

Hi-motion innovation from Arri, I-Movix and Vision Research

Speed demons and phantoms

High speed cams

Vision Research has released two new tools for its Phantom HD and Phantom 65 high-speed, high-resolution cameras that make its workflow faster too. The new CineMags are hot-swappable 256GB and 512GB solid-state memory packs that can directly record the high-speed material—up to 450fps at 2048x1080 and up to 90fps on the 4k Phantom 65 (the cameras can record up to 1,000fps at HD and up to 125fps at 4k into their own flash memory, which then uploads to the CineMags).

The camera can then be used as a docking station to view and download the high-speed video. Alternatively, the CineStation connects to a PC via Gigabit Ethernet (optionally 10Gb Ethernet) and supports both raw digital files and video workflows, including trimming, does fast file download and can play the cine files stored on the CineMag over dual HD-SDI video outputs or component video.

"I've worked now several times with the CineStation and two CineMags," commented Benjamin Müller of Dedo Weigert Film. "It really is a perfect solution. You can shoot fast and seamless onto one CineMag while at the same time downloading the data from the second CineMag. You can save a lot of



Motion blur: Renard with SprintCam camera

time working parallel and you have the workflow that the cameramen and crews are used to. Also the Dual-Link HD-SDI output in 4:4:4 of the CineMag gives a perfect solution to work with tape based media like the HDCAM-SR."

Vision Research's latest Phantom v12 has a lower (720p) resolution, but higher frame rates (up to 6,933fps at full resolution, rising to one million fps at much lower resolution). The custom-designed CMOS sensor has an active pixel size of 20 microns and offers improved quantum efficiency, giving the camera greater sensitivity than its existing high-speed cameras. It also has a sub-microsecond shutter (as little as 300 nanoseconds),

which, it claims, can eliminate blur to show the most minute detail. The v12 has an internal clock with a timing resolution of 20ns.

The camera supports 8-bit and 12-bit pixel depth: 8-bit gives more recording time and smaller files, but 12-bit offers more gray levels and finer detail. The v12 also has Extreme Dynamic Range, by making two different exposures within a single frame.

Sprinting slowly

Many of the extreme slow-motion images seen in the Olympics coverage came from the SprintCam Live V2, developed by Belgian-based I-Movix. The system can provide extreme slow-motion coverage in HD at up to 8,000fps with instant replay and was used by host broadcaster Beijing Olympic Broadcast for mobile units located at the major Olympic venues.

I-Movix CEO Laurent Renard claims that its performance is matched by ease of installation and operation. "Camera operators find SprintCam Live V2 completely familiar and intuitive to use, and they can be shooting with it after only a few minutes of training."

It uses Photron cameras and Fujinon lenses (although it can use any B4, PL or C-mount lenses) and works at both SD and HD (720p and 1080i) resolution. Its operator control panel provides

real-time control of image-quality settings including gamma, knee, white balance, and black balance. SprintCam Live V2 comprises a camera, a camera control unit, an OCP, and a slow-motion remote control, and can be used as a stand-alone unit.

BOB also used seven Arri Hi-Motion systems, covering 11 events. "High speed has not been used much at past Olympics because

neither the technology nor the infrastructure was in place," explains Andy Hayford, Arri Media's digital high speed manager. For the two marathons and both cycle road races a Hi-Motion was mounted on a gyroscopically controlled remote head mounted on a specially adapted Lexus camera car. www.arri.com
www.i-movix.com
www.visionresearch.com