

Panasonic
ideas for life

**Professional 3D
Production Systems**

April 2011



PROFESSIONAL



Panasonic's Professional 3D Production Systems Open a New 3D Era

Panasonic's Total 3D Solution for Next-generation 3D Production Environments

In response to the growing need for 3D image production, Panasonic offers a high-quality 3D production solution by drawing on our expertise in all facets of visual technology, ranging from professional cameras and authoring to display systems. Our integrated twin-lens 3D camera recorder combines excellent flexibility, portability and operating ease, and eliminates many of the time-consuming processes that are common to conventional Rig-type 3D camera production.

It also ushers in a revolutionary file-based 3D image production workflow. With its improved efficiency, the Panasonic 3D camera recorder saves both time and cost to use in more creative activities.

Panasonic also supports high-quality 3D image packaging. The Panasonic Blu-ray 3D™ authoring service supports Full HD 3D content distribution.

And Panasonic offers a wide range of 3D display systems to suit various applications, including a FULL HD 3D plasma display to use as digital signage and presentations, and 3D projection systems to use in larger screen. By offering a total 3D solution and a FULL HD 3D Home Theater System configured with a FULL HD 3D Blu-ray Disc™ Player and FULL HD 3D TV, Panasonic is bringing exciting 3D experiences to more people than ever.

3D PROFESSIONAL

PROFESSIO

AG-3DA1
Integrated Twin-lens
3D Camera Recorder



AV-HS450
3D Compatible Multi Format
Live Switcher



〈 For schools, public facilities, event halls, and more. 〉

Panasonic provides FULL HD 3D plasma displays and 3D projection systems for viewing large 3D images.

FULL HD 3D Plasma Display



3D Projection Systems



FULL HD 3D Home Theater System



〈 For homes 〉

Panasonic FULL HD 3D TVs bring stunning FULL HD 3D images to viewers at home.

Panasonic Disc Manufacturing Corporation of America (PDMC)



Blu-ray Disc™

Blu-ray 3D™ authoring

By maximizing the know-how that we have accumulated with the establishment of the Blu-ray 3D™ standard and the development of a unique encoding system, Panasonic offers a high-quality 3D authoring service for distributing 3D packages.



Panasonic Hollywood Laboratory Advanced Authoring Center



3D Broadcasting



3D Editing

Panasonic has a professional 3D LCD monitor for editing operation and a professional 3D plasma display to use in color grading and image quality management. In the area of 3D editing, Panasonic also actively collaborates with manufacturers of nonlinear editing systems and software.

PANASONIC 3D PRODUCTION SYSTEMS

The world's first* AG-3DA1 integrated twin-lens 3D camera recorder, which was developed with proprietary Panasonic technologies, provides a simple solution for high-quality 3D video production. Panasonic also offers the AG-HMX100 3D Compatible Digital AV Mixer for switching signals from 3D cameras and the BT-3DL2550 Professional 3D LCD Video Monitor for on-site checking of captured 3D images in order to respond to diverse 3D production needs.

AG-HMX100
3D Compatible
Digital AV Mixer



BT-3DL2550
Professional 3D
LCD Video Monitor



* As an integrated twin-lens 3D camera recorder capable of recording full-HD video onto its memory cards. As of April 2011 (based on our investigations).

Professional 3D Production Systems

The World's First*1 Integrated Twin-lens
FULL HD 3D Camera Recorder.
File-Based Recording for Efficient FULL HD 3D Production

AG-3DA1

Memory Card Camera Recorder



AVCCAM

- The twin-lens system lets you adjust the convergence point for recording 3D images with natural-looking depth.
- The two independent optical systems add flexibility to expressive 3D image recording.
- Equipped with two pairs of 1/4.1 type approx. 2.07 megapixels 3MOS units for left-eye and right-eye images.
- The recording system uses AVCHD professional high-image-quality PH mode.*2 Full-HD left-eye and right-eye images are recorded in sync onto two SDHC/SD Memory Cards.
- Switchable 59.94Hz/50Hz for worldwide recording capability.

Recording Format	When set to 59.94 Hz	When set to 50 Hz
1080	1080/59.94i, 1080/29.97p, 1080/23.98p (Native*)	1080/50i, 1080/25p
720	720/59.94p	720/50p

* In the Native mode, AG-3DA1 records only active frames.

- The lenses, camera head and recorder section are integrated into a compact body. Unlike a conventional rig-type 3D camera system, this model brings excellent flexibility and mobility to FULL HD 3D recording.
- Lightweight camera body weighs approx. 2.4 kg (approx. 5.3 lb) for excellent mobility.
- Equipped with a 8.1 cm (3.2 inches) (16:9) side-mounted LCD monitor with approx. 921,000 dots. Left channel/Right channel/Overlay switchable display.
- Equipped with HDMI 3D (frame packing) in addition to HD SDI (x2, simultaneous).
- Built-in Stereo microphone.
- Provided with two XLR connections for either microphone or line input.
- Equipped with remote terminal for focus, iris, zoom, REC start/stop, and convergence point.
- Auto REC function for control of REC start/stop of an external recorder connected via SDI.

