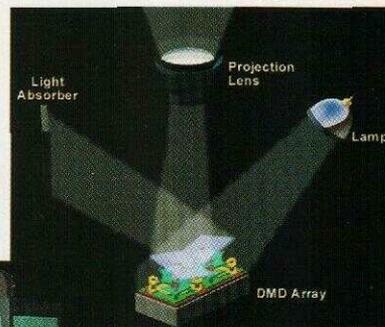


Technology Today

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Alan Pierce

Below— Mirrors reflecting light into the lens.



E-Cinema

UCAS Films LTD and Walt Disney's motion picture group are ready to move, us beyond digital imaging production by introducing us to e-cinema, which is the full digitization of the motion picture production from storyboards to the final screening in your local movie theater.

When fully developed, e-cinema will include the electronic distribution of motion pictures to your local movie theater for digital projection. The goal is to replace cinema film with digital images and save a bundle of money that is now spent on the, production and distribution of reels of celluloid film. This will eventually mean that a satellite or internet transmission will be used to deliver movies to theaters. Initially, it will mean digital movie mastering for DVD distribution to theaters at a cost savings of about \$2,000 per movie print.

This new technology will only become cost-effective after theaters recoup the money they must spend to retrofit their projection booths with the new digital projectors. This retrofitting will be a joint venture between theaters, motion picture studios, and venture capitalist-backed e-cinema startup companies. *Star Wars, Episode 1* and *Toy Story 2* were the first movies released in a digital format for use on a limited number of screens. To show these movies, each theater had to replace their old projector with a new digital video machine. The Texas Instruments DLP Cinema Projector™ was used in half of these experiments (Photo 1).

Texas Instruments introduced its first Digital Light Processing™ product in 1996. Most of us have seen DLP in use at sporting events and concerts. The heart of this projector is an array of individually controlled digital micro-mirrors that act as digital light switches. What we have here is an array of micro-electro-mechanical system switches that move under computer control to reflect a super-bright digital image toward the motion picture screen. The micro-mirrors' size can best be appreciated by comparing them to a single grain of common household salt. One mirror exists for each pixel that will be projected to the video screen. The Texas Instruments DLP Cinema Projector uses a standard theater projection-lamp housing with a new reflector that matches the optical needs of the micro-mirror system. In perfect symmetry the mirrors move to reflect the exact light requirement for each

pixel of the video. The intense light of the projector intensifies this reflection and sends it on to the movie screen for viewing. Imagine the SVGA image of your computer screen supersized to a movie screen size without the loss of a single pixel of light. This is the promise of DLP Cinema, and the only question left is how fast it will come to your neighborhood movie theater.

If you saw *Star Wars, Episode 1* or *Toy Story 2* at one of these digital video screenings, you can best answer the question at its current level of development: Does DLP Cinema rival or surpass a celluloid film screening? Why not email the column and share your experience with the rest of the *Tech Directions* readership.



Left— The Texas Instruments DLP Cinema Projector™. Images courtesy Texas Instruments.

Recalling the Facts

1. How will e-cinema change Hollywood movies?
2. What is the purpose of the micro-minor array in the DLP Cinema Projector?
3. Do you think e-cinema will eventually replace celluloid film at your local movie theater? Why? **TD**

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