

STEREOSCOPIC 3D PRODUCT & TECHNOLOGY NEWS

Welcome to the 3Droundabout special stereoscopic 3D supplement for the 2013 NAB Show. This serves as a quick reference to products, technology, exhibitors and events for stereo 3D content creation, delivery and display. For further coverage, visit 3droundabout.com/3d-nab-2013.

Despite its detractors, stereo 3D continues to be popular with the creative community and the viewing public. There have been some excellent cinematic releases and TV programmes, and very well-attended events for professionals - it seems that once bitten by the bug, nothing can dampen the ardour of the 3D enthusiast!

At the NAB Show, you will find exhibits that deal with every aspect of stereo 3D, including cameras and rigs, recording

devices, monitors, analysers, correction tools, graphics systems, post-production systems, conversion tools, transmission systems and displays. There are also plenty of conferences and events to attend, including the Cool by the Pool party. This is great opportunity to network with some of the nicest people in the industry, and to join in with the new Z Awards - see inside for registration details.

In the consumer electronics industry in general there is a lot of work going on to enhance the consumer's 3D experience, be it using phones, tablets or large screens. The broadcast industry is also playing its part, so look out for some major announcements concerning delivery and display, especially in the area of glasses-free viewing. Enjoy!

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3Droundabout is an online trade publication for stereoscopic 3D content creation, delivery and display. A free newsletter subscription form is available at 3droundabout.com/newsletter-subscribe.

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Acquisition

P+S Technik (stand C8240) is showing a prototype of a compact mirrorless side-by-side stereo camera system. Under the working title ASP 3D, the camera is intended to be an affordable, lightweight, highly-functional and fully-automated stereo system. The project is being funded by the German Federal Ministry of Economics and Technology (BMW) and is being driven by P+S Technik, Fraunhofer (stand C7843), Carl Zeiss (C9043), and KUK Film Production. Employing extremely compact processing platforms and high-quality zoom lenses, ASP 3D's on-board intelligence includes the STAN stereoscopic analyzer assistance system for on-the-fly scene

analysis and related stereo alignment. This includes geometric/colorimetric correction of the stereo images on-set and, if desired, automatic adjustment of interaxial distance and horizontal image translation (HIT), resulting in no mechanical calibration being required prior to shooting. The ASP 3D has a modular design and supports interchangeable lenses, motors and sensors, as well as existing accessories. It also includes all of the major electrical interfaces such as HDMI, BNC, USB, Ethernet, Triax, etc. Also on the P+S stand is the Micro Rig. This now allows IO and convergence plus image correction adjustment - up/down, tilt and roll - to be motorised and remotely controlled either by the stereographer with

an LCS-like Cmotion or in a broadcast environment using a tool such as Stereolabs. For those interested in underwater shooting, P+S is showing a 'making of' video about underwater caves in the Yucatan Peninsula, Mexico, featuring the new DeepSee-X underwater housing.

Meduza Systems (stands C11745 and C11845), developer of the TITAN 3D professional camera system, is announcing the Mirror Module and the Mobile Multi Camera System. The Mirror Module is a simple but robust clip-on lightweight attachment for the TITAN which creates the ability for the camera to deliver the complete range of interaxial control between 0-110mm. The design created by Al Mayer,

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Pretend
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Conference Sessions

Saturday 6 April 2013

- When We're Ready: A History of Cinema Technology

Conference: Technology Summit on Cinema
8:45am - 9:15am in Room S222

- Advancing Cameras for Cinema

Conference: Technology Summit on Cinema
9:15am - 10:15am in Room S222

- New and Emerging Standards in Digital Cinema

Conference: Technology Summit on Cinema
11:15am - 11:45am in Room S222

12:00pm - 1:15pm in Room N258

- Understanding HFR: The Trials & Troubles of Shooting at High Frame Rates

Conference: Post|Production World

1:30pm - 2:45pm in Room N258

- The Good, the Bad, and the Ugly of 3D Films: An Essential Guide to the Advantages and Pitfalls of Conversion

Conference: Technology Summit on Cinema
2:15pm - 3:15pm in Room S222

Sunday 7 April 2013

- A Tidal Wave of Pixels: New Workflows for Digital Production

Conference: Technology Summit on Cinema
8:45am - 9:45am in Room S222

- Tutorial on High Frame Rate 3D

Conference: Technology Summit on Cinema
9:45am - 10:15am in Room S222

- Advanced Image Capture and Display in Cinema: Science and Technology Update

Conference: Technology Summit on Cinema
10:30am - 11:30am in Room S222

- Higher Cinema Frame Rates: It's Off and Running (at 48fps) Part I - What's the Big Deal?

