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# Fast Forward Recon DVR

by Geoffrey Poister

Every once in a while, a product comes along that is original, innovative and has enormous potential. The Recon Digital Video Recorder is one of those, but to appreciate the genius of this thing you first have to figure out what it is.

Quite simply, it is a device that takes a video signal from a camera and with scalable compression, stores it on a hard drive. But add to that the fact that it is tiny and stores hours of broadcast-quality video exceeding Betacam standards, and you start to see some interesting possibilities.

The other slightly peculiar feature about this device is that it is designed primarily for product developers and OEM manufacturers who want to integrate it into their own products.

## FEATURES

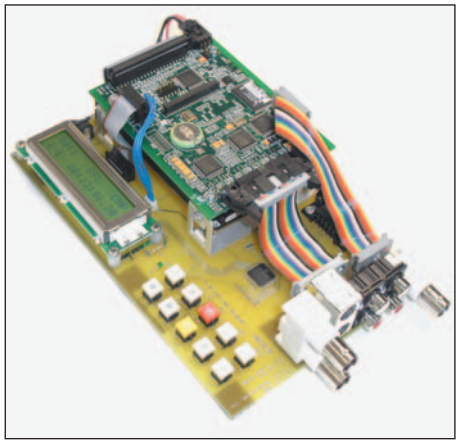
First, the Recon DVR is small: In its most basic form, it is about the size of a deck of playing cards. Yet it is a full-featured digital video recorder, with analog composite and Y/C video inputs/outputs and two RCA inputs/outputs for audio. It can also be configured for component output.

Video can be recorded in either NTSC or PAL formats. The unit uses JPEG compression to save video at compression ratios from 20:1 to 4:1. The digital video is stored on an ultracompact 30, 60 or 120 GB hard drive.

But the reduced size does not mean reduced video quality. The system uses 4:2:2 color sampling and a full 60-fps NTSC and 50-fps PAL. The specs exceed those of DV, which samples at a 4:1:1 ratio and 5:1 compression. The output of the Recon achieves a horizontal resolution of 550 TV lines at 5:1 compression.

The audio is CD quality, equivalent to other digital video formats: 48 kHz, 16-bit stereo.

The evaluation unit I tested was equipped with 30 GB hard drive mounted on a circuit board, with a small LCD screen and 10 buttons to control record and playback. This screen and control panel made the unit slightly larger than it otherwise might be, but these features allow the recorder to be used as a standalone unit without any additional computer connections. However, when the device is connected to a computer through an RS-232 cable, one finds a full-featured interface.



*The Recon records hours of broadcast-quality video in a shirt pocket-sized device.*

The software interface is elegant and intelligently designed. It instantly displays a list of all clips stored on the hard drive and pertinent data such as time length and compression ratio.

The Recon takes it one step further, creating a second bin in which you can drag clips and create an edited timeline for playback. It's not trying to be an NLE but one can very quickly create trimmed clips in any sequence for instant playback without loading the video data into a computer.

## IN USE

I connected the Recon DVR to the Y/C output from a JVC GY-DV500 miniDV camcorder. I then connected the Recon's composite output and two channels of audio to a TV monitor using RCA cables. The Recon allows the video to pass through the device while not recording, so I could immediately monitor the camera's signal.

I punched the record button and pointed the camera at a variety of objects to check for detail. After a few minutes, I pressed the stop and play buttons, and the video played back flawlessly and in full glory, as if it was recorded on a Betacam tape. It was that simple.

But there is more you can do with it. The 10 buttons can be pressed in various combinations to perform more than 40 tasks, such as time-lapse photography, or changing the compression ratio and recording speed.

My first concern was the resolution and color fidelity of the video. It seemed improbable to me that a device so small could reproduce video at DV or Betacam standards, but I was wrong.

At 5:1 compression, I struggled to detect any difference in the image from the original camera output. I thought I noticed a slight loss in the finest details but when I switched to 4:1, I could see no image degradation whatsoever.

To scrutinize this further, I loaded a DV tape in the camera, recorded it onto the Recon hard drive and then froze both on the same frame. I toggled back and forth between the frame on DV tape and the one recorded on the Recon and could see no difference.

At higher compression ratios, the video was surprisingly good and 10:1 compression looked about as good as S-VHS. At 20:1 the video was still acceptable, although regions of the frame became noticeably pixilated.

But remember, we're talking about a device the size of a hand calculator that captures broadcast-quality video and holds a respectable amount of it on a 30 GB hard drive. At 5:1, you can store about two hours of video (including two channels of CD-quality audio) and almost nine hours at 20:1. The 60 or 120 GB drive versions, of course, will store two to four times this amount.

The software interface (compatible with Windows XP, 2000, 98 and ME) loaded onto my PC effortlessly.

The surprising feature on the interface is a bin that enables you to assemble a basic timeline. It is so intuitive that I was using it in minutes without reading any directions.

I simply dragged some clips from the master list into the bin, trimmed them using the slider and constructed a timeline sequence. I then pressed play and watched the sequence on the connected video monitor. I was able to go from recording the video to playing back a timeline without having to transfer any of the video from the source drive.

The Recon only has one drawback: The output is limited to analog Y/C or composite, meaning that you have to leave the digital realm to save your final footage. If there was a way to do a digital transfer, either via IEEE-1394 (FireWire), SDI or some other means, this would open new doors. When I raised the question, the people at Fast Forward Video told me that they were in fact developing a new version that will have a digital output.

Adding FireWire may exceed the applications initially thought suitable for the Recon, such as security and police car video. But as I mentioned at the outset, the device has greater potential.

Certainly, I could imagine it used in aircraft cockpits and surgery rooms. But as a videographer, I am also attracted to the idea of recording direct to disk without having to throw away my current camera or invest thousands in a new camera designed for disk recording.

The Recon could help fill the transition between the tape-based cameras of today and the disk- or memory-module cameras of tomorrow.

## SUMMARY

The Fast Forward Recon digital video recorder is fully ready to be packaged as an amazingly powerful handheld video-capture device. The video quality is outstanding, it is easy to use, and it can handle any task that requires recording high-quality video with the utmost mobility.

But it also opens the possibility of expanded future uses if it can be further modified to transfer source material within the digital realm. ■

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