

# 4K digital cinema

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“We expect the market to substantially adopt 4K”

❖ Major titles are given 4K digital screenings in 2006

Major Hollywood studios have embraced 4K distribution of their biggest movies, a year after agreeing a worldwide standard for digital cinema projection.

The Digital Cinema Initiatives (DCI), a joint venture of Fox, Paramount, Sony Pictures Entertainment, Universal, Disney and Warner Bros. Studios, in July 2005 agreed a standard that supports both 4K and 2K resolutions.

Since then, several of the companies have been developing and trialling 4K distribution models, alongside cinema owners, equipment manufacturers and major telecoms companies.

Warner Bros., Fox and Sony have all shown significant movie titles in 4K during 2006, including Warner's V for Vendetta, Poseidon and Superman Returns and Sony's forthcoming James Bond movie, Casino Royale.

As far back as 2003, DCI said it was committed to developing a forward-looking overall 4K delivery system, and the final standard accommodates both 4K and 2K systems. A crucial aspect of the standard is that 4K systems are able to handle 2K movies by up-converting the files to display a 4K image, ensuring that even 2K movies are best viewed on a 4K projector.

So far, Sony is the first manufacturer to build a 4K projection system conforming to the highest 4K specification, including the SXRD 4K projector and server for 4K and 2K movies. Other manufacturers are also supporting the 4K standard, including QuVIS, which has launched a 4K server that integrates into the Sony 4K projection system.

Roll-out of 4K distribution is moving from the US to Europe, as distributors and cinema owners continue to test and implement the DCI standard.

Julian Levin, Executive Vice President, Digital Cinema, 20th Century Fox, which gave its horror classic remake, The Omen, a 4K screening, said, “We

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Casino Royale (top); Superman Returns (left); Poseidon

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The Da Vinci Code  
screens in 4K



Cinema audiences in the US and Japan were able to enjoy the unprecedented picture quality of 4K when the Hollywood blockbuster

The Da Vinci Code was screened earlier this year.

STORY ON P.02 ❖

4K projection offers  
compelling picture  
quality



The SXRD 4K digital projection solution is the only system on the market that offers 4K and 2K screenings at a quality significantly higher than that being seen on HDTV in the home.

STORY ON P.03 ❖

## Warner and NTT trial 4K distribution

Warner Bros Entertainment in the US and telecoms giant NTT in Japan have been distributing and screening 4K movies since October 2005 at selected cinemas in Japan owned by the Toho Company and Warner Mycal Cinemas, as part of an on-going digital cinema trial.

The trial, "4K Pure Cinema", has been looking at the technical verification of distributing and screening digital movies to conform to the DCI specification.

The first features screened in the trial included Tim Burton's *Corpse Bride* (below), *Batman Begins* and *Harry Potter and the Goblet of Fire*.

As part of the trial, 4K movies have been uploaded by Warner in the US and sent 15,000 km via high speed fibre optic cable under the Pacific ocean to NTT in Japan, where they are relayed to cinema screens in Osaka and Tokyo and shown on the SXRD 4K system.

In 2006, Paramount Pictures and Sony Pictures Entertainment joined the trial with their own titles.



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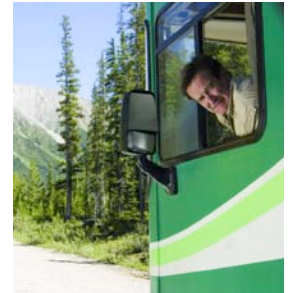
expect the market to substantially adopt 4K. It's best for distributors, exhibitors and, most importantly, movie-goers."

Rory Bruer, President, [US] Domestic Distribution, Sony Pictures Entertainment, which has shown *Spiderman 2*, *Stealth* and *RV* all in 4K, said, "Sony Pictures is committed to improving on the theatrical experience for our customers through Digital Cinema and we believe 4K is clearly the finest presentation available."

Wayne Lewellen, President, Distribution for Paramount Pictures, said, "Paramount embraces the DCI specification for the theatrical exhibition of digital cinema and we look forward to releasing our films in



The Omen (left); RV



compliance with this standard of distribution."

The number of 4K movie screenings will continue to grow in 2007, as part of the studios' continuing support for the DCI standard.