Conference: Technology Summit on Cinema
2:00pm - 3:00pm in Room S222

- Higher Cinema Frame Rates: It's Off and Running (at 48fps) Part II - What's the Verdict?

Conference: Technology Summit on Cinema
3:30pm - 4:15pm in Room S222

Monday 8 April 2013

- Display Technologies of the Future

Conference: Super Session Series
10:30am - 12:00pm in Room S222

- Advanced Motion Control 3D: Bringing Photos to Life in 3D

Conference: Post|Production World
3:30pm - 4:45pm in Room N254

Tuesday 9 April 2013

- Real-time, Cloud-Based 3D Virtual Reality Applications

Conference: Connected Media World
11:30am - 12:00pm at Stand A613

- Shooting 'Oblivion'

Conference: Creative Master Series
11:45am - 12:45pm in Room S220

- Marquee Presentation: 'Oz the Great and Powerful'

Conference: Creative Master Series
1:45pm - 2:45pm in Room S220

- Dolby 3D

Conference: Post Pit

2:00pm - 2:20pm at Stand SL15708

Meduza's Chief Engineer, includes an additional single optic that works with either the left or right optic in the side by side set up. The complete switch from side-by-side to Mirror Module takes only a few minutes. All of the functions remain fully motorised and have wireless control. The Mobile Multi Camera System has been designed to replace the necessity for using a complete 3D mobile truck when a smaller system would be more than adequate. It is modular and so can use two or more cameras. All of the controls and data run to and from the camera through an onboard control box and then via fibre back to our own flight case interface. The interface is designed to work with different controllers such as Grass Valley where existing 2D controls are reassigned to 3D functions. Meduza is also be showing the TITAN mounted inside the MK-V Nexus Revolution system for the highest level of stabilisation, and all fully remote-controlled.

LMC (stand C12045) is launching Antelope MkIIs as the latest product within the Antelope high-speed camera family. The camera is phantom powered, based on the 642 chip and its body and controllers have been designed to match the look-and-feel of a standard broadcast camera. Antelope MkIIs records frame rates up to 5800fps in 720p and 2700fps in 1080i. Additional products include Antelope Air - a fully wireless solution; FalconCAM - a gyro-stabilized ultra-slow-motion system; Antelope3D; and Antelope Pico - a POV-style ultra slow motion system based on a 2K full HD sensor.

Sophia Precision (stand C12348) is introducing a precision 4K stereoscopic camera rig. The use of green laser beams coupled with its specially-designed structure allows for a very short camera alignment adjustment time. Even if the camera spacing or convergence is changed for staging purposes, the camera alignment will remain intact, while readjustments caused by lens and camera changes can be done quickly.

Indiecam (stand C12730) is showing what is claimed to be the world's smallest 2k-RAW camera, the indieGS2K, in production-ready 2D and 3D setups. The indieGS2K features global shutter, 120fps, RAW-over-HD-SDI recording, and CinemaDNG workflow, without the need for an external camera control unit.

Demonstrations include two indieGS2Ks recording 3D-RAW to the Convergent Design Gemini 4:4:4 Recorder on the new minirig.eu Minirig - a tiny 3D beamsplitter rig for the indieGS2K camera. New recording options are also being presented, as well as system accessories and multicamera tools.

Stereotec (stand C7940) is showing the Lightweight Rig Premium for the first time with complete 11-axis motorisation driven by a Chrosziel Aladin Control System. The rig is supported by a live automatic alignment solution that makes 3D recording easy and cost-effective by maintaining the highest level of quality at all times. The Lightweight Rig is being shown in a handheld configuration with two ARRI Alexa M and ARRI Alura zooms. It is also possible to use the Lightweight Rig on a steadycam, tripod or crane. The Lightweight Rig is designed to combine accuracy and user friendly design with exceptional stability, and also supports metadata-recording to make VFX work more efficient. Stereotec is also showing the smallest 3D mirror rig available - the Nano Rig with two Cunima Nano cameras, as well as 3D footage by stereographer Florian Maier and his Stereotec Team, who recently received five Lumiere Creative Awards for Outstanding Achievement by the International 3D Society in Hollywood.

