

The **RED** Revolution

By Stephen Webb

HiDef was going to revolutionise the film industry we were told. Filmmaking would become cheaper, faster, easier. Yet HiDef's impact on the world of film has been a damp squib, because it is neither particularly cheap, nor easy to use effectively, but mainly because compared to film, it just doesn't look very good.

So when an upstart new digital camera company appears, brainchild of a man who makes very expensive sunglasses, promising revolution not evolution, you could be forgiven for dismissing it all as mere marketing hype.

In fact, RED Digital Cinema Camera Company's sudden appearance and announcement of their new 4K RED ONE™ camera has been met with considerable criticism and at times, even outright hostility. The camera was announced via a couple of indie-focused Internet message boards, which probably didn't help. Then RED went out of their way to canvas the opinions of a broad spectrum of filmmakers, not just the self-styled elite. And claims of similar revolutionary products in the past have turned into vapourware.

The claims RED has made could seem to be completely outlandish—a camera that makes the Panavision Genesis seem antiquated and low spec but at a mere \$17,500 for the camera body, the RED ONE™ is only a mere fraction of the cost of some HiDef cameras. This time though, the dream has become a reality. Right now, RED are delivering on what many others have promised and failed—a digital camera that actually competes with 35mm film.

I first became aware of the RED ONE™ project back in January 2006. A few months earlier, my company had become one of the first in the world to shoot using the D20, Arri's first foray into Digital Cinema cameras and a vast improvement over the ENG-style HiDef cameras the later *Star Wars* films used.

The D20 is an amazing camera. We've used it several times since, but I've never considered it a rival to film—a one-hundred-year-old technology that still has a quality and look that hasn't been matched by any one of the most cutting edge digital cameras available. I started researching on the Internet to see if there was word of any horizon technologies that could bridge the gap, but the big manufacturers seemed to have no will to find one. Digital technology in film was moving forward incrementally, much slower than in other industries, with no desire to bring the costs down to a level where those not blessed with huge budgets could benefit.

Then a post on a couple of message boards caught my attention, from Jim Jannard, someone I'd never heard of. A Wikipedia search later, I discovered he was the billionaire founder and owner of Oakley, manufacturer of eyewear

and sports accessories. He had set up a company called RED and was claiming to have embarked on a project to bring to life a camera that would answer all the problems I (and obviously others) had with HiDef cameras.

His camera would shoot at a resolution of 4K (4096x2304 pixels) which is 4½ times greater than 1080p HD. It would have true variable frame rates of between one and sixty frames per second and it would use standard PL-mount lenses—the same as Arriflex cameras use. Crucially, it would have a look much closer to the aesthetic of film. It would do away with tape-based mechanisms, recording direct to hard drives, allowing you easy access to your footage. Best of all, he said that it would be sold at a price that would put it within range of the budget of many indie films. He was building the camera I had been dreaming about. Needless to say, I was more than slightly sceptical.

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Over the next few months though, my doubts started to evaporate. Partly it was Jim's willingness to engage with filmmakers on the Internet, canvassing opinions. He was explaining what he wanted to do and genuinely listening



to the feedback.

Regardless of your reputation, background or experience, if you had a good idea then Jim would listen to it.

What finally convinced me that the camera was the real deal though, was the announcement that Graeme Nattress was involved. I had known Graeme online for a few years, via Final Cut Pro discussion groups. He's one of those people who seem to have an answer to any

technical problem and a vast wealth of knowledge and expertise. Knowing he was involved convinced me that RED could deliver on their claims.

Over time it has become clear there is a



is Coming



Speedboats but, in the time it took RED's team to travel to New Zealand, he had changed his mind and had written and prepped a short instead.

Crossing The Line is the story of two WWII combatants, a soldier in the trenches preparing to go over the top and a biplane pilot in a dogfight. It was shot in just two days. The field test was a much bigger project than the RED team had been

anticipating. The prototype cameras lacked many features promised in the production cameras, but the outcome perfectly showcased why the RED ONE™ camera is such a breakthrough.

