SONY

XDCAM™ System FAQs

XDCAM HD
Professional Disc System

Table of Contents

XDCAM Basics

Q: What is the XDCAM system?

A: Sony created the XDCAM brand to describe tapeless video production, which delivers new speed convenience – what Sony calls "workflow innovation."

Q. What is "workflow innovation"?

A: Compared to typical tape-based production, XDCAM tapeless production delivers a host of powerful benefits:

- You can view recorded scenes immediately on the camcorder's LCD monitor, with no need to fast forward or rewind. Then you can return to shooting immediately, without first cueing back to the end of the last shot.
- Proxy AV enables you to quickly transfer relatively small files to a laptop for immediate viewing, logging, selecting takes and cuts-only editing.
- Proxy files can be transferred at far faster than real time from the field to the studio. This enables proxy editing to begin before the full-resolution assets arrive. It also enables proxy video of breaking news to be broadcast directly.
- XDCAM assets are data files that can be stored on any PC storage device and transferred over any data network.
- XDCAM assets can be browsed across a data network, enabling a producer sitting at a PC in New York to view the contents of a disc loaded into a deck in Moscow.

Q: What is Proxy AV?

A: When XDCAM products record a clip, they simultaneously generate a second, "lightweight" lower resolution data file of the same video, audio and timecode. Compared to the full-resolution data file, proxy files transfer at roughly ten times the speed and occupy just 1/10 the disc space. This enables far faster, more convenient data operations for offline browsing and editing.

Q: What recording media does the XDCAM system use?

A: In XDCAM tapeless production, the actual recording medium varies.

- All XDCAM optical disc camcorders, decks and drives – both SD and HD – record on the PFD-23A Professional Disc™ media. This yields up to 120 minutes of recording time at 18 Mbps.
- Selected models also record on the dual-layer Professional Disc media, the PFD-50DLA. This delivers a maximum recording time of 250 minutes at 18 Mbps.
- The PMW-EX1 XDCAM EX camcorder records onto SxS™ (S-by-S) flash media. For more information, see the section on the XDCAM EX System.

Q: What file types does the XDCAM system use?

A: A key advantage of the XDCAM system is that audio/video assets are recorded as data files. XDCAM products that write to Professional Disc™ media use the Material eXchange Format (MXF) for all full-resolution and Proxy AV content. XDCAM products that write to SxS™ flash memory media use the MP4 file format.

Q: What is dual-layer media?

A: Just as dual-layer DVDs expand capacity and recording time, Sony's PFD-50DLA dual-layer Professional Disc media extends the XDCAM system. Capacity increases from 23.3 GB to 50 GB. Recording time increases from 120 minutes to 250 minutes at 18 Mbps. This longer load is perfect for documentaries, nature shows and other projects with high shooting ratios. The increased capacity of dual-layer media also boosts the efficiency of XDCAM archives.

Q: Which models support dual-layer media?

A: The PDW-F335 and F355 XDCAM HD camcorders, the PDW-F75 deck and the PDW-U1 drive all support both single-layer and dual-layer media. The camcorders and deck also incorporate added operational features.

Q: Can older XDCAM HD products be upgraded to support dual-layer media?

A: No. Dual layer disc technology cannot be supported by the PDW-F350 or PDW-F330 camcorders, the PDW-F70 or PDW-F30 decks. However, the PDW-F335, F355, F75 and PDW-U1 all support single-layer discs as well as dual-layer discs. Any single-layer material you record today will remain compatible with the new generation of dual-layer recorders.

Q: What is the difference between the PDW-U1 drive and the PDW-D1 drive?

A. There are several differences. The PDW-D1 supports standard definition only and single-layer PFD-23A media only. The PDW-U1 supports HD as well as legacy MPEG IMX® and DVCAM™ SD content and supports dual layer PFD-50DLA media in addition to the single-layer PFD-23A. The PDW-D1 can decode files and output audio and video streams via i.LINK® interface.* The PDW-U1 is a cost effective "bare" drive using the USB 2.0 interface.

Q: What compression system does the XDCAM system use?

A: The XDCAM HD system uses the international standard MPEG 2 system with a long Group of Pictures (GOP). All XDCAM SD products use DVCAM™ compression and some also use MPEG 2 compression.