AJA Video Systems (stand SL3816) is showcasing Ki Pro Quad, a solid-state portable video recorder for 4K camera-to-post workflows. Ki Pro Quad is designed to facilitate 4K/Quad HD/2K/HD workflow with the efficiencies of Apple ProRes and the flexibility of RAW data in a compact, solid state recording and playback package that easily mounts directly onto a variety of cameras. Ki Pro Quad can record each eye from camera, and then use an AJA Hi5-3D connected to the downscaled HD-SDI dedicated ports on each for a 3D-mixed image to drive monitoring on set.

Convergent Design (stand C6713) claims that its Gemini 4:4:4 is the smallest, lightest uncompressed recorder on the market. Fitted with a 5-inch LCD monitor for record and playback, the product supports upgradable firmware options such as ARRIRAW, Canon 4K Cinema RAW, and Stereo 3D. While offered as an uncompressed and RAW recorder, compressed DNxHD recording will be available as a free firmware update to the unit in Quarter 2.

Atomos (stand C8218) is showing Samurai and Ninja recorders being used with the Panasonic AG-3DA1. Al Caudullo from 3DGuy.tv, is demonstrating his Atomos External Recorder 3D Rig, and is giving a short presentation entitled '3D on a 2D budget'.

Monitoring and Analysis

Bluefish444 (stand SL9721) is showing the latest Windows installer, v5.11.2 that provides multiple free software upgrades for the company's Epoch | 4K Supernova card. The bi-directional BNC structure of Epoch | 4K Supernova ensures that it can be used in either a multichannel SDI ingest, 3D stereoscopic SDI I/O or 4K SDI preview workflow solution and virtually anywhere in between at multiple different video resolutions.

Leader Instruments (stand C6516) is announcing the LV5490 SD to 4K multi-standard multi-waveform monitor. This is designed as a highly-versatile waveform monitor supporting the full range of video production and transmission resolutions from 525 and 625 standard definition up to 3840x2160 and 4096x2160 4K. It incorporates a high-definition 1920x1080 9-inch LCD monitor with a wide viewing angle and high-quality colorimetry. This allows simultaneous analysis of up to four video channels, and it can also be used as a high-quality picture monitor for production crews working on location. The LV5490 accommodates up to eight input channels - four connect to dedicated inputs accepting 3G-SDI/HD-SDI/SD-SDI and featuring SDI re-clocked outputs. Each dedicated input includes Leader's unique cable length measurement capability. The other four channels can be user-configured as inputs

or HD/3G/4K pattern outputs. 3G-SDI dual link and quad link are both supported. Rear panel connectivity includes SDI and DVI rasterising outputs, Ethernet, RS422 serial control, eight digital audio inputs/outputs, eight SDI inputs/outputs, external reference and 75-ohm loopthrough, 90-150V 50/60Hz mains power input and ground. Two sets of HD-SDI dual link signal or 3D assist function can be displayed at the same time. In SDI mode, up to four signals can be displayed simultaneously. In 4K video format mode, 3G-SDI dual link or quad link are supported. Up to four 3G-SDI dual link 4K video inputs or up to two 3G-SDI quad link 4K video inputs can be displayed.

LYNX Technik (stand N1120) is launching yellobrik model CDH 1813, a new SDI to HDMI converter. The CDH 1813 yellobrik replaces the CDH 1811 SDI to HDMI converter, and offers an enhanced feature set for a host of audio/video monitoring and display applications. A key new feature is the addition of 3D format support for monitoring single-link 3D SDI streams on a 3D HDMI monitor. This feature supports side-by-side, top-and-bottom, as well as frame-packing 3D HDMI display modes. The CDH 1813 yellobrik offers a variety of monitoring modes including clean feed of the SDI video signal, burn-in windows for timecode, bit depth, and video format, metadata presence indicators, AFD format codes, and 16-channel audio level meters on the HDMI video output. The CDH 1813 also includes H/V delay to view the horizontal and vertical blanking interval, as well as programmable safe area markers. The CDH 1813 is available with various fibre I/O options, and in addition to front panel control, the CDH 1813 is compatible with yelloGUI, LYNX Technik's

new complementary software application that allows users to access advanced settings.

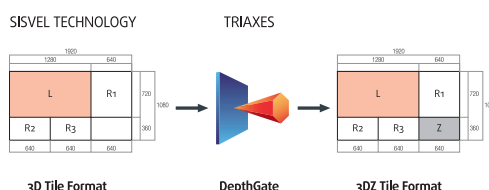
Production and Playout

Binocle 3D (stand C12049 with Thales-Angenieux) is exhibiting the latest version of Binocle TaggerLive correction software that is specially developed for capture and broadcast in real time. Also on show is the Binocle TaggerMovie 3D correction software, a compact and lightweight system that works on an Apple MacBook. This is designed to allow the user to obtain the exact depth they require, with tools for calibration data to speed up the rig's setup. It also supports virtually any visualisation method; numerous monitoring tools, such as zoom, pixel grid, crosshair, shift, etc; instant visual feedback, with easy-to-understand and visual depth cues; depth histogram and depth alarms when going over user-defined boundaries or violating the stereoscopic window; and data on the correction that should be applied in post-production, for eyestrain-free composition and depth management.