Crossing The Line was shot in 4K using the Redcode format, a compression technique that makes the file sizes easily manageable without sacrificing quality. The footage was recorded using the RedDrive, a small harddisk magazine that attaches direct to the camera and can record up to 3 hours of 4K Redcode. A similar sized RedRam magazine records over an hour to a flash-based drive. This footage was then transferred direct to a Final Cut Pro editing suite—the drives have standard firewire ports—and cut like DV is.

You need a fairly expensive set-up to edit “normal” HiDef footage, so the fact that 4K Redcode can be edited on a standard system shows what a leap forward this technology is. Actually, it is so advanced you could edit on set using a MacBook Pro laptop if you had the need. The quality of the footage spoke for itself and the response to it was incredible. At NAB, the queue to get in just to see the film was two hours long.

Peter Jackson is not the only high-profile filmmaker to get his hands on early RED cameras either. Steven Soderbergh (*Traffic*, *Solaris*, *Ocean's 11*, *12*, *13*) is currently shooting two films exclusively on RED ONE™ pre-release models. *The Argentine* and *Guerrilla* star Benicio del Toro in a two-part biopic of the also-revolutionary Che Guevara.

Soderbergh reckons that “RED will change everything” and has chosen to record his footage direct to Compact Flash cards (yes, the same sort you get in digital stills cameras)

—an 8GB card should hold about 4½ minutes of 4K footage for one tenth of the price of an 8GB P2 card.

The first feature to use the camera, for effects shots, is *Wanted*; a film by Timur Bekmambetov (*Night Watch*, *Day Watch*) starring James McAvoy, Angelina Jolie and Morgan Freeman. Jon Farhat, VFX supervisor on the film, has said that for the first time it was impossible to separate digital images from traditional film. Rodney Charters, cinematographer of *24*, tested the camera for a couple of weeks and felt that “revolutionary” wasn't a strong enough statement.

It would be a mistake to think that this camera is largely targeted at big-budget productions though. One of its great strengths is its modular design. Essentially the camera can be accessorised depending on your budget and needs, allowing for a range of uses from big- to low-budget filmmaking and ENG/EFM uses, even (I suspect) live TV if you really wanted to.

A perfect example of how RED have been thinking of everyone are the options for lenses; the camera has a standard PL mount so will take 35mm film-style cinema lenses (Zeiss, Cooke, Angenieux) which can cost tens of thousands of pounds. RED are also marketing a set of their own-branded PL mount lenses at a much lower cost. £10,000 will buy five RED prime lenses, £4,000 a zoom. For the more budget constrained, they've created adaptor mounts allowing you to use Canon or Nikon still camera lenses costing hundreds rather than thousands. By my estimation, a basic camera set-up that will allow you to get out and start shooting can be bought for less than £15,000.

It's testament to how disruptive the technology is that RED has received more than their fair share of opposition from some quarters, including a break-in and theft of some of their early prototype technology and the (unconnected) banning of disruptive employees of another company from RED's booth at NAB. Some opponents of the camera have been downright vitriolic on Internet cinematography boards. Initial claims, that the RED ONE™ would never materialise, have given way to more personal attacks on Jim Jannard, his marketing strategy and on the sometimes over-enthusiastic following that the camera has garnered. What there has not been, certainly since the Peter Jackson short, is any kind of constructive, reasoned or informed criticism of the camera or the images themselves. It is worth noting that the true professionals have kept their eyes open and their mouths shut.

I believe the reason for such extreme reaction has been that RED is so revolutionary that it has actually become threatening for some people. For those with interests vested in current HiDef technologies, the RED ONE™

very experienced team behind the project; notable names include Ted Schilowitz who previously headed up the Mac department for AJA, makers of Kona capture cards; Stuart English, formerly an exec at Panasonic with a hand in the Varicam and P2 projects and Deanan DaSilva, one of the team who developed Dalsa's 4K Origin camera. When I saw the first test footage at the IBC exhibition in 2006, I was so impressed that I took the plunge and put down my \$1,000 for a reservation.

That test footage included a couple of girls blowing bubblegum and a tracking shot around a brightly lit Porsche. By the time of the NAB exhibition in April 2007, RED had scored a significant coup—a 12-minute film by Peter Lord *Of The Rings* Jackson.

