



VIRTUAL REALITY

At the Berlinale, a 360-degree virtual reality rig using multiple ALEXA Mini cameras highlighted ARRI's research into VR applications.

EXT SYNC FOR MULTI-CAMERA ALEXA MINI SHOTS

One of the new features of ALEXA Mini SUP 5.0 is an EXT Sync function that allows the sensors and operational parameters of up to 15 ALEXA Mini cameras to be synchronized to a master ALEXA Mini. Slaves can assume parameters like the frame rate, shutter angle, or ND setup of the master camera, which also provides a status summary of all cameras. Facilitated by new cables and EDB-2 distribution boxes, EXT Sync simplifies the configuration and control of multi-camera 3D, VR, and VFX applications in a way that permits the entire multi-camera setup to be operated as if it was one single camera.

“We’ve been working with our new ‘Typhon’ multi-camera array with ALEXA Minis installed in the SHOTOVER K1 stabilized system for aerial photography action and VFX plate shots on major motion pictures. We have been testing the EDB-2 box, which along with the new EXT Sync feature is going to make it much quicker and simpler to synchronize and operate multiple cameras in future.”

Jeremy Braben
Aerial DP and CEO of
Helicopter Film Services



Jeremy Braben (right) with ALEXA Mini "Typhon" rig and Chief Technical Officer Oliver Ward

For the Audi Lounge at the 67th Berlin International Film Festival, ARRI joined forces with the Fraunhofer Heinrich-Hertz-Institut (HHI) to create a unique 360-degree experience. Visitors had the chance to feel like a star at their own film premiere by driving an Audi Q7 past crowds of fans on the red carpet – all in virtual reality, of course.

ARRI's Media division produced a 360-degree film for this extraordinary project, and then integrated it into a virtual reality application. The limited time available was a special challenge, with only 18 hours for the entire process, from the red-carpet shoot to the finished product.

The film was shot with an OmniCam-360, which was developed by Fraunhofer HHI and then optimized for the Berlinale together with ARRI's R&D department. The system comprises six ALEXA Mini cameras arranged in a mirror rig to provide a 360-degree panorama in never-before-seen quality. Other system components include a workstation that generates a live stream of the panorama in HD and UHD, and software plugins for After Effects®, with the aid of which the panorama is subsequently rendered in movie quality.

Based on the proven ARRIRAW recording format, this high-quality panorama is characterized by a native resolution up to 14K x 3K, High Dynamic Range (HDR)



imaging, and full synchronicity of all the cameras.

Over recent years ARRI has been continuously involved in cooperative research into future technology trends relating to advanced and immersive imaging. Projects have encompassed omnidirectional cameras, foundations of light field imaging, and capturing additional information beyond the RGB picture, especially depth information. In each case ARRI has built camera prototypes to test the state of the technology with respect to production readiness.

“All of these activities have in common the massive use of signal processing and image manipulation, culminating in computational imaging,” says ARRI Principal Engineer Dr. Johannes Steurer. “The fast-growing hot topics of virtual reality and augmented reality also require huge computational efforts for producing the

intended visual experience. They are being observed as new business opportunities for various branches within ARRI, ranging from camera products to production services.”

Multi-camera ARRI rigs developed collaboratively with Fraunhofer HHI have been tested on various pilot productions in order to mature the system for professional environments and demonstrate its superior quality. This process will continue further until solutions for VR and AR applications provide the same image quality, robustness, and ease of operation for which ARRI products are known in existing markets.

“ARRI Media has already started commercial business for VR production and postproduction services, currently focusing on automotive and other customers seeking novel user experiences for the innovative presentation of their products,” continues Steurer. “We are learning fast what technological requirements are related to computational imaging and how to gear up for application benefits.”