*1: As an integrated twin-lens 3D camera recorder capable of recording full-HD video onto its memory cards. As of April 2011 (based on our investigations).

*2: A Class 4 or higher SDHC or SD Memory Card is required for PH recording.

AG-3DA1 Specifications

Power Supply:	DC7.2 V (using with battery), 7.9 V (using with AC adapter)
Power Consumption:	Approx. 17 W (when recording)
Weight:	Approx. 2.4 kg (Approx. 5.3 lb) excluding battery
Dimensions (W x H x D):	158 mm x 187 mm x 474 mm (6-1/4 inches x 7-3/8 inches x 18-11/16 inches)

Adding 3D Stereoscopic Production Capabilities to
Industry-Standard Multi-format Switcher

AV-HS450

Multi Format Live Switcher



- Optional AV-HS04M7D board enables versatile 2D Switcher AV-HS450 to switch 3D signals with wipe, dissolve and other effects.

AV-HS04M7D



- In 3D mode, up to nine*2 pairs of 3D signals from stereoscopic cameras or other 3D compatible devices can be input.
- Cuts, Dissolves, Wipes and other transitions are easily performed in 3D mode.
- Three 3D Video Output Formats : Simultaneous, Side-by-side, and Line-by-line are assignable to each SDI output terminals.
- Mixed Outputs facilitate 3D Adjustments : Left and Right images mixed (LRMIXa), Magenta on Left and Green on Left images mixed (LRMIXb) and Luminance difference between Left and Right displayed by Grey scale (LRDiff)
- 3D Correction Function : Vertical/horizontal reversing and position correction can be set on each input for rig-type 3D system.
- Primatte®*3 chroma key composition in 3D : Chroma key composition can be set on both Left and Right in real time.
- The 3D video signal status can be overlaid on the 3D video in PGM and PWV display in the multi-view display (1/4 size only).



Ten Split Pictures (LRMIXa Image)

*1: 3D functions cannot be available without the optional board AV-HS04M7D.

*2: The optional AV-HS04M1 SDI Input Board is required. Up to eight stereoscopic inputs are standard without this board.

*3: Primatte® is a registered trademark of IMAGICA DIGIX Inc.

AV-HS450 Mainframe (Part number: AV-HS450U1) Specifications

Power Supply:	AC 100 V-240 V 50Hz/60Hz
Power Consumption:	120 W
Weight:	Approx. 9.8 kg (21.6 lb) (without options/excluding accessories)
Dimensions (W x H x D):	482 mm x 88 mm x 471 mm (19 inches x 3-7/16 inches x 18-9/16 inches) (excluding protrusions)

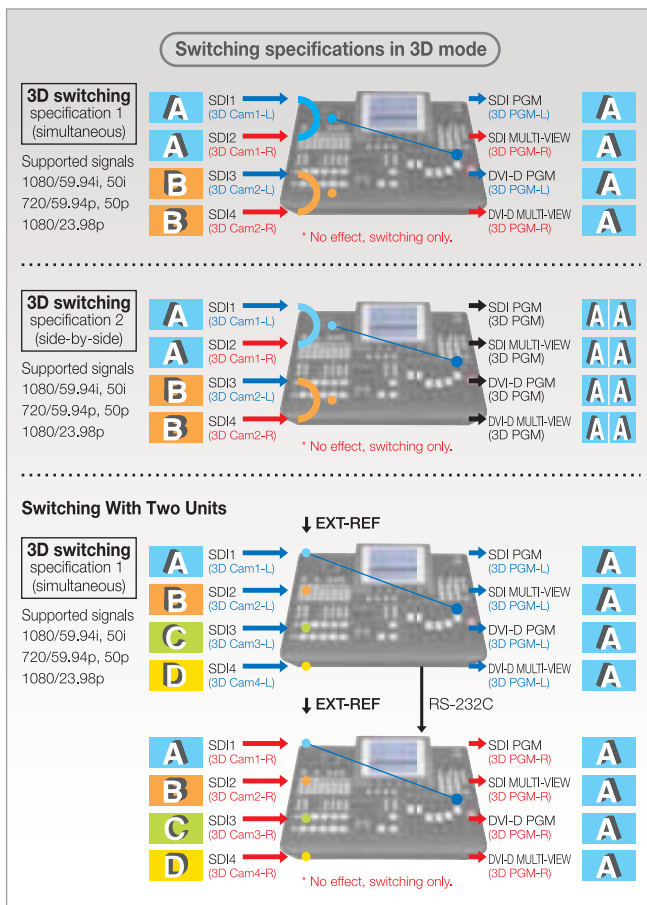
Able to Easily Switch between 3D Camera Feeds

AG-HMX100

Digital AV Mixer



- Simplified switching function* for dual-SDI images from 3D cameras.
 - Can be used to configure a 3D live switching system by combining with multiple 3D cameras and 3D projection systems.
 - Supports two types of 3D video output: Simultaneous and side-by-side.
- * Switching of images only effects not supported.