Stereolabs (stand OE957) is presenting innovations for leaner and faster 3D content production and quality control. AutoCon, a depth control technology is now integrated into the PURE stereo image processor. Designed for broadcast and film production, AutoCon offers automatic rig interaxial and convergence adjustment based on scene depth, computing in real-time a dense depth map of the scene and adjusting the rig interaxial and convergence automatically to improve the 3D experience while preserving viewers' visual comfort. A complete PURE system with the latest AutoCon and Auto-Alignment technologies is being showcased

3DZ TILE FORMAT Improves Glasses-Free Viewing

When the depth map is computed at broadcasters' premises and inserted in the Tile Format, the algorithm for intermediate view synthesis is improved; this leads to a substantial positive impact on autostereoscopic monitors, in term of cost and performance.



To learn more about 3DZ Tile Format and Sisvel Technology's industrial partners please visit us at Nab 2013

BOOTH: **SU3715**



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Special Attractions

Cinetransformer Mobile 3D Theater

Outside Stand OS1012

Global Village Transmedia is showcasing short form 3D content, along with new 3D tablets and 3D display and signage products.

ATSC Tech Zone

Stand N2837

The ATSC TechZone features technologies related to new and emerging ATSC standards including broadcast 3DTV.

NAB Labs Futures Park

Stand N1336

This is a future-focused showcase of advanced projects.

Must Attend Event

Cool by the Pool II & The Z Awards

Wednesday 10 April 4:30pm - 7:30pm at 3rd Floor Pool Deck, LVH

Register: coolbythepool2.eventbrite.com

Stereoscopic 3D professionals from around the world are invited to enjoy poolside happy hour and enter the raffle to win one of the fabulous sponsor door prizes, including Atomos, Sony Creative Software, Imagineer Systems, Blackmagic Design, Grass Valley, NVIDIA, Red Giant Software, Lynda.com, Emotion3D, Pretend.

Other Events & Parties

Date: Saturday, April 6

- Seven Deadly Sins Party
10:00pm at TAO, Venetian Hotel

Date: Sunday, April 7

- Cocktail and Networking Reception
5:15 pm - 6:00pm in Room N239/N241
 - Broadcast Engineering Conference Reception
5:30pm - 7:30pm in Room S219
- Access: Conference Flex Pass, SMART Pass
- Content Creators Party
8:00pm - 11:59pm at Body English, Hard Rock
Register: contentcreatparty.eventbrite.com/
 - Sunday Official After Party
10:00pm - 11:59pm at Body English, Hard Rock
11:00pm - 11:59pm at LAVO, The Palazzo

Date: Monday, April 8

- A Taste of Vegas - Sony Creative Software
6:30pm - 9:00pm in Room N250
Register: vasst.com/nab2013.aspx
- NAB Show Opening Party
10:00pm - 11:59pm at Marquee, Hard Rock

Date: Tuesday, April 9

- Twelfth Annual CPUG Las Vegas SuperMeet
7:00pm - 11:00pm at Rio Hotel
Register: supermeet.com
- Cirque de L'absurde Outdoor Party
6:00pm - 10:00pm at Gold Lot 2
- Tuesday Official After Party
11:00pm - 11:59pm at LAVO, The Palazzo

Date: Wednesday, April 10

- Wednesday Official After Party
11:00pm - 11:59pm at LAVO, The Palazzo

Date: Thursday, April 11

- NAB Show Closing Party
10:30pm - 11:59pm at TAO, Venetian Hotel

with a fully motorised Lightweight Rig from Stereotec. Also on show is PURE On-Set, which extends PURE capabilities to feature film productions, documentaries and fast-moving shoots. PURE On-Set v1.3 adds compatibility with AJA Io XT, and the update also includes an improved metadata logging system that can record real world values of zoom, iris, focus, interaxial and convergence, reducing considerably the amount of time spent on correctly rendering visual effects in post-production. Stereolabs VERITY is on show too, and offers new tools to check S3D quality for file-based stereo. VERITY v1.3 introduces depth tests and representation tools to simplify the error identification process in post-production. Furthermore, a playback system is now available in VERITY to enable users to visually check video files and QC reports directly within the application.

