than its rival, although neither machine could achieve our bare minimum playable target of 25fps at 2,560 x 1,440.

Meanwhile, in BioShock Infinite, both titles went beyond 60fps, which is our target for silky-smooth gameplay, but the overclocked Box card's 66fps score was 3fps ahead of



Cyberpower



1 A single-fan Corsair H55 sits on top of the overclocked Core i7 CPU

2 The middle drive cage has been removed to allow more airflow over the GPU

3 Cables are carefully tidied away in rubber-ringed routing holes

CYBERPOWER / SPECIFICATIONS

CPU 4GHz Intel Core i7-4790K overclocked to 4.5GHz

Motherboard Gigabyte Z97X-SLI

Memory 8GB 2,133MHz Kingston HyperX Savage DDR3

Graphics MSI GeForce GTX 960 2GB

Sound On-board

Storage 128GB Samsung XP941M.2 SSD, 2TB Seagate hard disk, DVD writer

Case Corsair Obsidian 450D

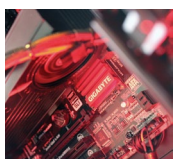
Cooling CPU: Corsair H55, 1x 120mm fan; GPU: 1x 70mm fan; front: 2x 140mm

PSU Corsair VS450

Ports Front: 2x USB 3, 2x audio; rear: 4x USB 3, 2x USB 2, Gigabit Ethernet, 1x PS/2, 6x audio

Operating system Windows 8.1 64-bit

Warranty Three years labour, two years parts, return to base. One month collect and return



the Infinity system. Both machines remained playable when we loaded the game at 2,560 x 1,440 too, although the Box's 40fps minimum was slightly faster.

Crysis 3 is our toughest game, so it's no surprise that neither machine went beyond the ideal 30fps minimum – instead, they only went beyond the 25fps barrier that we take as the bare minimum for gameplay, with the Box machine 1fps ahead. Neither PC could manage to play this game at 2,560 x 1,440, with minimums in the high teens.

Cyberpower's Core i7 processor fought back in application benchmarks though. Its Hyper-Threading support saw it romp to 265,656 in our video encoding test – far better than the 230,933 recorded by the Cube Blizzard. This pattern was repeated in our heavy multi-tasking benchmark too, where it scored 160,947 – more than 30,000 points ahead

of its rival. Not surprisingly, the Cyberpower's overall score of 125,126 trumped the 107,879 scored by the Blizzard. Bear in mind, though, that these results are only applicable to widely multi-threaded workloads – you won't see these performance differences in everyday apps or games.

The Cyberpower's M.2 SSD proved faster in benchmarks too. Its sequential read speed of 750MB/sec shattered the traditional SATA interface, and its write pace of 426MB/sec is decent too. Both of those results beat the SATA Kingston drive in the Box, which managed 494MB/sec and just 231MB/sec in the same benchmarks.

We weren't able to extract much more performance from either system with extra overlocks. The Box machine's Core i5 processor is already tweaked to 4.6GHz, but we couldn't get the CPU to hit 4.8GHz even with a hefty 1.35V blasted through the core – instead, we settled for a 4.7GHz revision with a vcore of 1.33V. The Cyberpower machine wasn't much better – we hit 4.8GHz with a 1.33V core, but that's only 300MHz faster than its already decent overclock.

Those tweaks delivered modest benchmark bumps. The Box's overall application score jumped to 111,435, and the Cyberpower's revised core saw its benchmark result improve to 131,892. In short, the manufacturers' CPU overlocks for these machines are already good – there's little need to push them further.

We tweaked the graphics cards too. The Box's GPU arrived overclocked, so we could only add 200MHz and 75MHz to its GPU and memory clocks, which meant revised speeds of 1,378MHz and 1,828MHz. The Cyberpower's clock and memory rose by 233MHz and 80MHz, which meant new speeds of 1,360MHz and 1,833MHz.

They're both decent improvements, but they only made small differences to our game tests. Both machines still handled our three test games at 1080p, but they weren't quite able to handle 2,560 x 1,440. In Battlefield 4 at the this resolution, both machines went past our 25fps minimum target, but only by 1fps, and in Crysis 3 they still couldn't get near that modest figure.

These mid-range machines didn't cause us any thermal headaches either. The Cyberpower's CPU delta T of 58°C was 4°C higher than in the Core i5-powered Box system (thanks to the Box's use of our Elite-listed NZXT X41 CPU cooler). The Cyberpower's GPU also proved toastier, with its delta T of 49°C being 5°C warmer than in the Cube Blizzard. Neither system is overly warm in either respect though.

Thanks to the GeForce GTX 960's efficiency, these mid-range rigs delivered modest power draws too. The Cyberpower required more grunt than the Box machine, with a peak stock draw of 271W compared to 249W from the Blizzard. Power wasn't much of an issue, and neither was noise – both machines churned out low rumbles, neither of which will be irritating in use.

Warranty

Box's machine offers two years return-to-base parts and labour coverage, with the first year also covered by a collect-and-return deal. Cyberpower's machine has its labour covered for the whole three-year period, and two years of parts coverage is also included, although there's only one month of collect-and-return service included. Both are good deals, but have respective pros and cons.

Verdict

Both these systems offer ample power for games at 1080p, and some power at 2,560 x 1,440 too. The Box machine doesn't have as much processing power as the Core i7-powered Cyberpower, and the Infinity Achilles XT also wins in terms of storage with its M.2 Samsung SSD.