AG-HMX100 Specifications

Power Supply:	AC 100 V-240 V 50Hz/60Hz
Power Consumption:	60 W
Weight:	Approx. 7.9 kg (Approx. 17.4 lb)
Dimensions (W x H x D):	424 mm x 197 mm x 400 mm (16-3/4 inches x 7-3/4 inches x 15-3/4 inches)

Complete Functionality and Interfaces for Broadcast and Professional Use in 3D Production

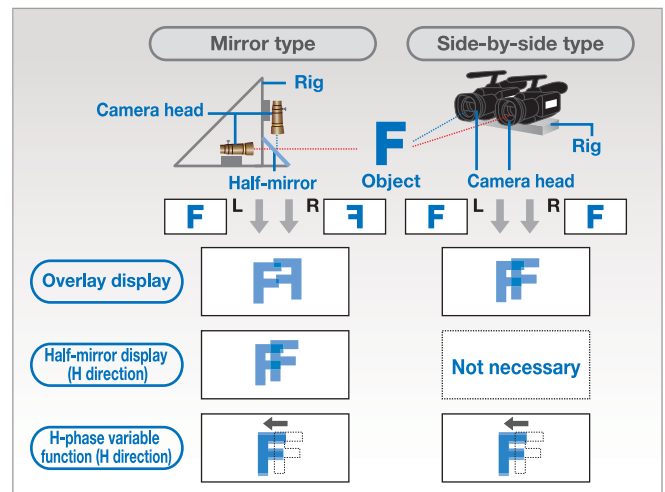
BT-3DL2550

LCD Video Monitor



Two BT-PGL10G polarized glasses supplied with the product.

- 64.8 cm (25.5 inches) LCD panel with wide color gamut and 10 bit 3D LUT (Look Up Table) for faithful color reproduction.
- Uses Xpol® polarized filters.
- Supports dual HD SDI inputs to display 3D images directly from a 3D camera.
- Supports three types of 3D video input: Simultaneous (dual HD SDI), line-by-line and side-by-side.
- Equipped with special display functions for adjusting images from a rig-type 3D camera system.



- Equipped with functions and interfaces necessary for broadcasting use.
 - Calibration function
 - Split-screen (two windows) function
 - High-quality image processing achieved by an I/P conversion circuit with a delay of less than 1 field, diagonal line correction, high-speed moving picture response and others
 - Various markers, crosshatch pattern display, blue-only display
 - Time code display with HD SDI input
 - RS-232C and GPI remote

BT-3DL2550 Specifications

Power Supply:	DC24 V 4.5 A, DC5 V 0.03A AC adapter input: 100 V-240 V 50Hz/60Hz, 1.6 A to 0.6 A
Weight:	Approx. 10.3 kg (Approx. 23.1 lb) (Including stand) Approx. 8.8 kg (Approx. 19.4 lb) (Not including stand) AC adapter: Approx. 1.7 kg (Approx. 3.7 lb)
Dimensions (W x H x D):	599 mm x 440 mm x 220 mm (23-5/8 inches x 17-5/16 inches x 8-11/16 inches) (Including stand) 599 mm x 410 mm x 100 mm (23-5/8 inches x 16-1/8 inches x 3-15/16 inches) (Not including stand) AC adapter: 232 mm x 50.5 mm x 177 mm (9-1/8 inches x 2.0 inches x 6-15/16 inches)

Other Products for 3D Production

Best-in-class*1 WXGA Resolution and High Contrast Professional Monitor with a 3D Shooting Assist Function