Qube Cinema (stand SL12216) is demonstrating its system for integrated 4K DCP review and playback. The Qube XP-I server, Xi 4K Integrated Media Block and the Quad 3G interface for digital cinema projectors allow integrated postproduction and digital cinema mastering workflows. Post-production facilities with 4K DI suites can use one projector setup for both HD-4K uncompressed colour grading and 2K-4K digital cinema playback, providing comprehensive review and quality control. In addition to its post-production capabilities, the XP-I server can synchronise dual Xi IMBs in DLP projectors, thus increasing screen brightness for high-frame-rate 3D exhibition to 14 foot-lamberts, a level which is comparable to that of 2D screenings.

DIT Station (Sonnet stand SL10924 and Assimilate stand SL12705) is introducing the DIT Station Rogue4, the latest version of the company's ultra-portable and compact on-set data management and playback workstation. The Rogue4 is faster, using Sonnet Technologies' built-in Thunderbolt expansion, media ingest, and storage solutions, offering performance up to 900MB/s. Housed in a military-grade case with custom ventilation, the all-new ultra-portable and rugged DIT Station Rogue4 provides a fast and reliable PCIe and Thunderbolt backbone for a wide range of on-site digital intermediate (DI) tasks. It works exclusively on the 15-inch MacBook Pro Retina platform, integrating multiple

Sonnet Echo Express Thunderbolt-to-PCIe Expansion Chassis with popular video I/O cards for tasks such as transcoding and playout. These features, combined with the Rogue4's wireless connectivity, iPad mount, and full I/O interfaces, and designed to provide DI professionals a highly-versatile on-site workstation that is easy to set up. Users can perform basic data wrangling tasks as well as high-speed transcoding, full-resolution 2D/3D side-by-side playback, on-set image review and adjustment, and wireless delivery of dailies right out of the case via the onboard Wi-Fi terminal.

New features of the **Autodesk (stand SL3316)** Entertainment Creation Suite 2014 include 3D animation, visual effects and creative tools, Autodesk Maya 2014, Autodesk 3ds Max 2014, Autodesk MotionBuilder 2014, Autodesk Mudbox 2014, Autodesk Softimage 2014 and Autodesk Sketchbook Designer 2014. All of these have been updated to offer new workflow enhancements that help artists collaborate, manage complexity and move data through their pipeline more efficiently. With three configurations, the Suites are designed to scale to meet the demands of any sized team, budget or project.

The **Orad (stand SL5709)** Stereographics system renders stereo graphics in real time and displays them over the stereo image. With Stereographics, content such as sports, weather channel branding, elections, etc can be updated in real time, with the broadcaster having full control over the depth of the graphics and real time control of interaxial and convergence. The single-box solution can generate side-by-side or separate left/right signals in either 720p or 1080i. Existing 3D graphics can be used in the stereo environment without needing to be re-authored, and two linear keyers allow overlaying graphics on independent left/right signals. Video clips and textures in stereo can be played back without alteration, and output of the HD video graphics can be previewed in 3D, without the need for a 3D-capable professional video monitor.

Post-Production

Pretend LLC (Cosmopolitan Hotel), a company launched by the founders of Nothing Real - developers of the visual effects software Shake - is presenting new developments to the Stereoid stereographic

3D software for under US\$1000, plus a first look at an exciting new product in development. Stereoid is a simple user interface that natively supports ARRIRAW and REDCODE RAW formats, as well as QuickTime ProRes for both input and output with the right configuration. Aimed at anyone involved in 3D, from VFX artists to stereographers, editors and more, Stereoid can be used as the main tool of a stereoscopic workflow to correct the plates and perform artistic changes of depth. It can also be used to complement tools in an existing stereoscopic pipeline to speed up the correction of stereo defects and performance of depth adjustments. As a key component of the dailies process, it can automatically produce corrected plates with the option to carry files and metadata for further use in the post-production process, and can be integrated with editorial to fix problematic stereo sequences or enhance stereo effects. For on-set and near-set applications, it can be used to provide technical and artistic guidance during a stereoscopic shoot. To sign up early for a group demo go to www.pretendllc.com/nab2013_signup.html

Quantel (stand SL2109) is showing SynthIA, a new standalone software package for professional high quality S3D interaxial adjustment in post. Its sophisticated analysis and synthesis algorithms are designed to produce high-quality results, even with the most demanding shots. SynthIA provides a complete suite of high-quality Stereo 3D manipulation tools including: Multiple display modes; Analytical tools (luma/chroma maps, vectorscope, disparity maps and Z-view); Colour match; Geofix (removes left and right eye geometry differences), Interaxial adjustment (changes the apparent camera interaxial distance after

the shoot) and Z-warp (allows the disparity to be adjusted differently at different depths in the scene). Quantel is also showing Pablo Rio V2, a 64-bit application that unlocks the full power of the Pablo Rio PC platform. The free-of-charge V2 software supports real-time 4K 16-bit, offering multiple colour correction cascades at 4K with real-time playback.