Q: Why did Sony choose MPEG 2 Long GOP?

A: Because the system combines interframe and intraframe compression technology, it enables one to achieve a higher picture quality at lower bitrates than systems that use intraframe compression alone.

Q: I've heard about other compression codecs. Why didn't Sony use one of them?

A: Before committing to MPEG 2, Sony studied a full range of available compression codecs, including DV, AVC and wavelet technologies in addition to the MPEG 2 family. Sony evaluated the codecs based on a full range of criteria.

- High picture quality across multiple generations
- Long recording time
- High compatibility with today's nonlinear editors and servers
- High server throughput
- High software encode/decode speed in today's typical PCs
- Low equipment size and cost
- Low network bandwidth requirements
- Low server capacity cost

Sony determined that the MPEG 2 Long GOP codec offered the best overall performance across all these criteria. Other codecs can introduce severe penalties in one or more parameters. For a detailed white paper on HD codecs, please visit sony.com/XDCAM.

Q: I've heard that MPEG 2 is actually a family of many compression "profiles" and "levels." Which specific MPEG 2 profiles and levels does Sony use?

A: MPEG 2 covers a wide range of applications from the consumer world to the professional. Sony carefully selected MPEG profiles and levels according to each application.

- 422 Profile at Main Level. Featured in the standard definition PDW-530 camcorder and PDW-1500 deck.
- Main Profile at High Level. Featured in the PDW-F335 and PDW-F355 XDCAM HD camcorder, the PDW-F75 XDCAM HD deck and the PMW-EX1 XDCAM EX camcorder.
- 422 Profile at High Level. Featured in the PDW-700 2/3-inch camcorder and PDW-HD1500 deck.

Q: What are the bitrates of XDCAM recording?

A. The system offers a wide range of bitrates, each optimized for specific applications.

- DVCAM standard definition: 25 Mbps. Broadly compatible, this is the same codec as used in consumer DV and Panasonic DVCPro 25 recorders.
- MPEG IMX standard definition: 30, 40 and 50 Mbps to deliver superior 4:2:2 picture quality.
- XDCAM HD 18 Mbps variable bitrate. To support the longest recording time of any HD camcorder.
- XDCAM HD 25 Mbps constant bitrate. For compatibility with NLEs and servers that support HDV™ 1080i recording.
- XDCAM HD 35 Mbps variable bitrate. For high quality in affordable production systems.
- XDCAM HD 50 Mbps constant bitrate. To take advantage of the performance of XDCAM HD 2/3-inch camcorder.

Q: Does 25 Mbps XDCAM HD recording use the same compression as HDV 1080i recording?

A: Yes. While XDCAM HD recording at 18 and 35 Mbps uses variable bitrate technology, the 25 Mbps alternative uses a fixed bitrate for compatibility with HDV 1080i editors and recorders. The basic difference is that HDV editors use Transport Stream (TS) and XDCAM HD uses Elementary Stream (ES). When the PDW-F75 recorder and the PDW-F30 player are fitted with the optional PDBK-102 MPEG Transport Stream (TS) card, these decks can be connected directly to HDV 1080i recorders, camcorders and compatible NLEs, via the i.LINK® HDV interface.*

Q: What is the recording time?

A: Extended recording time is a big advantage of the XDCAM HD system bitrates. Recording time varies according to your choice of bitrate and recording media. Maximum recording time is over 248 minutes (18 Mbps, 4-channel Audio, dual-layer media). This represents the longest recording time of any HD camcorder currently available.

Bitrate	PFD-23A single-layer disc	PFD-50DLA dual-layer disc
SD 25 Mbps	85 min	185 min
HD 35 Mbps	>65 min	>145 min
HD 25 Mbps	85 min	190 min
HD 18 Mbps	>112 min	>248 min

(4-channel Audio)

Q: Do you plan to discontinue the XDCAM SD line in the near future?

