Product Information

SRW-5800/2

HDCAM SR 3G studio recorder, with 3D RGB recording option

Sony HDCAM-SR VTRs - the RGB 4:4:4 full-bandwidth HD VTRs at the top of the Sony VTR line-up - have a critical role as a master format for movies, commercial productions, and high-end TV. It is also the interchange and delivery format for most HD broadcasters, as well as the required delivery format for 3D HD programming.

Supporting all SMPTE standard 1080 and 720 formats up to 59.94P, 3G interface with 3D recording on one tape, x2 ingest to servers and network interface for DPX, TIFF and Cineon formats, SR technology increases the speed and productivity of all operations.

By adding the HKSR-58UK upgrade kit, you can update every 5800 to the new /2 version (an additional board is required to take an original 5800/0 to /1 before applying the upgrade kit. If your machine has 3G HDSDI support, it is already a /1).

The /2 version adds a lot of new functionality including double speed recording, 3D RGB recording, and MXF network file transfer. We are also introducing a new file format called SR-Lite. This operates at half the bit rate of standard SR (440 Mbps at 30P), so a data rate of 220 Mbps is realised. By using the MXF file transfer mode, a theoretical speed transfer of nearly 2x real time can be achieved over GbE. (Note: this a file format only over GbE and will never exist as a tape format).

At standard SR bit rates almost real time transfer over GbE can be achieved, and as this is the native SStP (Simple Studio Profile), that is SR MPEG-4 compressed data, you only need one quarter of your normal storage requirements together with a 4 times transfer

speed increase compared to uncompressed data streams.

The /2 upgrade also adds support for 1080 50P and 60P (422) as well as RGB SQ mode (440 Mbps) as standard. In addition, the HKSR-5804 network card can be added, so you can easily add DPX and MXF transfer capability. Please refer to Product Features section for more information on what features are standard and what features require the HKSR-5803HQ board.

This product comes with PrimeSupport – fast, hassle-free repairs and a helpline offering expert technical advice. Which gives you the peace of mind that Sony is looking after your equipment, and your business.

Features

HDCAM-SR Format - For Exceptionally High Picture Quality Recording

The SRW-5800 recorder adopts the HDCAM-SR format, which records 1920 x 1080 resolution high-definition signals using the MPEG-4 Studio Profile compression scheme with a very mild compression ratio of 2.7:1 (4:2:2)/4:1 (4:4:4) and 10-bit colour depth. It enables both full-bandwidth 4:4:4 RGB and high-quality 4:2:2 Y/Cb/Cr recording, delivering optimal picture performance to suit many different production requirements.

HQ Mode

The SRW-5800 recorder can also record at a high data rate of 880 Mb/s, for 4:2:2/1080/ 60P and 50P mode, and 4:4:4 High Quality (HQ) mode.

The 4:2:2/1080/60P and 50P recording mode is highly compatible with computer graphics, games and other progressive-based programmes. It also offers exceptional picture performance when converting material originated in 1080/60P or 50P format to 720P format, due to its original high resolution of 1920 x 1080 (Requires HKSR-5001/20 option board). Another benefit of using the 4:2:2/1080/60P and 50P recording mode is that it enables image creation with perfect slow-motion effects. The F35 recording mode of RGB 444 50P recording is also supported for playback at speeds below 30P.

HQ mode also allows 4:4:4 RGB recording with a milder compression ratio of 2:1. This can achieve higher picture quality compared with recording at 440 Mb/s, depending on the picture, and is ideal when the highest possible image quality is the top priority.

Double Speed Transfer

The SRW-5800 allows all material whether 422 or RGB 444 to be transferred to and from servers and nonlinear editing systems at twice the normal speed using a standard Dual-link HD-SDI or single 3G interface. Double speed recording is now supported.

RGB 444 x2 playback and recording using Dual 3G links is also supported.

3D support

Both 422 and RGB 444 recording (RGB using Dual 3G interface) is supported, recording onto one tape for extreme security, perfect L/R synchronisation and 12 channels of audio.

96KHz audio sampling support

At SQ mode (440 Mbps) 6 channels of 96 KHZ are supported, while at HQ mode (880 Mbps) 12 channels are supported. This is particularly useful for BluRay Mastering.

2K mode

The 5800/2 can now support 3 different 2K modes with real time record and playback. Firstly 2048 x 1080 RGB 10 bit, then the DCI standard of 2048 x 1080 12 bit XYZ (Digital Cinema standard) and lastly full open gate 2048 x 1556 recording and playback

Network capability

By using the HKSR-5804 network card, you can transfer over GbE uncompressed DPX, TIFF and Cineon files, from 1280 x 720 file size up to full 4K resolution 4096 x 2160. In addition the built in format converter allows you to view any size file on a regular HD monitor for viewing or QC purposes. As you can both export (to tape) and import (to disk) you can also use this feature to check what is on the tape even though it is uncompressed data - a unique feature. In addition, at the same time you can apply full to head (or vice versa) conversion (that is from 0 to 1023 full range to 64 to 960 video range but some HDSDI limitations apply), and also apply a LUT that you can import. The interface is a browser window working with all major operating systems.

