Enter DarkChip 4

The first DLP projector with TI's eagerly-awaited DarkChip 4 technology is finally here. And in **John Archer**'s opinion, it's been worth the wait

Even if you've only got a rudimentary understanding of the world of home cinema projection, you'll probably realise that DarkChip4 – as sported for the first time in the UK by the InFocus IN83 – is a Big Deal.

As the very latest chipset developed by Texas Instruments for use in DLP PJs, it carries some resonance; some might argue that it even represents a key stage in the evolution of home cinema picture quality.

DarkChip4 chipsets employ a darker wafer in their design, and improved mirror lithography, to deliver contrast ratios as much as 30 per cent better than their predecessors.

Not that we've been crying out for greater contrast. Earlier iterations have certainly satisfied even the most demanding of cinephiles.

Black ops

While the insides may be different, there's little which surprises about the exterior of the InFocus IN83. Essentially it looks like all the other models in the range: a roughly circular hunk of glossy black kit sat on an unusual foot mount, upon which its entire body can rotate and tilt.

Look familiar? The IN83 is a dead ringer for its IN82 predecessor

In theory this pedestal should make it exceptionally easy to get the IN83's pictures correctly positioned on your projector screen. However, although I once appreciated the sheer novelty value of the pivoting foot design on previous InFocus models, the more

The InFocus IN83 is the UK's first DarkChip 4 projector

I see of it, the more I'm irked by how difficult it is to make really small precision movements, especially when tilting the image in the vertical plane. Just as well there's digital vertical image-shifting on hand as a back up, together with keystone correction.

Another slight set-up disappointment finds the IN83 only offering a 1.2x optical zoom, meaning you might find it quite challenging to accommodate in your room. Talk to an installer about this, or check out the InFocus image size calculator at www.infocus.com/calculator. In short, this is a projector designed for larger rooms, something reflected in its quite astounding brightness.

Pluggery

Connectivity is good. There are two digital video inputs (one v1.3 HDMI, one M1-DA multi-purpose socket with v1.3 HDMI adaptor); a component video input; two 12V trigger outputs; an RS232 port; and a Niles/Xantech-compatible 3.5mm minijack for system integration.

The IN83's key claimed specifications include a native contrast ratio of 5,000:1 and a typical brightness of 1400 ANSI Lumens (peaking at 1600 ANSI Lumens). What's more, the contrast level can be upped to a mighty 15,000:1 by manipulating its manual iris feature. That said, in virtually all circumstances the iris should be closed down rather than opened up.

Comparatively, the DarkChip3-based IN82 claims a native contrast ratio of 4,000:1 rising to 12,000:1 via the iris, and a typical light output of 1200 ANSI Lumens.

Other high-end feature attractions include the facility for the projector to be professionally calibrated by an Imaging Science Foundation professional; colours preset to the D65K level best-suited to video playback; the option to add a 2.35:1 Prismatic anamorphic lens (with suitable image-processing built into the projector); and the widely acclaimed DNX 10bit image processing system from Pixelworks.

There's little doubt that the DC4 silicon gives the IN83 a superb black level. It really is a notch beyond anything witnessed on the IN82. With the manual iris set to between its 55 and 64 levels, dark parts of a picture, such as the blacks of the police uniform the T1000 replicates in the recent Blu-ray release of *Terminator 2: Judgement Day*, simply look blacker than they do on DC3 rivals. Yet, despite the extra blackness, there seems to be more subtle shadow detail in dark corners, which helps images maintain a greater sense of realism and scale. This is perhaps thanks to the way the DarkChip4 system allows greater black level depth to co-exist with enhanced brightness levels.

To my eyes, though, the InFocus IN83 sings not through its black levels, but its colour fidelity, aided by Texas Instruments' BrilliantColor system for improved colour vibrancy and saturation. When up and running, the tricky jungle hues of *Apocalypto* on Blu-ray are rendered sublimely, combining an expansive-but-subtle palette with the sort of immaculate blends I'm coming to expect from the most high-quality Full HD video displays.

I've seen the vast majority of sub-£4k projectors on the market right now, and I don't think >

AV/CV

Product:
A Full HD DLP projector, with DarkChip4 chipset

Position:
The IN83 sits at the top of InFocus's single-chip DLP range – though the brand does sell a £10k three-chipper, the ScreenPlay 777

Peers:
Planar PD8150
JVC DLA-HD1

Curious connection: The HDMI input is joined by a multi-purpose M1-DA socket, which can also take HDMI signals via an adaptor

any of them can hold a candle in colour terms to the IN83. In fact, so accurate and cinematic is the IN83's combination of greyscale and colours that it's difficult to believe you can get hold of one for just £3,500.