A: No. Standard definition XDCAM products answer an established need for top-quality SD production at up to 50 Mbps. Sony sees SD video production still having a relatively long life. With a distinct feature set, XDCAM SD products complement and interoperate with the XDCAM HD product line. XDCAM HD products can play back DVCAM™ 25 Mbps material recorded on XDCAM SD products. In addition, the PDW-U1 drive also supports MPEG IMX® material recorded on XDCAM SD products.

Q: Do you plan to discontinue the HDCAM™ line?

A: Absolutely not. With 2/3-inch type image sensors and 140 Mbps recording, HDCAM products offer compelling advantages for high-end sports, episodic television and feature films. It's a whole different class.

Q: Why is the CineAlta™ trademark (brand) on XDCAM HD products?

A: Sony uses the CineAlta name to identify a high level of cinema production. With gorgeous performance at true 24 frames progressive, the XDCAM HD system fully meets that description.

XDCAM HD Production

Q: What is the resolution of the PDW-F335 and F355 image sensors?

A: These camcorders incorporate three CCD image sensors, each with resolution of 1440 x 1080 – more than 1.5 million pixels.

Q: Do the PDW-F335 and F355 attempt to "up-res" the image for 1080-line recording?

A: Absolutely not. Some camcorders attempt to get by using image sensors with just one third the pixels required for 1080-line recording. The camcorders then attempt to create the other 67% of pixels through internal processes that can never deliver full resolution. The PDW-F335 and F355 maintain a strict one-to-one relationship between CCD pixels and recorded pixels. The CCD offers a raster of 1440 x 1080, exactly the same resolution that is recorded to disc.

Q: How do I edit XDCAM HD assets?

A: You have plenty of options. First, some 33 companies are committed to supporting XDCAM HD production. So depending on your system, you can choose from various workflows. Second, when equipped with the optional PDBK-102 MPEG TS card, the PDW-F75 and PDW-F30 work with the full range of NLEs that are compatible with HDV 1080i. And third, you can use the HD-SDI output of the PDW-F75 and edit as with a traditional VTR.

Q: Can I use my current HDV editing software to edit XDCAM HD 25 Mbps material?

A: Absolutely. Part of the beauty of the XDCAM HD system is its compatibility with HDV 1080i editing. The PDW-F75 recorder and PDW-F30 player accept the optional PDBK-102 MPEG TS card. This outputs a 25 Mbps signal over the i.LINK interface* for the large pool of NLEs that are compatible with HDV 1080i recording.

Q: Does the XDCAM HD system use Proxy A/V?

A: Yes. The system combines the beauty of high definition with all the workflow innovation of the XDCAM system, including the power of Proxy A/V.

Q: What are overcranking and undercranking?

A: The terms originated with the early film cameras, where the frame rate was literally determined by a manual crank. Undercranking refers to shooting at a slower frame rate than the playback rate, for a high-speed "Keystone Kops" effect. Overcranking refers to shooting at a higher frame rate than the playback, for the beautiful slow motion effect often seen in cinema. The PDW-F355 enables both overcranking and undercranking at a range of frame rates from 4 fps to 60 fps in 1 fps increments. When viewed at 24 fps, 4 fps yields motion six times faster than normal, where 60 fps yields motion at 40% normal speed. And these effects can be played back right in the camera. Sony calls this feature "Slow and Quick Motion".

Q: What frame rates are supported in the XDCAM HD system?

A: The base PDW-F335 camcorder shoots high definition at 1080/59.94i, 50i, 29.97P, 25P and 23.98P. The camcorder also captures standard definition at 480/59.94i, 480/29.97P and 480/23.98P or 576/50i and 576/25P. The advanced PDW-F355 adds variable frame rate capture from 4 fps to 60 fps in 1 fps increments. The PDW-F75 deck supports all the frame rates of both the PDW-F335 and PDW-F355 camcorders.

Q: Will Sony offer PAL versions?

A: You're reading about them now. All XDCAM HD camcorders and decks support both PAL and NTSC standard definition. One world, one camcorder.

Q: Can I upconvert XDCAM standard definition content to HD?

A: Yes. The PDW-F75 recorder can both upconvert XDCAM standard definition content recorded in the DVCAM format at 25 Mbps to 1080i high definition at the output.

Q: Can I downconvert XDCAM high definition content to SD?

A: Yes. All XDCAM HD camcorders and decks can downconvert to standard definition.