The Da Vinci Code

## The Da Vinci Code screens in 4K

❖ Audiences see full benefits of special FX in special screenings

Cinema audiences in the US and Tokyo were able to enjoy the unprecedented picture quality of 4K when Sony Pictures Entertainment's blockbuster *The Da Vinci Code* was screened in summer 2006 at 4K resolution on an SXRD 4K digital projection system at cinemas in the US and Japan.

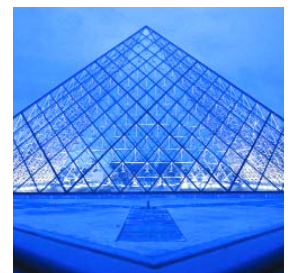
Directed by Ron Howard, and produced by Brian Grazer and John Calley for Columbia Pictures and Image Entertainment, the movie also opened the Cannes Film Festival in May 2006.

Speaking at a special LA screening of the movie to coincide with the unveiling of Sony's new high brightness projector, Al Barton, Vice President of Digital Cinema Technology at Sony Pictures Entertainment, said the studio planned to use 4K extensively in post production. "With 4K, we get better prints and imagery," Barton said.

The SXRD 4K was used to screen the movie in Los Angeles, at the AMC Century City 15 cinema in May.

"The reaction from cinema audiences was remarkable," said Richard Lewis, Chief Engineer at Sony Professional Solutions Europe. "Once

"It is hard to persuade them that anything less is good enough"



audiences have experienced 4K, it is hard to persuade them that anything less is good enough. Sony is helping to make digital cinema a commercial reality to give audiences an experience that matches the director's original vision. The final experience was enjoyed by the audiences at 4K quality, giving them extra impact. After making an enormous personal and financial investment in their productions, film-makers should not have to dilute their creative vision in the theatre. Discerning cinematographers and their audiences demand the emotional involvement that 4K projection delivers."

## 4K projection offers compelling picture quality

❖ Resolution of SXR4 4K projectors is four times greater than 2K alternatives

“Cinema exhibition has always been the premier way to experience a movie and cinemas want to stay ahead of the home entertainment experience. That’s where 4K comes in”

**Cinema has long been regarded as the best place to watch a movie because of the size of the screen, the group atmosphere and the quality of the projected image. But the advent of high definition in the home has started to challenge at least some of the notions that make the cinema experience so compelling.**

European broadcasters such as BSkyB in the UK, Canal+ in France and Premiere in Germany have joined a long list of broadcasters in the US, Japan, China and Australia that have established HDTV services for movies and sports. Blu-ray high definition DVDs will soon be bringing HD movies to the home, while next generation games consoles such as the PlayStation 3 will be high definition.

The HDTV resolution of 1920 x 1080 pixels is similar to cinema 2K resolution. At the same time, 4K resolution is four times the resolution of 2K alternatives, at a staggering 4096 x 2160, allowing audiences to enjoy unprecedented quality, depth and emotional impact.

Mark Clowes, Marketing Manager, D-Cinema, Sony Professional Solutions Europe, said many cinema chains recognise that the quality shift to 4K is necessary as HD quality images become more widespread in people’s homes. “Cinema exhibition has always been the premier way to experience a movie and cinemas want to stay ahead of the home entertainment experience. That’s where 4K comes in for any movie,” Clowes said. “As audiences become more and more accustomed to seeing HD at home, they will be expecting to have a different experience at the cinema and 4K delivers this.”

The Sony SXR4 4K digital projection solution incorporates a 4K projector and server and has been



developed to handle a wide range of input devices. This makes it easy for cinema owners to screen 4K and 2K digital movies, as well as a wide range of alternative content, such as live sports and concerts. The SXR4 4K projector also works with other systems, including the QuVis 4K server.

Sony has developed the SXR4 4K projection solution to be fully compliant with the most exacting standards of the Digital Cinema Initiative (DCI) specification. Kevin Wakeford, Head of D-Cinema, Sony Professional Solutions Europe, said, “The SXR4 4K handles both 4K and 2K movies to provide audiences with breathtaking picture quality. The bonus is that it up-converts the 2K movies to put a 4K image on-screen, making the SXR4 4K the best way to screen 2K movies.”

The SXR4 4K server handles the AES decryption and advanced decoding using JPEG2000. System security is assured thanks to a specially developed Security Enclosure that is designed to meet the exacting FIPS-140 data security standard.

