



Codex: In Action

CODEX IN THE REAL WORLD...

Principal photography has recently been completed on several productions handled by the Codex Recording/Production System. Two of these shoots were at almost opposite ends of the spectrum in terms of size and budget – one production had less than 0.2% of the budget of the other! Yet, however differently structured, they both reported enormous gains in terms of speed, efficiency and flexibility. This note briefly describes the ways in which the productions used Codex.

The Big Budget Production

The first was an American studio production, shooting in Germany. At different times, there were between three and five units operating simultaneously, each shooting to a Sony F23 camera. Codex recorded the uncompressed output of these cameras, in parallel with a recording to HDCAM-SR tape, which provided an archive copy. Immediate playback and comparative review was available from the Codex, along with the feeds needed for on-set compositing of this effects-heavy shoot.

This already was quicker and easier than any traditional system. However, the most revolutionary gains were seen in the next phase. As the Codex DiskPacks were filled, the material was sent to a Codex Transfer station which then transcoded and converted it to the various formats needed for the production, all stored and forwarded by a server system and network provided by Codex and its sister company Sohonet.

These files included full and half-resolution DPX frames used for effects, QuickTime viewing copies, and Avid MXF proxies, sent directly to a Unity editing server. The DPX files were sent by Sohonet both to the in-studio FX unit, and across the world to a Los Angeles VFX house.

The Avid MXF files generated by the Codex were completely native-mode, which means that they were immediately available for editing with no time-consuming import phase. Every evening after shooting, the editorial team was able to start work immediately cutting the day's material. Meanwhile, the effects department was working with the DPX files, sending back composited versions which were re-imported by Codex and fed into the system.

By using Codex's metadata capabilities, preferred takes from each day were tagged on-set during the shoot. Consequently, by using Codex's Virtual File System to identify and collate these tagged shots via their metadata, it was possible to screen a full-quality, edited version of the previous day's work for every day of the 12 week shoot.

Codex and Sohonet became the hub of the entire workflow, providing all the functions of the film-lab, tape-transfer and courier service, immediately and - most importantly - with so little trouble as to be almost invisible. As Delwyn Holroyd, co-founder of Codex, said: *"One of the best things about this entire setup was that half the crew never knew we were there, even though they benefited every day. Everything was simply where they wanted it, when they wanted it, in whatever form they needed it."*

And Ian Slater, Chief Assistant Editor for the production, said:

"The Codex is truly an amazing tool. It completely changes the model for post production as you have complete control of each days material. With its ease of use, lightning-fast transcoding and amazing flexibility, I don't know how we ever got along without it".

The Small Budget Production

The second production was *Deadgirl*, an independent feature shot in Los Angeles. It was shot in a shooting block of just a few weeks using a Thomson Viper camera, with its FilmStream output recorded uncompressed to the Codex Recorder. In this way the maximum range of the camera was captured, particularly important for the many low-light scenes in this film. Again, the Codex system provided instant review and comparative playback on-set, making possible quick decisions as to what worked best.

In this case, the originals of each day's shooting were transferred by network to backup storage as full-resolution DPX files. QuickTime files, complete with metadata, were produced directly from the Codex and used for viewing. They were then transcoded for use in Final Cut Studio (this extra phase was only necessary because this shoot pre-dated the full integration of CineForm's codecs with the Codex system).

As David Taylor, CEO of CineForm, said at the time: *"This production desires CineForm 444 files as output for their post work: with the new integration into the Codex box you will simply deliver CineForm files to them as direct output..."*

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Again, the Codex system provided a central hub for the entire production's workflow, taking over many separate and expensive functions, and helping bring in an ambitious production for a minimal budget.

Harris Charalambous, the director of photography and also designer of the workflow, said, *"Once the decision was made to shoot digitally, we were dissatisfied to find that most tape systems could not record the full picture quality that the cameras were able to output. So I suggested Codex for **Deadgirl**. This way, resolution and dynamic range would no longer be a concern and we would have the added benefits of instantaneous playback, the ability to delete takes at will and walk away at night with our day's dailies in hand.*

It helped that the Codex's interface is beautifully designed, simple and intuitive to use. We also made sure to take the footage all the way through the tapeless pipeline to ensure an efficient post-production workflow. The support from Codex was nothing short of first class, handling minor needed adjustments to our post workflow as well as supporting the unique needs of our Final Cut Pro system."

(**Note:** Selected images from *Deadgirl* are available on the Codex IBC2007 CD-Rom)

The 3D Production

Codex has also been used on a number of stereoscopic 3D projects recently. Its unique ability to record and replay twin uncompressed, locked HD streams has proved to be of immense use to many people in this exciting field.

Fred Meyers, a visual effects supervisor and HD consultant whose previous credits span *Terminator 2: Judgment Day* and *Jurassic Park*, all the way to the most recent trilogy of *Star Wars* films, has been using Codex at San Rafael's Kerner Optical, where he is Chief Engineer:

"With Kerner quickly fast-tracking a new digital camera department and digital cinema laboratory, we needed to identify systems and vendors with whom we could count on to deliver and support the advanced features required to work effectively with digital 3D-stereo projects.

We've been using the Codex to record live 3D camera material during development of our rigs, where both its Virtual File System and instant replay have provided transparent output to our 3D-stereo projectors and immediate availability of image files for analysis on our networked workstations.

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Additionally, we made effective use of the import and dual playout channels to transfer processed imagery from other servers for review and screenings of uncompressed 3D-stereo playback off the Codex. The Codex team's proactive attitude to refining the capabilities of the machine in support of 3D-stereo have proved invaluable".

About Kerner Optical:

Kerner Optical represents the 14-time Academy Award-winning motion picture physical effects unit, model shop, shooting stages and camera group located in the once super secret Industrial Light & Magic campus in San Rafael. They are 30 years of movie making history, expertise and craftsmanship now available to any project, anywhere in the world.

Kerner R&D brings new concepts, techniques and systems to life. Their projects involve three dimensional stereoscopic image acquisition/delivery and real-time motion capture as well as enabling technologies for feature film, simulation and immersive training environments.