Hi-def image clarity is outstanding. Every pit, pore, jungle leaf and strand of panther fur shines through on the exceptionally-sharp *Apocalypto* platter.

Motion resolution is also excellent, pictures look sharp and fluid, and, **as a final feather in the IN83's cap, it does a cracking job of upscaling standard-definition sources**, with great sharpness, and natural colour retention. The Speeder chase from the *Star Wars: Episode 1* DVD, for instance, is rich with detail and colour.

But just as with great power comes great responsibility, with great contrast comes great... rainbowing.

Eye of the beholder

While the issue of colour shift on single-chip DLP is very much a matter of taste and susceptibility (some people seemingly don't spot it all), it has become less of an issue of late. I've auditioned excellent DLP models using DC2 and DC3 chipsets where it merits only a passing comment. But with the arrival of this DC4 model, it once again dominated conversations in our Tech Labs.

First, even though the InFocus IN83 employs a seven-segment colour wheel, it would appear that the ultra-high contrast delivered by the IN83 rather exacerbates the rainbow effect, where stripes of colour flit around over extremely bright (usually black and white) parts of the picture.

The first reel of *Batman Begins* (Blu-ray) became a kaleidoscopic torture test for the projector. From the flipbook monochrome DC opener to Bruce Wayne's tumble into the family well, and the subsequent 'rock' sequence, chroma fringing is rampant. This left some of the team wondering just how desirable super-high levels of contrast on a single-chip DLP projector actually are.

Our advice is it to close down the iris to minimise the effect. More importantly, make sure you get a full-on demonstration of the InFocus to see if DLP rainbow is an issue for your peepers.

Also, in keeping with other projectors in the IN series, the IN83 runs rather noisily (at around 30dB), making it something you may need to contain in a soundproof housing if it has to go near your seating position.

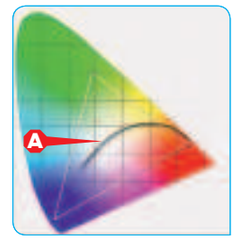
See for yourself

There's no doubt that the InFocus IN83 is an outstanding performer. The model offers breathtaking detail and creates images with tangible, almost three-dimensional depth. As a high-performance PJ, it absolutely demands an audition. That said, we suspect we'll be returning to the issue of brightness and single-chip rainbows again, as more models come to market sporting DC4 technology ●

➜ Specifications

HD Ready: *YES* with 1080p/24 support
Progressive scan: *YES* NTSC and PAL
Composite video: *YES* one input
S-Video: *YES* one input
Component video: *YES* one input
HDMI/DVI: *YES* one HDMI v1.3, one M1-DA with HDMI adaptor
PC input: *YES* via M1-DA
Resolution: 1920 x 1080
Brightness (claimed): 1600 ANSI Lumens
Contrast ratio (claimed): 15,000:1 (with help of manual iris)
Dimensions: 476(w) x 148(h) x 432(d)mm
Weight: 6.4kg
Also featuring: ISF settable; 30-33db noise output; 1.2x zoom; +/-13° vertical keystone correction; adjustable iris; throw ratio (16:9) 1.85-2.22:1; 2,500 hours lamp life

➜ Tech Labs



Looking almost indistinguishable from its predecessor the IN82, the IN83 claims improved contrast ratio and colour performance. The colour temperature is acceptable out of the box at 6,786K (Point A), but manual tweaking produced a near-perfect 6,479K with 100/100/100 R/G/B readings. ISF presets help you to lock in a perfect picture

Before calibration
Colour temperature: 6,786K
RGB: 93/102/100 Luminance: 30,198fL
Contrast ratio: 915:1

After calibration
Colour temperature: 6,479K (user)
RGB: 100/100/100 Luminance: 28,081fL
Contrast ratio: 669:1

HCC VERDICT

InFocus IN83
£3,500 Approx
Price check: www.techradar.com

Highs: Groundbreaking black levels and colour fidelity for this price bracket
Lows: Runs quite noisily; a bit fiddly to set up; limited zoom; rainbow evident on high-contrast subjects

Performance: 1 2 3 **4** 5
Design: 1 2 **3** 4 5
Features: 1 2 3 **4** 5
Overall: 1 2 3 **4** 5