BT-LH910G LCD Video Monitor <NEW>



- The new 23 cm (9 inches) IPS LCD panel (WXGA) features high brightness, superb contrast, and wide viewing angle of 176° in both vertical and horizontal directions, and brings high image quality to the portable class.
- The LED backlight is mercury-free, also helps to preserve the global environment.
- Features 3G SDI, SDI (HD/SD compatibility), HDMI, composite (VIDEO), and component (Y/Pb/Pr) input.
- When the left-eye and right-eye video signals from a 3D camera are connected to the two SDI input terminals to check 3D images on its 2D display.
- Diverse 3D Camera Assist Functions
 - **MIRROR:** With the left-eye and right-eye images displayed side-by-side on the screen, the right-eye image can be flipped in the horizontal and / or vertical direction.
 - **SHIFT:** This function lets you move only the right-eye image horizontally and / or vertically in the overlay display. It's handy for checking angle misalignment between the left-eye and right-eye images.
 - **COMPARISON:** The Comparison function displays half-tone markers inside the left-eye and right-eye images displayed side-by-side.
 - **CONVERGENCE:** The Convergence function lets you switch the images automatically or manually. This makes it easier to confirm the convergence point.
 - **COLOR:** The Color function combines left-eye and right-eye images and displays them in a checkerboard pattern on a full screen.
 - **ZOOM FOCUS:** This function enlarges and displays a section of images displayed side-by-side.
 - **VERTICAL:** The Vertical function lets you closely inspect vertical misalignment between the left-eye and right-eye images using an auxiliary horizontal-line marker.
 - **OVERLAY:** Using this function, you can check the width of the left-right disparity by superimposing a vertical-line marker (in 3% intervals) on the overlay display or difference image between right and left in black-and-white display.*2

*1: In the 23 cm (9 inches) and smaller professional monitor category. (According to a Panasonic survey in April 2011)

*2: The Overlay display on the BT-LH910G does not provide 3D effects even if 3D Eyewear is worn.

BT-LH910G Specifications

Power Requirement:	DC 12 V (11.0 V – 17.0 V), 1.9 A
Weight:	2.4 kg (5.3 lb), Including stand / 1.7 kg (3.7 lb), Not including stand
Dimensions (W x H x D):	230 mm x 214.5 mm x 170 mm, (9-1/16 inches x 8-7/16 inches x 7-11/16 inches) (Including stand) 230 mm x 183 mm x 78.5 mm, (9-1/16 inches x 7-13/64 inches x 3-1/16 inches) (Not including stand)

3D Images Can be Displayed and Checked on a Large Screen

3D Plasma Display

386 cm (152 inches) TH-152VX1**
262 cm (103 inches) TH-103VX200
216 cm (85 inches) TH-85VX200



- Full-HD signals for each eye - frame sequential technology, which produces high-quality 3D images, is used.
- Clear, detailed 3D images are achieved by a crosstalk reduction technology developed by Panasonic.
- HDMI 3D compatible.

*1: An optional, external infrared emitter is required for viewing 3D images.

* For details, please visit the following website. < <http://panasonic.net/proplasma/> >

For Displaying Bright, High-contrast 3D Video at Large Events

3D Projection Systems PT-DZ12000 DLP® Projector



Projection system configuration example

- The 3-chip DLP®-system projectors achieve high brightness of 12,000 lm and high contrast of 5,000:1, and are compatible with WUXGA Real for full-HD display.
- Uses two DLP® projectors for left-eye and right-eye images to ensure high brightness and contrast even on a screen larger than 381 cm (150 inches).

* This system uses polarized glasses.

An AVC-Intra Codec, HDMI 3D Output, and USB 3.0 (HOST) Allow Use in a Variety of Broadcast and Production Applications

AG-HPD24

Memory Card Portable Recorder "P2 Portable Deck"

<Scheduled for release in August 2011>



- Three HD recording and playback codecs supported: AVC-Intra 100 for high-quality 10 bit 4:2:2 images, AVC-Intra 50, and DVCPRO HD
- Two-unit connection enables synchronized 3D recording and playback*1.
- UP/Down conversion between HD and SD as well as Cross conversion between 720 and 1080 during playback
- 24 bit, four-channel audio recording in AVC-Intra 100/50
- HDMI output for consumer display devices
- Offers DVCPRO 50/DVCPRO/DV multi-codec capability for SD video.
- 50 Hz/59.94 Hz switchable for world wide use
- Battery operation is possible for field use.
- Compact size with 2U height and half-rack width main unit weighs only about 2 kg (approx. 4.4 lb).
- The 87.63 mm (3.45 inches) color LCD is mounted to the front panel.
- HDMI (3D-compatible) output, HD/SD SDI input/output, video monitor output, audio monitor output, headphone output, REF input, TC input/output, XLR analog audio input, USB3.0 (HOST) and USB2.0 (DEVICE).
- The RS-422A (9-pin) terminal enables remote control*2 from an editing controller or other device.
- Two P2 card slots provide continuous recording of up to 128 minutes*3 in AVC-Intra 100 mode when using two 64 GB cards.