SGO (stand SL10321) is launching Mistika Air, a complete real-time Ultra HD solution for intelligent broadcasting, including highly-paralleled HD, Ultra HD, 4K and 8K operation with multiple codecs, to provide broadcasters with cost-effective, high-end production tools. Meanwhile, Mistika Post version 7.5 combines next-generation colour grading tools, in an ACES-compliant environment, with advanced editorial, VFX, finishing, and more. Mistika's colour grading system has been further developed to provide unprecedented levels of control over every aspect of the image and, as with all functions in Mistika, is ready for 2D and Stereo 3D productions using standard or high frame rates and at all resolutions.

ASSIMILATE (stand SL12705) is demonstrating SCRATCH version 8 - a 'post house in a box', from dailies, to conform, colour-grading, compositing, and through to finishing - and SCRATCH Lab version 8, a robust dailies or VFX review digital pipeline. Designed as a comprehensive toolset for data-centric digital cinema and episodic television productions for 2D and Stereo 3D projects, both products support multiple formats, including ARRI RAW, Sony F65 and F5/55, Phantom, and Canon 5D, as well as enhanced support for RED ONE, RED ONE MX, SCARLET, and EPIC at all resolutions. All versions of SCRATCH and

SCRATCH Lab software, running on Mac OS X and Windows, feature SDI and 3G output via AJA Kona 3G graphics cards, fast dailies rendering, and improved metadata and time-code handling. The company is featuring SCRATCH 4K DI workflows powered by HP Z820 workstations from Versatile Distribution Systems, AMD FirePro Graphics, and 4K displays from Eizo and Sharp. Version 8 of SCRATCH and SCRATCH Lab features more camera formats and a unique gallery that enables artists to save looks, grades and user settings in the cloud so they can be accessed from project to project, or even from system to system.

Blackmagic Design (stand SL218) is showing DaVinci Resolve 4K3D using Proavio storage solutions. Designed for advanced colour correction for Mac OS X, Windows and Linux platforms, DaVinci Resolve can handle a wide range of cameras, and now supports retina screens too. Also available from Blackmagic Design is UltraStudio 4K. This rack-based 'break out box' includes the latest high-performance video technology such as 4:4:4 and dual-channel 3D stereoscopic capture and playback, plus full-resolution 4K monitoring. It features the latest SDI, HDMI and analogue video, and timecode connections, as well as AES/EBU balanced and unbalanced analogue audio.

Digital Vision (stand SL14518) is showing enhancements to the Nucoda colour grading product line. These include expansion and refinement of the ACES workflow, as well as integration with Cortex Dailies from MTI. This integration allows for complex data to be shared between Nucoda and Cortex, including CDL, LUT and Camera RAW settings. Other new features include an updated DVO stereo fix tool and

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- Simpler workflow.
- Reasonable price and lower TCO.

updated stereo tools, including two new warping tools as well as a de-warper to fix camera lens distortion.

Conversion and Mastering

YUVsoft (stand SL3629, Plug In Pavilion) is demonstrating fast, quality 2D-to-3D conversion solutions that operate as plug-ins for Adobe After Effects and The Foundry Nuke. The company's two flagship products - 2D to 3D Suite and Stereo Processing Suite - include a broad range of powerful artistic tools, enhancing and simplifying stereoscopic 3D conversion and postproduction for motion-picture and television content. These products are designed for medium-size VFX studios and production houses, as well as large conversion studios that perform extensive 2D-to-3D conversion. YUVsoft 2D-to-3D software employs a highly-automated and simplified conversion workflow. A valuable labour- and cost-saver is Depth Propagation (part of the company's 2D to 3D Suite), a tool that automatically creates depth-map sequences for an entire scene using just a few key frames. This software minimises manual operations and increases the quality of stereo video generated from 2D+Depth information. The company is unveiling a new tool for the 2D to 3D Suite that enables background reconstruction to facilitate clean-plate creation. Employing a temporal approach, the algorithm automatically restores background details and estimates depth using the shot's input 2D source in addition to creating masks for foreground objects and creating a depth map. It can also accept input of an incomplete depth map that provides just the necessary information in areas to be used for background reconstruction. The tool works with the stereo generator to yield maximum efficiency when creating multilayered high-quality stereo.

