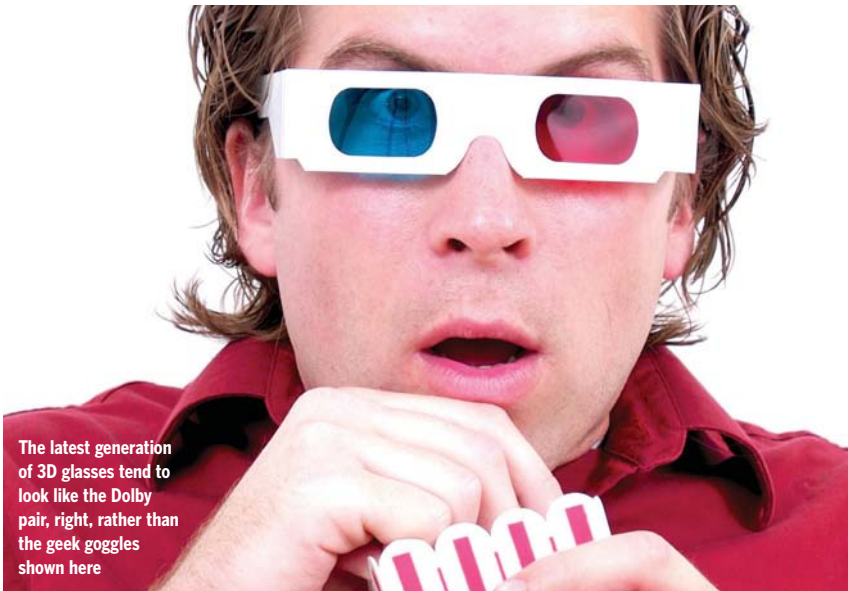


3D at home?



The latest generation of 3D glasses tend to look like the Dolby pair, right, rather than the geek goggles shown here

Hollywood thinks 3D is 'the next big thing' but will it be a hit in the home too? **Graham Edmondson** peers to the future

Home cinema can never recreate the same experience and excitement of a real cinema. Or at least that's what the commercial cinema industry has always believed. And for the last 100 years they've been right.

Colour pictures, large screen images, multi-channel sound, they all came first in the cinema. Home innovations such as VHS barely made a dent in cinema box office takings - the rise of the multiplex cinemas countered that by giving the customers more choice and better quality.

But home cinema as we know it today is different. Great quality and the DVD being available only a few weeks after theatrical cinema release has meant that home cinema posing a real threat to box office revenues.

And this is probably why the cinema industry is getting rather excited again about a new lure they have to offer - spectacular new 3D. For the cinema this couldn't have come at a better time. The industry has been grappling for the last five years with upgrading from 35mm film to new digital cinema.

But although the technology has come of age (primarily thanks to DLP Cinema), there is still no compelling business reason for cinemas to make the transition. Trials have shown that customers are unlikely to pay more for a digital cinema presentation than a regular film one (since many don't appear to notice the difference anyway).

Why the 3D hype all of a sudden? And how could this affect the demands of our own customers in the home cinema market who want the latest gadgets immediately available in their homes? 3D in the cinema is certainly nothing new - it's been tinkered with for over 100 years. Anaglyph stereoscopic systems were developed back in the early 1900s that gave a 3D effect by wearing special 3D glasses with red/blue colours filters in each eye.

Other than isolated peaks of 3D films in the 1950s, and 1970s (when the adult entertainment industry thought this might be a fun toy to play with) the format never really caught on for mainstream use. The simple reason is that it didn't really work and quickly gave people headaches.

Hollywood though is championing 2009 to be the 'year of 3D'. A large slate of film content is promised - for example self-styled 3D evangelist Geoffrey Katzenberg has committed to all 2009 Dreamworks animated films having a 3D theatrical release.

And this is simply because what could never be done with 35mm film can now done with digital projection. There are currently three fiercely competing 3D cinema systems, all using different technology. But what they all have in common is that they all look great, and all use a much higher picture frame rate (up to 144 frames per second) to reduce the fatiguing effect. Watching a two hour feature film has become a relaxing and enjoyable affair. Oh, and the 3D glasses don't look quite as ridiculous as they used to do either.

Active shutter glasses

First to launch was NuVision's active shutter glasses system. It works by beaming an IR synchronisation signal to each pair of battery powered 3D glasses and shuttering the right eye and left eye alternately using LCD shutters.