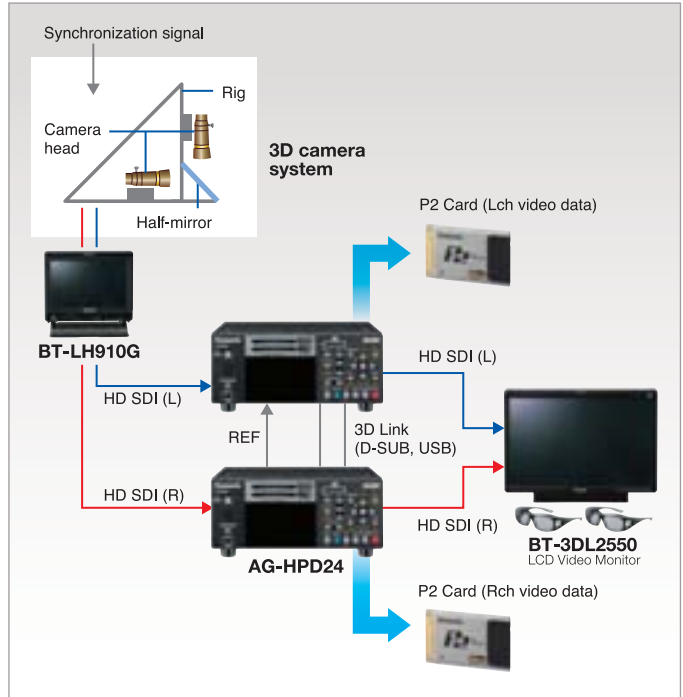
*1: 3D recording and playback is only possible with the AVC-Intra codec. HDMI (3D) supports output for playback only.

*2: Cannot be used as an editing recorder with linear editing system.

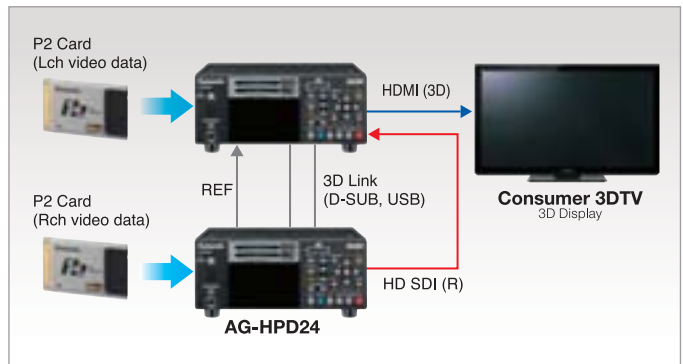
*3: Without replacing cards.

