Welcome to Issue 193

**Highlights**

08 **Roadmaps and dead ends**
Intel’s leaked 2020 CPU plans looks good for AMD, says Richard Swinburne.

10 **Do games have to be fun?**
After chairing a panel on gaming as a force for good, Tracy King challenges the notion that games have to be fun.

12 **GeForce RTX 2080 Super**
Just as we went to press, we managed to quickly get our hands on one of Nvidia’s new GeForce RTX 2080 Super GPUs. We’ve run a few tests on it to see what we can expect.

16 **Nvidia RTX Super**
We take a look at Nvidia’s new GeForce RTX 2060 Super and 2070 Super, while also giving our final verdict on AMD’s new Navi GPUs.

22 **AMD Ryzen 5 3600X**
Six cores, 12 threads and a very tempting price. We check out one of the 3rd-gen Ryzen CPUs at the cheaper end of the scale.

32 **Oculus Quest**
Freedom! We try out the latest Oculus headset, which does away with the need to set up sensors and tether yourself to a PC.

42 **X570 motherboards**
If you want to run the latest PCI-E 4 SSDs at top speed, then you’ll need a new X570 motherboard to go with your 3rd-gen Ryzen CPUs. We put six of them through their paces.

53 **Mechanical gaming keyboards**
We put several pairs of active speakers to the test.

76 **Build an 8-core gaming PC for £1,495**
Antony Leather takes you through the process of building a PC full of the latest tech for under £1,500. The final machine includes an 8-core AMD Ryzen 7 3700X, an Nvidia GeForce RTX 2060 Super GPU and a high-speed 1TB PCI-E 4 SSD.

86 **AMD RDNA deep dive**
We delve deep into AMD’s first new GPU architecture since 2012, and find out what’s at the heart of the company’s new Navi GPUs.

94 **Foot pedals for games**
Why are we leaving two limbs idle and cramming all our gaming functions into multiple mouse buttons? Edward Chester investigates how to free up your fingers by adding a gaming foot pedal to your setup.

98 **Hobby tech**
Gareth Halfacree gives his verdict on the Raspberry Pi 4, and tries out the wearable M5Stick-C for size.

106 **How to guides**
Antony Leather shows you how to water-cool a new GeForce RTX Super graphics card.
Cover guide

Regulars

3 From the editor
8 Richard Swinburne
10 Tracy King
12 Incoming
14 Letters
36 Custom kit
60 How we test
62 Elite products
68 Inverse look
74 Reality check
98 Hobby tech
103 For the win
104 Customised PC
106 How to guides
111 Readers’ drives
114 James Gorbold

Reviews

GRAPHICS CARDS
16 Zotac GeForce RTX 2060 Super Mini
16 Palit GeForce RTX 2070 Super Game Rock

PROCESSOR
22 AMD Ryzen 5 3600X

CASE
24 Corsair iCUE 220T RGB Airflow

SOLID STATE DRIVES
26 Corsair MP600
28 Seagate Firecuda 510

MONITOR
29 MSI Optix MAG321CURV

VR HEADSET
32 Oculus Quest

PC SYSTEMS
34 Scan 3XS Vengeance RTX Ti
36 CyberPower Ultra 5 Super

Custom kit
38 iClever Solar Charger
38 Striker Magnetic Light Mine
38 Stageek Mouse Cord Controller
39 Joby Griptight ONE
39 GIM RGB Gaming Mousepad

X570 motherboard Labs
43 ASRock X570 Taichi
44 Asus ROG Crosshair VIII Formula
45 Asus ROG Strix X570–E Gaming
46 Gigabyte X570 Aorus Master
48 MSI Prestige X570 Creation
50 MSI X570–A Pro

Mechanical gaming keyboard Labs
54 Asus ROG Strix Flare
54 BenQ Zowie Celeritas II
55 Cooler Master MK850
56 Corsair K70 RGB Mk.2 Low Profile
56 Ducky Shine 7
57 Logitech G513 Carbon
58 MSI Vigor GK60
58 Razer Huntsman Elite
59 Roccat Vulcan 120 AIMO

Games
69 Void Bastards
70 Total War: Three Kingdoms
72 Amid Evil
73 Outer Wilds
74 Star Wars: Vader Immortal: Episode One

Hobby tech
98 Raspberry Pi 4
100 M5Stick-C
102 Zach-Like