Dimenco (Dolby stand SU1702) is showing version 2 of its @DEPTH software. Based on Philips and Dolby technology, @DEPTH is designed to convert 2D video content to high-quality 3D content in all formats in a cost-effective, semi-automatic way. An operator can manually indicate depth information to key frames by colouring them whiter or darker and the software then automatically calculates the depth information for each of the image frames of

the remaining part of that scene. @DEPTH can also be used to edit Stereo 3D content. It calculates the depth information from high-definition stereo content automatically using the disparity between the left and right image. This gives the user the ability to compose shots, edit the amount of depth per frame and finish for different targets. The depth information can be used to generate a high-quality stereo or glasses-free 3D image and previews of the converted content can be shown in real-time on a Dimenco glasses-free 3D display or a traditional glasses-based Stereo 3D display. Version 2 introduces an improved algorithm called 'Accurate', and a depth maps creation service for US\$5 a key frame.

Among the new additions to the CLIPSTER DI workstation from **Rohde & Schwarz DVS (stand SL6316)** are HFR DCP enhancements and support for the AS-02 and IMF standards. The latest version is designed to make everyday DCI and mezzanine format mastering much easier. The HFR enhancements for DCP generation mean that it is now possible to master cinema films at up to 96fps (HFR3D at 48fps) in high image quality. With 3D projects, CLIPSTER uses a frame rate of 48fps instead of the usual 24fps. Movements appear noticeably crisper and smoother to the viewer as the high frame rate eliminates critical image issues that are annoying to the eye, and adds additional information, creating an extremely immersive experience.

Distribution

Sisvel Technology (stand SU3715) is demonstrating the 3DZ Tile Format for improved glasses-free viewing. The 3DZ Tile Format saves bandwidth and costs for broadcasters, while providing an enhanced glasses-free user experience. It is backwardly compatible with 2D high-definition TV sets and offers significant advantages to broadcasters by using a single bandwidth-efficient stream. The 3DZ Tile Format has been designed to simplify and to improve the performance of glasses-free 3D televisions. Current 3D devices require the generation of a large number of intermediate images or 'views' that are sent to a special TV panel. In order to generate the intermediate views, the TV set needs a depth map, namely a numeric representation of the depth of the scene. This map is normally produced

within the TV set and requires complex software. Conversely, if the map is generated at the broadcaster's end, more sophisticated and accurate algorithms can be used, thus reducing the cost and the complexity of the receiver. The Tile Format exploits the bottom right empty space of the composite video frame to broadcast a depth map represented as a gray scale image. The 1080p full HD frame of the 3DZ Tile Format provides the necessary information to display 3D content in an optimised way both on stereoscopic TV (with glasses) and on autostereoscopic TV (without glasses).

Display

Dolby (stand SU 1702) is showing Dolby 3D which, the company argues, will make 3D adoption a reality. The glasses-free end-to-end system, developed jointly by Dolby and Philips, is designed to address all aspects of the content chain to ensure that all 3D content looks great and that Dolby 3D content looks even better. Aimed at 3D-at-home displays or devices such as tablets and mobile phones, Dolby 3D avoids narrow sweet spot constraints and the need for 'dedicated' 3D channels as it can mix freely with any non-3D content.

And finally, for those interested in 3D sound, as well as the highest quality video, **NHK (stand N231, NAB Labs Futures Park)** is presenting the first US over-the-air transmissions of the Super Hi-Vision system. There is a presentation theatre for viewing the system's 8k video and 22.2-channel sound (including content recorded in cooperation with the Olympic Broadcasting Service and the BBC at the London 2012 Olympic Games). The system's 7680 x 4320 video format provides 16 times the number of pixels of HDTV for stunning clarity and an immersive visual experience, while the system's massive multichannel audio capabilities produce unprecedented immersion into a 3D sound space for viewers located anywhere within a large viewing area. In addition to the theatre presentation, NHK is showing for the first time outside Japan, the real-time over-the-air transmission and reception of Super Hi-Vision broadcasts, using two UHF television channels. Also on show is a 120Hz Super Hi-Vision camera, a compact Super Hi-Vision camera for mobile use, and a 22.2 multichannel sound production system.