System Applications with AG-HPD24

3D Recording System



3D Synchronized Playback

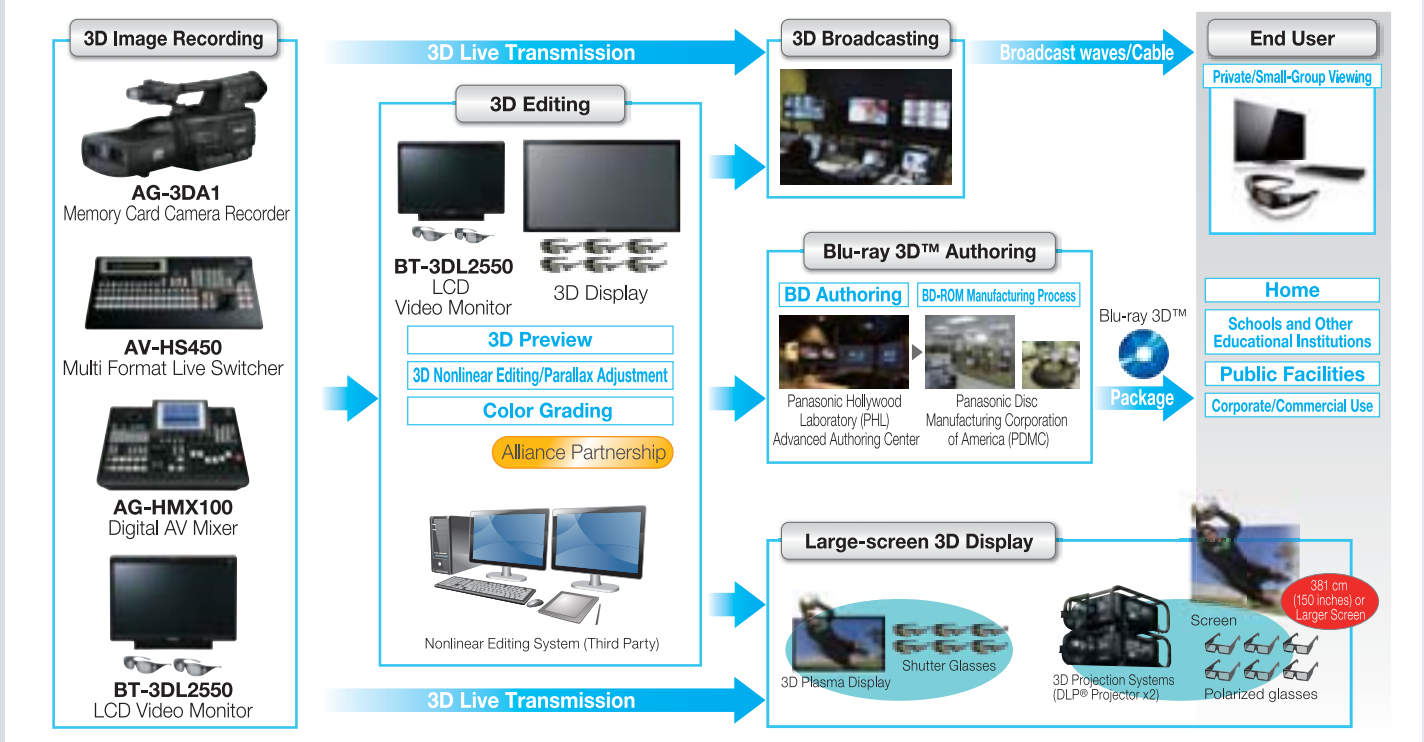


AG-HPD24 Specifications

Power Source:	DC 7.2 V with battery, DC 7.9 V with DC input
Power Consumption:	Approx. 18 W
Weight:	Approx. 2.0 kg (4.4 lb), main unit only
Dimensions (W x H x D):	210 mm x 88 mm x 200 mm, without rubber shoes (8-1/4 inches x 3-1/2 inches x 7-7/8 inches)

System Applications for Professional 3D Production

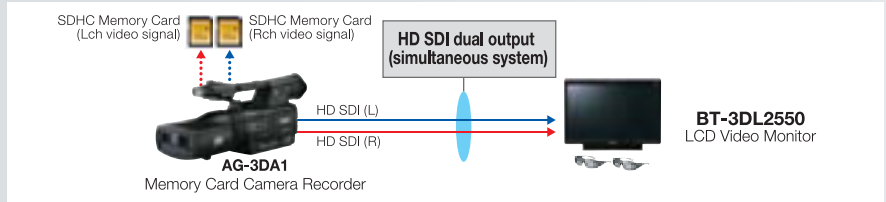
From Shooting, Editing, Broadcasting, Authorizing to Home Viewing Panasonic's 3D Solution Does It All



3D Acquisition System

● 3D Recording with 3D Camera Recorder

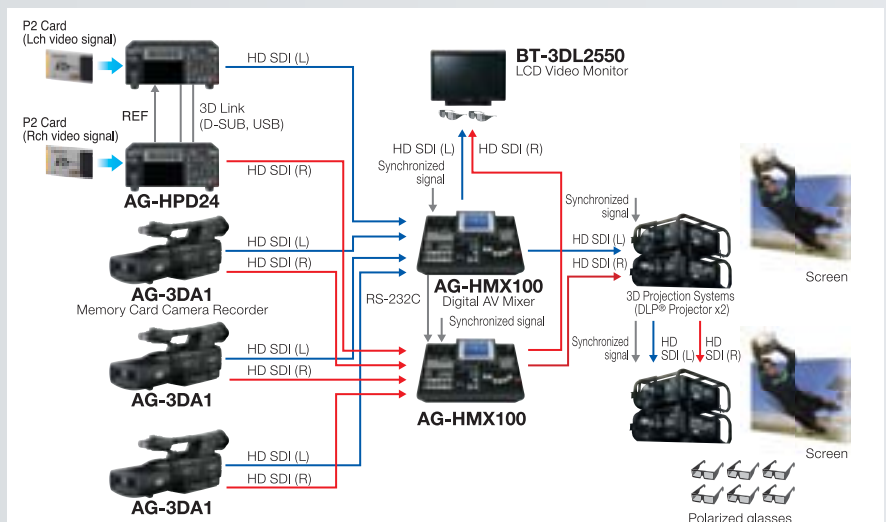
Connecting the BT-3DL2550 to the AG-3DA1 lets you view the stereo image so that you may adjust the 3D image to create the 3D image you want by varying the focus and convergence point.