“The move to digital is set to be very technically challenging for cinema and we are already finding that many cinema owners are attracted to the fact that Sony is the only company able to offer the entire digital solution: 4K projector, server and security management,” Wakeford added.

The 4K system has been warmly welcomed by studios and cinema operators and looks set to maintain cinema’s position as the premier way to view movies.

## Odeon screens England game

❖ Charity 4K screening points way forward for alternative content



England v Trinidad and Tobago shown in 4K

The UK’s premier showcase cinema, Odeon Leicester Square, screened the England v Trinidad and Tobago football game on 15 June in high definition using the SXR4 4K projection solution. The screening was a charity event in aid of the British children’s charity, NCH.

Football fans who attended the event enjoyed watching the game up-converted from an HD feed supplied by Euro 1080 to 4K resolution in the state of the art 1,679 seat auditorium.

All the England games, the quarter finals and semis were all shown digitally at a number of Odeon cinemas across London.

The Odeon Leicester Square is trialling the SXR4 4K projection system to screen alternative content in 4K and 2K up-converted to 4K.

Gerald Buckle, Vice President Business Affairs, Odeon UCI, said, “We are looking at various business plans that support the rollout of digital cinema.”

# 4K digital cinema

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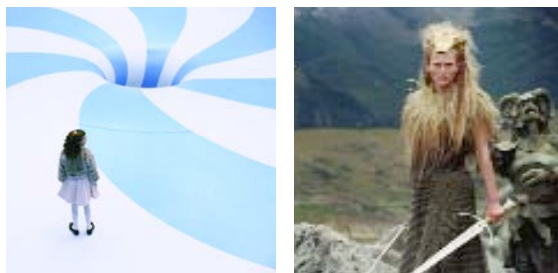


## future projections

Filmlight in London has installed an SXR4 4K projector. Stephen Tate reports

The creation of 4K movie files for distribution and screening has been made possible by the massive advances in recent years in the production processes of the Hollywood studios. Most movies, even those not dependent on a large amount of special effects, now use digital post production processes that ensure the highest picture quality is maintained from the camera lens to the 4K digital output file.

“It would be different if the difference between 2K and 4K resolution was slight but the change is astounding”



Recent productions posted on Filmlight kit include: Harry Potter and the Goblet of Fire (top); Charlie and the Chocolate Factory (left); The Chronicles of Narnia

In the UK, Filmlight a leading supplier of digital post to the global film industry, has installed an SXR4 4K projection solution to demonstrate the capabilities of its Baselight Eight no-proxy 4K, 12 bit per colour channel feature film grading system.

Filmlight's Marketing Director Andrew Johnston said: "The reason we bought the SXR4 4K projector is because the demand from movie productions is growing for a full 4K pipeline, post production companies can only satisfy that demand using 4K grading. To support our customers we need to have the projector in house. We consider ourselves a high end, no compromise bunch and now we have a display device in the 4K projector to show what our systems are capable of. With the projector linked to our products, we can provide instant gratification and that's what big-time directors expect. Hollywood doesn't settle for second best."

Johnston said the SXR4 4K is competitive with 2K alternatives. "They are well priced given you get four times the resolution. It would be different if the difference between 2K and 4K resolution was slight but the change is astounding. You really only have to see the SXR4 4K with four times more spatial information as well as extreme colour depth to understand why the movie professionals are demanding 4K film mastering. It raises the bar across the industry, from production to post production and I think it will breathe new life into the movie-going experience."

## Landmark rolls out 4K

One of the leading independent cinema chains in the US has upgraded a significant number of its screens with SXR4 4K.

Landmark Theaters, a 2929 Entertainment company, is America's largest theatre chain devoted exclusively to art and independent film. The company

is installing SXR4 4K projectors throughout the US.

The rollout of digital cinema by Landmark Theaters is part of its strategy to produce and distribute HD movies through sister company, HDNet Films.

"Sony 4K digital projectors allow us to project live concerts

and sporting events, ultra high-resolution movies created using future technologies," says Mark Cuban, Co-owner, Landmark Theaters. "Most importantly, it provides a viewing experience for movies that far exceeds what other theatres are doing today with 2K projectors."