Exhibitors Showing Stereo 3D Products - Sorted Alphabetically

1 Beyond	SL7423	DSC Laboratories	C10515	Polecam	C9915
16x9	C10408	Dulce Systems	SL13116	Prestaigne Charter	C8547
3D Innovation Center	C7843	EditShare	SL9010	Pretend	Cosmopolitan Hotel
Abekas	SL6313	Egripment U.S.A	C8612	support@pretendllc.com	
Actif Polarizers	C12614	Epson	SU11417	www.pretendllc.com	
ACZ Group	SL6029	Ericsson	SU821	Proavio	SL7408
Adobe	SL3910	FilmLight	SL3928	PURE4C	C7841
AEE	C8743	FOR-A	C5116	Quantel	SL2109
AJA Video Systems	SL3816	FORUM8	A800	marketing@quantel.com	
		Fraunhofer	C7843	www.quantel.com	
Aldea Solutions	SU6225	Fujifilm	C7525	Qube Cinema	SL12216
ARRI	C4337	Gecko-Cam	C8839	RED Digital Cinema	SL1516
ASSIMILATE	SL12705	GoPro	C6537	Reflex Motion Control	C11245
Astrodesign	C10848	Grass Valley	SL206	Rohde & Schwarz DVS	SL6316
ATEME	SU7102	i-Chips USA	SL8321	Ross Video	N3808
Atomos	C8218	Ikegami	C5108	SAPEC	SU10521
Autodesk	SL3316	Imagineer Systems	SL3329	Screen Plane	C8840
Avid	SU902	Indiecam	C12730	SGO	SL10321
Beijing Wioldy Technik	C12416	IneoQuest	SU9402	Shenzhen Pchood Technology	C11542
Binocle	C12049	International Datacasting	SU3711	Show Sage/Dataton	SL15416
Blackmagic Design	SL218	IO Industries	C12029	Sisvel Technology	SU3715
info@blackmagicdesign.com		JMR Electronics	SL10124	info@sisveltech.com	
www.blackmagicdesign.com		JVC Professional	C4314	www.sisveltechnology.com	
BLT Italia	C11923	K2E	N3134	Skymicro	Renaissance Hotel
Bluefish444	SL9721	Leader Instruments	C6516	Sony	C11001
Bradley Engineering	OE1337	Lightcraft Technology	SL12516	Sophia Precision	C12348
Brainstorm Multimedia	SL10621	LMC LiveMotionConcept	C12045	Stereolabs	OE957
Calibre UK	N1816	LYNX Technik	N1120	Stereotec	C7940
camBLOCK	C10942	Mark Roberts Motion Control	C8035	info@stereotec.com	
Cartoni USA	C9921	Marquise Technologies	SL12508	www.stereotec.com	
Christie	SL2609	Marshall Electronics	C6519	SterGen	SL3305
Chyron	SL1010	Matrox Electronic Systems	SL4616	Tektronix	N609
Cinedeck	SL14911	Maxon Computer	SL5316	Thales Angenieux	C6020
Cinemax	C12729	Meduza Systems	C11745, C11845	The Foundry	SL3324
CineRaid	SL4608	MTF Services	C12633	Transvideo	C8033
Cinetransformer International	OS1012	NEBTEK	C2946	TV One	SL9416
cmotion	C8840	NEP	OE1309	TVLogic	SL1605
Compix Media.	SL5705	NHK	N231	Ventuz Technology	SL6830
Convergent Design	C6713	NICT	N1238	Vista Systems	SL2609
coolux International	C7549	Nimbus	SU12415	Vivicast Media	SU-CP1
CROSSCO	SU10024	Nuvation	SL11618	Vizrt	SL3305
Crystal Vision	N1523	NVIDIA	SL3905	WASP3D	SL6328
Cubix	C12714	OmniTek	N4323	WIGE Media	C12716
Deltacast.tv	SL11516	Orad Hi-Tec Systems	SL5709	XD Motion	C12045
Digital Vision	SL14518	P+S Technik	C8240	YUVsoft	SL3629
Dimenco	SU1702	info@pstechnik.de		nab@yuvsoft.com	
DIT Station	SL10924, SL12705	www.pstechnik.de		www.yuvsoft.com	
Dolby Laboratories	SU1702	Panasonic	C3607	ZGC	C11150
		Photo Research	SL13316		

You can download updated exhibitor lists, sorted both alphabetically and by stand number, from our dedicated 2013 NAB Show spotlight page at www.3droundabout.com/3d-nab-2013. We will also post all the latest and embargoed NAB Show news and events to this spotlight page - so bookmark it now!



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