Display/Recording System with 3D Cameras for Live Events

● Display Live Events with 3D Camera/ P2 Mobile Switching

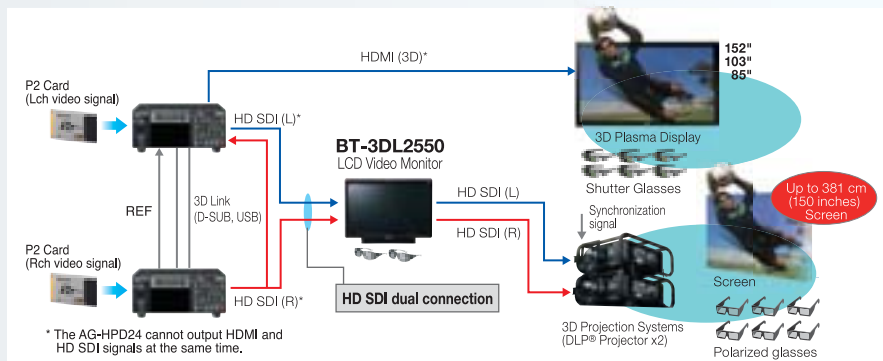
The AG-HMX100 can switch signals (dual SDI, simultaneous system) from two 3D cameras and output both dual HD SDI (L/R) and DVI-D (L/R) 3D video signals as PGM. For example, when using a high-brightness, high-contrast 3D projection system with two professional DLP® projectors, dynamic live images can be projected in 3D onto large screens. By connecting the BT-3DL2550, PGM video can be monitored. Also, by connecting two AG-HMX100 units, up to four inputs of 3D video signals (dual HD SDI) can be switched, and a maximum of four PGM outputs can be generated for a dynamic, large-scale 3D image presentation.



3D Content Display System

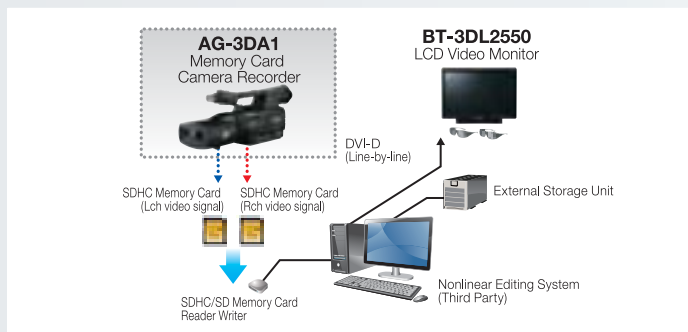
● Displaying Events in 3D Using the P2 portable decks

A 3D video transmission system can be configured with two AG-HPD24 P2 portable decks. With the AJ-HPM200 equipped with AVCHD codec board, 3D Video files (AVCHD files) recorded by AG-3DA1 can be converted to P2 files for use as source material. When two AG-HPD24 P2 portable decks are connected, the front panel of the first unit or an external RS-422A remote can be used for synchronous control of the two units for 3D playback. The operator can view 3D images using the BT-3DL2550. Panasonic 3D display can be used for viewing with the Frame Sequential technology for displaying high-quality, FULL HD 3D images. For larger-screen needs, Panasonic can provide FULL HD 3D projection systems with high-brightness, high-contrast DLP® projectors.

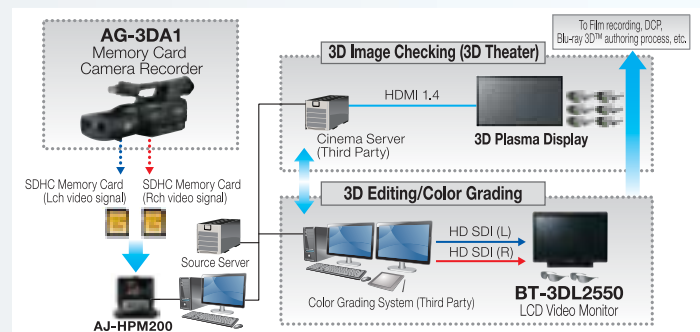


3D Content Editing

● 3D Editing



3D video data recorded by the AG-3DA1 can be easily edited by a computer-based (Windows/Mac), low-cost nonlinear editing system installed with 3D editing software (third-party software, purchased separately)*¹ that supports AVCHD video editing. The use of files allows easy ingestion to a computer, much in the same way as in ordinary 2D image editing. With BT-3DL2550, you can also check the 3D image during the editing.

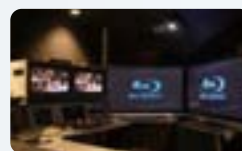


Also, the use of the AJ-HPM200 Memory Card Portable Recorder with AVCHD codec board is recommended if you have already installed a 3D editing/color grading system. It will convert AVCHD images recorded by the AG-3DA1 into P2HD files with higher-quality AVC-Intra compression.*² High-speed ingesting to a data server is possible through a gigabit LAN terminal to provide a high-efficiency, file-based DI environment.*³ The 3D images can be checked by using the BT-3DL2550. The Panasonic professional 3D plasma display can let you view 3D images on its large screen.