The next part is the MXF import only function (tape to disk), where the native SStP data (that is SR compressed data) is transferred over GbE. At SQ mode (440 Mbps) it is almost real time, but you only need 1/4 of the storage space in RGB or 1/2.7 for 422. A viewing application is available for PC's that can do real time software decoding, so it can be used for viewing or QC check of the MXF data on your server.

Internal Format Conversion

The SRW-5800 is equipped with a powerful internal format converter that enables many different types of conversion such as 3-2 pull-down, up-conversion, down-conversion, cross-conversion, colour-space conversion, and P-to-i conversion. This powerful built-in converter makes the SRW-5800 very versatile in post-production.

Easy Management of Setup/System Menus

The SRW-5800 offers a highly effective way to manage its System Menu. Up to eight groups of parameters in the System Menu and Setup Menu can be individually saved as bank memory onto the internal memory of the VTR. They can also be saved onto Memory Stick media, enabling them to be copied onto other SRW-5800 VTRs for quick and consistent setup of multiple VTRs.

Furthermore, equipped with an Ethernet interface, the SRW-5800 allows operators to remotely view the setup parameters saved in the VTR's memory bank, and to select a bank they want to use through a PC.

SRW-5800/2 Format Support

In addition to the numerous formats supported by the SRW-5800 Series, the SRW-5800/2 introduced support for the following formats without any extra boards - RGB SQ, 2 x Record and Playback @ 422, 2 x Record and Playback @ RGB SQ and 1080 50P/60P.

In addition, if the HKSR-5803HQ board is installed in a SRW-5800/2, the following additional new formats are supported; 3D @ 422, 3D @ RGB SQ, RGB HQ, 2K mode and 12bit operation.

Other Features

- Long recording time: up to 155 minutes on BCT-124SRL cassette
- HDCAM and DigiBeta playback with option card HKSR-5802
- Frame-accurate insert/assemble editing
- Digital jog sound
- Confidence playback
- Large 6.4-inch type* colour LCD that displays both playback pictures and various information such as timecode, audio level meters, and operational menus
- Audio output channel exchange
- Dual-sync feature for pull-down operation
- Off-speed playback capability
- Selectable picture modes: SQUEEZE, LETTER BOX, and EDGE CROP

* Viewable area measured diagonally

Technical Specifications

General

Power requirements	100 V to 240 V AC (±10%, 50/60 Hz)
Power consumption	380 W (with all option boards installed)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Humidity	25% to 80% (relative humidity)
Mass	30 kg (66 lb 2 oz)
Dimensions (W x H x D) (excluding protrusions)	427 x 218 x 544 mm (16 7/8 x 8 5/8 x 21 1/2 inches)
Tape speed	HDCAM-SR: 94.1 mm/s (24 Hz) HDCAM: 77.4 mm/s (24 Hz) Digital BETACAM: 96.7 mm/s
Recording/Playback time (HDCAM-SR)	Recording & Playback: 155 min with BCT-124SRL cassette (24 Hz)* * 1/2 when double-data-rate recording/playback (880 Mbps)
Recording/Playback time (HDCAM)	Playback: 155 min with BCT-124HDL cassette (24 Hz)

Recording/Playback time (Digital BETACAM)	Playback: 124 min with BCT-D124L cassette
Fast forward/rewind time	Approx. 4 min with BCT-124SRL cassette
Search speed range (Shuttle mode)	HDCAM-SR: -50 times to +50 times normal speed (24 Hz) HDCAM: -60 times to +60 times normal speed (24 Hz) Digital BETACAM: -50 times to +50 times normal speed
Search speed range (Jog mode)	HDCAM-SR: -2 times to +2 times normal speed HDCAM: -2 times to +2 times normal speed Digital BETACAM: -3 times to +3 times normal speed
Search speed range (Variable mode)	HDCAM-SR: -0.5 times to +1 times normal speed HDCAM: -1 time to +2 times normal speed Digital BETACAM: -1 time to +3 times normal speed
Noiseless picture playback	HDCAM-SR: -0.5 times to +1 times normal speed (Non Tracking Range) HDCAM: -1 time to +2 times normal speed (Dynamic Tracking Range) Digital BETACAM: -1 time to +3 times normal speed (Dynamic Tracking Range)
Servo lock time	1.0 sec or less (from standby on)
Load/unload time	7 sec or less

Inputs/Outputs

HD-SDI input	A: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/ SMPTE 424M/BTA S-004/ITU-R.BT 709 B: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/