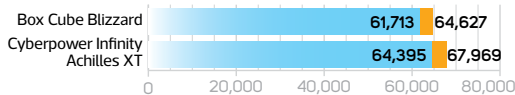
Instead of offering pure speed, the Box PC concentrates on design. Its two-tone theme looks fantastic, and it has

plenty of upgrade room too. If you want a good-looking gaming system with plenty of room to grow, the Box Cube Blizzard is a fantastic rig, but the cheaper Cyberpower is quicker in multi-threaded workloads, and isn't far behind in games benchmarks. Both are well-built, well-balanced mid-range gaming rigs that will serve you well – you just need to choose the one that best suits your priorities.

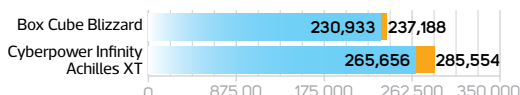
MIKE JENNINGS

CUSTOM PC REALBENCH 2014

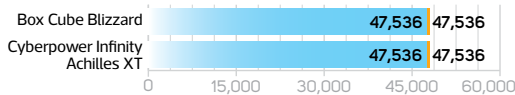
GIMP IMAGE EDITING



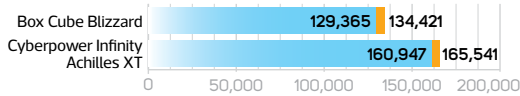
HANDBRAKE H.264 VIDEO ENCODING



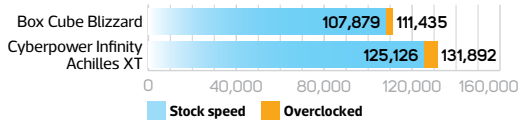
LUXMARK OPENCL



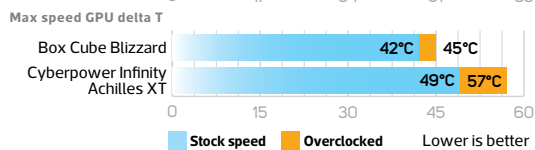
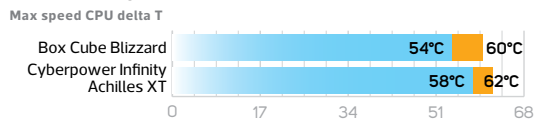
HEAVY MULTI-TASKING



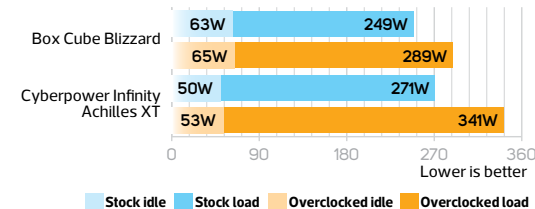
SYSTEM SCORE



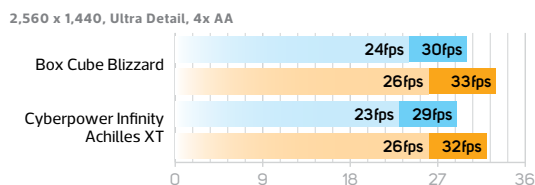
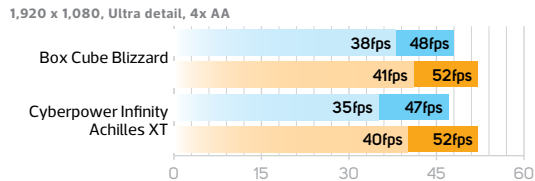
TEMPERATURE



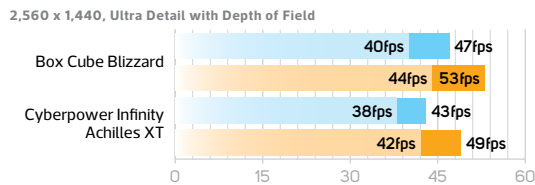
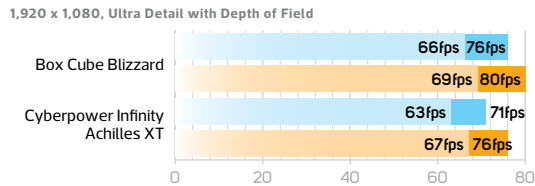
POWER CONSUMPTION



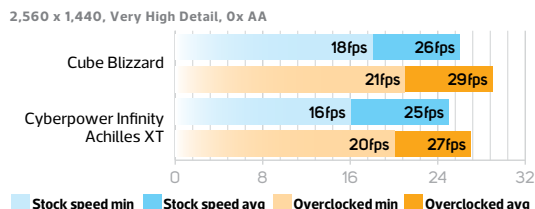
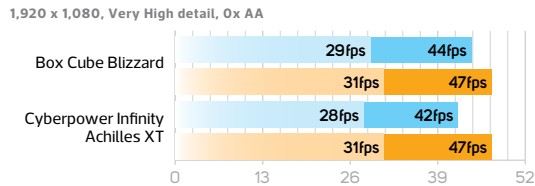
BATTLEFIELD 4



BIOSHOCK: INFINITE



CRYSIS 3



BOX

SPEED	21/25	HARDWARE	22/25
DESIGN	23/25	VALUE	21/25

87%

CYBERPOWER

SPEED	22/25	HARDWARE	21/25
DESIGN	21/25	VALUE	23/25

87%