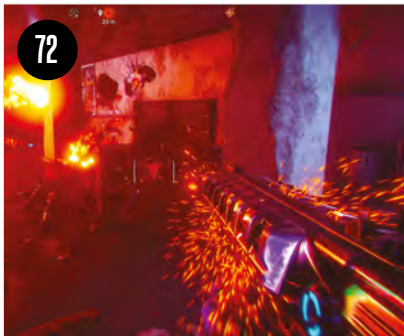


Contents

Welcome to Issue 192

Highlights

- 08** DIMM sum
Richard Swinburne explores why memory prices fluctuate, and why now is a great time to buy.
- 10** Researching Gaming Disorder
Tracy King looks at some of the recent studies into video game addiction.
- 12** Nvidia Super GPUs
Just as we went to press, Nvidia revealed it was boosting its RTX line-up with a new range of Super-branded GPUs. We quickly run some last-minute tests on a GeForce RTX 2070 Super to see what to expect.
- 14** AMD 3rd-gen Ryzen
We take a look at AMD's new Ryzen 7 3700X and Ryzen 3900X, while also exploring the best memory to use for them and how to overclock them.
- 20** PCI-E 4 SSD
We put Gigabyte's Aorus NVMe Gen4 SSD through its paces in a new X570 test rig to see what sort of performance we can expect from PCI-E 4 SSDs.



24 AMD Navi

AMD hasn't just unveiled new CPUs this month, it's also lifted the lid on its brand-new Navi GPUs, based on the RDNA architecture. We take a look at the Radeon RX 5700, as well as the XT model.

46 CPU air cooler Labs

You can get a decent on upgrade from a stock cooler without venturing into liquid cooling. Antony Leather tries out six of the latest sub-£50 heatsink and fan combos.

56 Stereo speakers Labs

We put several pairs of active speakers to the test.

72 Rage 2

Rick Lane gives his verdict on id Software's latest shooter.

78 Zen 2 deep dive

Edward Chester takes a look under the hood of the Zen 2 architecture powering AMD's 3rd-gen Ryzen CPUs, to see what makes it tick.

86 Build your own NAS

Got some spare hardware, or fancy having a go at building your own NAS from scratch? PJ Evans shows you how to build your own NAS box.

94 Hobby tech

Gareth Halfacree has a go on the tiny Zepsch PocketStar handheld gaming console, and also tries out the Pimoroni Keybow.

102 How to guides

Antony Leather takes you through the process of replacing the thermal paste in graphics cards and laptops, and also shows you how to fit custom case feet.

107 PowerVR

From the VideoLogic Apocalypse 3DX to Kyro, we chat to the folks at Imagination Technology about the time when PowerVR was a top technology for PC gaming.

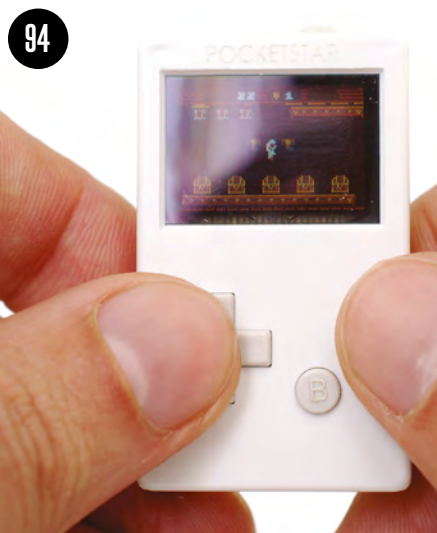
Cover guide



106 46 16 107



24



94



110



46

Regulars

- 3 From the editor
- 8 Richard Swinburne
- 10 Tracy King
- 12 Incoming
- 42 Custom kit
- 62 How we test
- 64 Elite products
- 70 Inverse look
- 76 Reality check
- 94 Hobby tech
- 99 For the win
- 100 Customised PC
- 102 How to guides
- 107 Retro tech
- 110 Readers' drives
- 114 James Gorbald

Reviewed this month



Reviews

- PROCESSORS**
- 14 AMD Ryzen 7 3700X
- 14 AMD Ryzen 9 3900X
- MOTHERBOARD**
- 22 Gigabyte X570 Aorus Master
- GRAPHICS CARDS**
- 24 AMD Radeon RX 5700
- 24 AMD Radeon RX 5700 XT
- MONITORS**
- 30 Asus ROG Strix XG49VQ
- Case**
- 32 Kolink Observatory
- GAMING LAPTOP**
- 36 Alienware Area 51m
- PC SYSTEMS**
- 36 PC Specialist Vulcan S2
- 38 Novatech Reign Sentry MK1

Custom kit

- 42 Ember Smart Mug
- 42 Orb Gaming 8-Bit Retro Console
- 42 Milo the Corgi Humidifier
- 43 Roccat Tusko
- 43 Master and Dynamic MW07 True Wireless Earphones

CPU air cooler Labs

- 47 Alphacool Eisbaer 360
- 48 Asus Ryujin 360
- 49 be quiet! Silent Loop 360
- 50 Corsair H150i RGB Pro
- 52 OcUK 360mm Extreme
- 54 Rajjintek Leto Pro RGB

Stereo speakers Labs

- 57 Edifier R1280DB
- 58 AudioEngine A2+
- 58 Bose Companion 2 Series III
- 59 Creative GigaWorks T20 Series II
- 60 Logitech MX Sound
- 60 Logitech Z200
- 61 Razer Nommo Chroma

Games

- 71 Plague Tale: Innocence
- 72 Rage 2
- 74 Observation
- 75 Mordhau

Hobby tech

- 94 Zepsch PocketStar
- 96 Pimoroni Keybow
- 98 The CRPG Book