Jim Jannard had contacted the director less than a month before NAB and asked if he'd like to shoot some tests on prototype RED ONE™ cameras. Jackson had toyed with the idea of some beauty shots of Jet-Skis and



is a major problem. The big electronics corporations have invested in products that cover a range of markets, from consumer camcorders through varying broadcast technology formats to their high-end “cinema” cameras. It is virtually impossible for them to respond to a product that in quality and ease of workflow is superior to their HiDef cameras, but significantly cheaper than their mid-range broadcast cameras; at least not without seriously damaging their own businesses.

Then there is the response of some who may not feel entirely secure in their jobs—a mood not uncommon in the film and TV industries. It seems there are those who believe that “undeserving” filmmakers, those with low budgets who have not worked their way through the industry and “proven” themselves, should not have the opportunity to just pick up a camera and start shooting cinema-quality pictures.

Okay, that last statement might be a bit simplistic. Good visuals have more to them than just the camera and format they are shot on. Nothing beats a great cinematographer, especially one with a large lighting kit, but having the tools is a good place to start. After all, not all great cinematographers have letters after their name. Opportunity is really what the RED ONE™ is about; the opportunity to match creative brilliance with technical excellence regardless of your position within or without the mainstream industry. A camera is not going to turn anyone into a great filmmaker, but it may help great filmmakers get their break when before they may never have had the chance. Shooting on the RED ONE™ is not going to get you a distributor, but it may help remove the quality barrier that for now, counts against many indie films.

The RED ONE™ helps to bridge the quality gap between 35mm film and HiDef. Resolution is the most obvious area; the one that gets talked about more than anything else. Productions like the last two *Spider-Man* movies have used a 4K digital intermediate, where the negative is scanned and post-production is carried out entirely digitally before printing back to film. This increasingly is becoming the accepted standard. By shooting a 4K image, RED ONE™ is essentially trying to duplicate the amount of detail that film typically contains (although this is a bit of a grey area—film has no “resolution” as such, and scans at 6K show film detail can go even higher) although this alone is not the be-all and end-all of quality. 35mm film generally has a shallow depth-of-field, important as the viewer’s attention can be directed to where the filmmaker wants it through selectively focusing on a critical area whilst everything in the foreground and background is a blur.

Also important is dynamic range—basically how far into the shadows and bright highlights the camera can retain detail. Until now, digital cameras have always come a distant second to film in this respect, in particular “clipping” where areas of the image become too bright. Some independent tests suggest the RED ONE™ has around 12 stops of latitude, putting it within the same range as film, although reports from *Wanted* suggest it may even be superior. The net result of all these features is that the RED ONE™ provides

RED ONE delivers unmatched image quality with no recording system limitations



an amazing quality of image, visibly a significant improvement over HiDef formats, yet interestingly, has its own look that is not quite like film. This is due in part to how clean the image is; unlike film there is no grain. Peter Jackson even compares it to the 70mm format of films such as *Lawrence Of Arabia*—incredibly crisp and detailed.

certainly as a cinema format within 18 months. It’s become redundant, too expensive and too complex for a format that is too poor in quality.

By the time you read this I’ll be out shooting on my new RED ONE™ camera. If everything works out I’ll be using it for all my projects, both personal and business. For my company, the Red revolution has already arrived.

One prediction I am happy to make though is that HiDef will be dead, certainly as a cinema format within 18 months.

At the risk of adding to the hype, I believe that the RED ONE™ is genuinely revolutionary. It marks a major turning point in digital technology, finally delivering on the promise to bring the digital realm close to that of traditional film. By making it affordable, and also making the workflow easily accessible, the camera opens the door for creative expression with significantly reduced boundaries. I am unsure what effect it will have on multi-million dollar budget movies; the cost-savings at that level are fairly insignificant so I suspect its use will be a matter of Director and Cinematographer preference, and maybe the unique characteristics of film will hold out. For everybody else, the cost savings both in production and post costs are the trump card—quality is no longer an issue here.

For indie films the RED ONE™ will probably become the format of choice very quickly, purely for these reasons. One prediction I am happy to make though is that HiDef will be dead,

I’ll let you know how it works out in a future issue of *movieScope*. ■



Images from the RED ONE™ are courtesy of Offhollywood Pictures. The first two publicly available RED ONE™ cameras are owned by New York-based Offhollywood Digital. Our thanks to Mark L. Pederson for providing us with some of their first images.