	SMPTE 424M*/BTA S-004/ITU-R.BT 709 *Planned to be available in the first half of 2011.
Reference input	1: BNC (x2) (including loop-through), HD Tri-level sync (0.6 Vp-p/75 ohms/negative) or SD blackburst/composite sync (NTSC: 0.286 Vp-p, PAL: 0.3 Vp-p/75 ohms/negative) 2: (With option: HKSR-5001), BNC (x2) (including loop-through), HD Tri-level sync (0.6 Vp-p/75 ohms/negative) or SD blackburst/composite sync (NTSC: 0.286 Vp-p, PAL: 0.3 Vp-p/75 ohms/negative)
Digital audio input (AES/EBU)	BNC (x6), 12 ch (2 ch each, 1/2 ch, 3/4 ch, 5/6 ch, 7/8 ch, 9/10 ch, 11/12 ch), AES-3id-1995
Time code input	XLR-type 3-pin (female) (x1), 0.5 Vp-p to 18 Vp-p/10 k/ohms/balanced
AUX input	(Option: HKSR-5804 and HKSR-5803HQ): A: BNC (x1), SMPTE 292M/SMPTE 372M/ARIB S004B B: BNC (x1), SMPTE 292M/SMPTE 372M/ARIB S004B
HD-SDI output	A: BNC (x3) 1 & 2: SMPTE 292M/SMPTE 372M/SMPTE 424M/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/SMPTE 372M/SMPTE 424M/BTA S004/ ITU-R.BT 709 B: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/SMPTE 424M*2/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/SMPTE 372M/SMPTE 424M*/BTA S004/ITU-R.BT 709 *Planned to be available in the first half of 2011.

Format converter output	(Option: HKSR-5001): A: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/SMPTE 424M/ BTA S-004/ITU-R.BT 709 B: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/BTA S-004/ ITU-R.BT 709
SD-SDI output	BNC (x3) 1 & 2: SMPTE 259M 3: character on/off, SMPTE 259M
Analogue composite output	BNC (x1), 1.0 Vp-p/75 ohms/negative SMPTE 170M, character on/off or 0.286 Vp-p/75 ohms/negative blackburst
Reference output	1125 Sync: BNC (x2), Tri Level sync 0.6 Vp-p/75 ohms/negative
Digital audio output (AES/EBU)	BNC (x6), 12 ch (2 ch each, 1/2 ch, 3/4 ch, 5/6 ch, 7/8 ch, 9/10 ch, 11/12 ch), AES-3id-1995
Analogue audio output (Cue)	XLR-type 3-pin (male) (x1), +4 dBm, 600 ohms, Lo-Z, balanced, HDCAM/ Digital BETACAM playback only
Analogue audio monitor	XLR-type 3-pin (x2), L/R, +4 dBm, 600 ohms, Lo-Z, balanced
Time code output	XLR-type 3-pin (male) (x1), 2.2 Vp-p, Lo-Z, balanced
Headphone output	JM-60 stereo phone jack (x1), -infinity to 12 dBu, 8 ohms, unbalanced

AUX output	(Option: HKSR-5804 and HKSR-5803HQ): A: BNC (x1), SMPTE 292M/SMPTE 372M/ARIB S004B/SMPTE 424M B: BNC (x1), SMPTE 292M/SMPTE 372M/ARIB S004
Remote (9P) input	D-sub 9-pin (female) (x1), RS-422A
Remote (9P) input/ output	D-sub 9-pin (female) (x1), RS-422A
Video control	D-sub 9-pin (female) (x1), EIA RS-423
Parallel remote	D-sub 50-pin (female) (x1)
Ethernet	RJ-45 (x1), 10BASE-T: IEEE 802.3 (Option: HKSR-5804): RJ-45 (x1), 1000BASE-T: IEEE 802.3ab

Video Performance

Sampling frequency	Y: 74.25 MHz, Cb/Cr: 37.125 MHz, G/B/R: 74.25 MHz
Quantization	10 bits/sample
Compression	MPEG-4 SStP Simple Studio Profile
Channel coding	S-NRZ
Error correction	Reed-Solomon code

Error concealment	Adaptive three-dimensional

Digital Audio Performance

Sampling frequency	48 kHz: up to 12 channel 96 kHz: up to 6 channel (440 Mbps) , up to 12 channel (880 Mbps)
Quantization	24 bits
Wow & flutter	Below measurable level
Headroom	20/18/16/15/12/9 dB selectable

Analogue Audio Output Performance

Quantization	24 bits
Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB (0 dB at 1 kHz)
Dynamic range	More than 100 dB
Distortion	Less than 0.05% (at 1 kHz)
Crosstalk	Less than -80 dB (at 1 kHz)

Accessories

Option Boards and Modules

HKSR-5802

Digital BETACAM and HDCAM Processor Board

HKSR-5803HQ

Advanced HQ Processor Board

HKSR-5804

Network Interface Board

www.pro.sony.eu/hdcam