■ Panasonic Hollywood Laboratory's High-Quality Blu-ray 3D™ Authoring Service



The Advanced Authoring Center was recently established inside the Panasonic Hollywood Laboratory (PHL), which is a video research facility located in Universal City, California. The center has been conducting film-to-digital conversion, compression and authoring of image data for Blu-ray Disc™ and DVD, and research and development related to video enhancing technologies. By maximizing the know-how accumulated in the establishment of the Blu-ray 3D™ standard and the development of an innovative encoding system, the Advanced Authoring Center offers a high-quality 3D authoring service that prevents color degradation.



Blu-ray encoding room used for high-resolution compression of 3D image data.



A system that allows interactive title/menu production.



Numerous verifying processes for image and sound quality.



Production of test discs.

*1: Panasonic does not guarantee proper operation of third-party software. The operating conditions recommended by each software manufacturer must be satisfied. *2: A P2 card must be purchased separately. *3: The nonlinear editor must be compatible with P2HD files in order to edit P2HD file data.

AG-3DA1 Options

(As of April 2011)



CGA-D54

Battery Pack
• 7.2 V 5,400 mAh



AG-MC200G

XLR Microphone
• Sensitivity: -40 dB \pm 3,5 dB (0dB=1V/Pa, at 1kHz)
• Maximum Input level: 127 dB (1000Hz, Distortion within 1%)
• S/N: More than 69 dB



RP-SDW32G (CLASS10)

RP-SDW16G (CLASS10)
SDHC Memory Card

BT-3DL2550 Options

(As of April 2011)



BT-PGL10G

3D Polarized Glasses
* BT-PGL10G is exclusively for use with the BT-3DL2550. It cannot be used with other 3D TVs.



BT-WMA26G

(Indoor use only)
Wall Mount Adaptor for BT-3DL2550

3D Projection System Devices



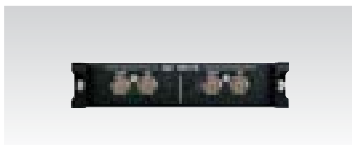
PT-DZ12000

3-chip DLP® Projector
• 12000 ANSI Lumens
• 5000:1 Contrast Ratio
• 4-lamp optical system
• 1920 x 1200 Native Resolution

* The photograph shows the unit with a projection lens (optional) mounted.

AV-HS450 Options

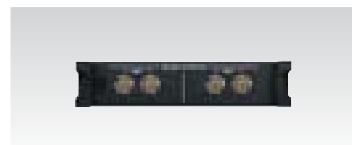
INPUTS



AV-HS04M1

SDI Input Board
INPUTS : HD/SD-SDI x2 (BNC)
(Built-in Up-converter)

OUTPUTS



AV-HS04M7D

3D SDI Output Board
OUTPUTS : HD/SD-SDI x2 (Each one has 2 outputs)
(BNC)(Built-in Down-converter)

Other Manufacturer's Products for BT-3DL2550 (As of April 2011)



[IDX]
A-E2BT24V
Battery Adapter

IDX Company,Ltd.
<http://www.idx.tv/>



[IDX]
A-E241E
Battery Adapter
*A-E2BT24V is required

* These options are not available in some areas.

The Partnership Continues to Grow

Panasonic has been driving P2 Partner program since 2004. At NAB2010, we have started another partner program; “3D Partners”. We are pleased that 11 partners already join the program. Following partners has intention to work with Panasonic to offer excellent 3D editing or 3D live event solution by partner’s product or 3rd party plug-in software.



The 3D Partners

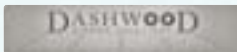
Editing Solution



Autodesk®



CINEFORM



grass
valley



Live Event Solution



PASS
Global Concierge for the Lifetime

P2 Asset Support System

The free member's service program for P2HD/AVCCAM

Extensive information for video professionals

Thirsty for Knowledge?

No purchase necessary
Information services for members

- ▶ The latest technical information
- ▶ FAQs, user's voices
- ▶ Tool download

Always the best performance

Additional content with product
registration

- ▶ Firmware, utility downloads
- ▶ Quick inspection, service history
- ▶ Newsletters

Contact us through PASS

Direct answers to your inquiries. Sign up now (No purchase necessary)

[▶ http://panasonic.biz/sav/pass_e](http://panasonic.biz/sav/pass_e)

AVCCAM

3 year extended warranty program

1st year Basic
Warranty

2nd year

3rd year with
the warranty program

Extended for free upon registration

- * Availability of this extended service program and service content may depend on country/region and model.
- * Not all repair work is covered by this extended warranty program.
- * AG-HCK10G optional AVCCAM camera-head is out of coverage of this service program.

Informative product-related content also
available with equipment registration.

Please refer to the latest 3D product Information at panasonic website.



<http://pro-av.panasonic.net/en/3d>

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Hong Kong +852 2313 0888
Czech Republic +420 236 032 552/511
Denmark +45 43 20 08 57
Egypt +20 2 23938151
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Germany, Austria +49 (0)611 235 0
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Factories of Systems Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)