Next to market was Real D, who quickly realised the limitations of expensive battery powered shutter glasses and instead developed a system using extremely cheap polarised passive glasses (the only downside being that cinemas need to replace their existing projection screen for a special expensive silvered screen for it to work). Real D have already achieved a solid installation base of over 1,000 screens around the world. Disney's *Chicken Little*, Sony Pictures' *Monster House* and Warner's *Beowulf* have been released in this format.

'Anaglyph stereoscopic systems were developed back in the early 1900s.'



Dolby joined the party last with the release of a new technology based on colour notch filtering of red, green and blue at slightly different frequencies in each eye - Dolby 3D Digital Cinema. As with Real D, the system uses passive and inexpensive glasses, but can work with a cinema's existing white projection screen making it a very attractive and cost-effective solution for cinemas. The cinema's digital projectors are modified to produce the colour filtering for each eye.

Box office success

The box office figures from 3D cinemas are quite staggering. Audiences are prepared to pay more to see a film in 3D, and unlike most films which come and go within the opening weekend, the 3D screens have seen their attendance build up over several weeks.

But with all these systems there is still the issue of having to wear 3D glasses, and the reality is that with a projected image in cinema it will probably always be the case. The feeling in the industry is that this might not be such a bad thing, and when sufficient films are released in the format people may enjoy owning their own pairs of stylish designer 3D glasses. After all, people happily buy equipment for other leisure activities and sports.

How could all this translate into the home market? Firstly there's the question of whether the 3D films and other content promised for the cinema in 2009 will also be available in the home. Secondly is the question of what medium this could be released on and played back from. And finally, what 3D display technology could be available to consumers to install into the home.

The content supply and distribution medium, as usual, go hand in hand. The rise of content downloading to a media server could easily provide a way forward for the studios to release their 3D films into the home.



So that just leaves the display technology to figure out. Some say the 'Holy Grail' at home has to be 3D with no glasses (an 'auto-stereoscopic' solution). That could certainly put the home market 'ahead' of the cinema. But for those that want this it seems there's going to be quite a wait ahead for the technology to evolve.

Several companies are indeed experimenting with lenticular lens technology to simulate 3D images from screens without the need for glasses. One such manufacturer is Philips which has launched its 3DWOW screen. With a big clue in the product name, the screen is solely aimed at point of sale digital signage and advertising.

It is a 42in 1080 LCD that gives a great 3D effect, but only at certain fixed viewing points (in fact there are nine positions where viewers can get the 3D effect). This limitation, combined with a low image resolution from having to create the nine different viewpoints, means the screen in its current form is unsuitable for films or TV watching.

The word from Philips however is that within three years the screens could be ready for consumer use as well. But if this isn't the case, are we stuck with wearing glasses at

home as well? This might not actually be such a bad thing - if the cinema world manages to persuade its customers that wearing 3D glasses is not only comfortable but also cool, then surely the same would be true at home as well? Imagine showing off your set of ultra-stylish Bang & Olufsen 3D glasses to your friends.

Of course its not just films in glorious 3D that consumers are eagerly awaiting to see at home. The colossal power of the gaming industry seems to already be considerably ahead. Companies such as NVIDIA are taking this very seriously indeed. It has products like the NVIDIA GeForce 3D Stereo graphics cards available and boast a long list of video games that are 3D compatible.

NVIDIA 3D technology is designed to work with a new type of flat screen manufactured by Hyundai (and under licence to other companies). This has a special filter screen on the front which polarises each alternating interlaced picture line in opposite circular directions. So with nothing more than a cheap pair of polarised 3D glasses, video games can easily be played in 3D. And its not prohibitively expensive - a 24in LCD 3D screen is currently selling for around £1,500.

DLP technology is not being left out the home either. More common in the US, rear projection DLP sets are '3D enabled' by default and an add-on package of IR active shutter glasses is all that is needed for 3D playback.

Like the movie and gaming industries, TV broadcasters are also getting excited about the possibilities that could be unleashed with 3D in the home. Sporting and wildlife programmes are high up on their list with several already having been filmed using 3D cameras. In the US in February 2007 an NBA All-Star game was filmed in 3D and broadcast via cable to selected audiences. The audience reaction was extremely positive.

In the UK in March of this year, leading 3D company Inition brought us the world's first live 3D satellite broadcast. The Six Nations rugby match between Scotland and England was filmed in 3D and was screened to an industry audience in a 3D equipped venue in West London.

It may have been 100 years in the making, but it seems that there is little doubt that 3D will be coming to a home cinema near you very soon. While the current solutions may require 3D glasses, who knows where the ultimate 3D in our homes will evolve from? Holographic displays beamed right into the middle of our living rooms? After all, George Lucas showed us it was possible in *Star Wars* back in 1977 so what are we waiting for? **RSE**

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