Q: Can XDCAM HD decks or camcorders also record standard definition?

A: Yes. The PDW-F355 and PDW-F335 camcorders and the PDW-F75 recorder (with an optional PDBK-104 board) will all record DVCAM 25 Mbps standard definition in NTSC (480/59.94i) or PAL (576/50i).

Q: Can XDCAM HD decks or camcorders play back my current XDCAM SD discs?

A: The XDCAM HD products can play back DVCAM standard definition discs only.

Q: Can I record HD and SD on the same disc?

A: No. The XDCAM HD file system requires a disc to be all HD or all SD. However you can freely select HD bitrates of 18, 25 or 35 Mbps for each clip you record on the same disc as long as the system frequency group (60i/30P, 50i/25P, 24P) and the audio channel is the same.

Q: Why do the PDW-F335 and F355 use 1/2-inch type CCDs instead of 2/3-inch?

A: Sony is committed to high definition for all. We offer affordable, handheld, fixed-lens camcorders with 1/3 and 1/2-inch type image sensors and high-end production camcorders with 2/3-inch image sensors. XDCAM HD shoulder-mount camcorders with 1/2-inch image sensors were designed to meet urgent requests from customers for affordable, professional HD production with interchangeable lenses. The choice of 1/2-inch image sensors enables Sony to deliver three distinct classes of professional HD production.

For information on the 2/3-inch type XDCAM camcorder, see the section on The XDCAM 2/3-inch Camcorder.

Q: Who makes 1/2-inch HD lenses?

A: At the moment, both Canon and Fujinon. As the installed base of 1/2-inch type HD camcorders builds, we expect other manufacturers to enter this burgeoning market.

Q: Can I use my 2/3-inch lenses on the XDCAM HD camcorder?

A: Yes, with the optional Sony LO-32BMT adaptor. Of course, the difference in size between 2/3-inch and 1/2-inch type sensors means that your lens focal lengths are multiplied by a factor of 1.37x.

The XDCAM EX System

Q: What is the XDCAM EX system?

A: XDCAM EX recording is a system that records onto flash media cards. The first model in the series is the PMW-EX1 handheld camcorder.

Q: What type of media does the XDCAM EX system use?

A: The system uses SxS™ (S-by-S) memory cards, which were jointly announced by SanDisk and Sony. The cards are based on the PC industry's widely supported ExpressCard™ standard.

Q. How can this be an XDCAM camcorder if it uses flash media and not optical disc?

A: Sony launched the XDCAM system as a brand name for all types of tapeless, file-based recording. The first XDCAM products used optical disc. Now optical is being joined by flash media in Sony's growing XDCAM line.

Q: Why did Sony use the ExpressCard™ standard? Why not PC Cards?

A: Compared to the PC Card, the ExpressCard standard supports higher bus speeds, lower power consumption and a more compact form factor. The same industry group that created the PC Card, the PCMCIA, created the ExpressCard standard to replace the PC Card. The PCMCIA official website declares: "Please note that the PC Card Standard is closed to further development and PCMCIA strongly encourages future product designs to utilize the ExpressCard interface."

Q: How does the XDCAM EX camcorder compare to the XDCAM disc camcorders?

A: Both support high definition. The XDCAM EX camcorder is a handheld model with a fixed lens. The XDCAM disc-based camcorders are all shoulder-mount models that accept interchangeable lenses.

Q: What codec does the XDCAM EX camcorder use?

A: It uses the same MPEG-2 Long GOP encoding Main Profile at High Level, for broad compatibility with a wide-range of third-party non-linear editors and servers.

Q: Does this mean that Sony will no longer develop XDCAM optical disc products?

A: Because the market is diverse, Sony will continue vigorously to develop both optical and flash media products. Sony expects that the XDCAM EX camcorder will be best suited to operations where the same person shoots and edits – and the media cards stay under that person's control. Sony expects that Professional Disc™ based recording will be best suited to larger operations and those where the videographer must hand over recorded assets to clients and post houses.

Q. What's the possibility of a hybrid camcorder that offers both optical disc and flash media?

A: Sony is currently considering future directions.

Q: What are the basic specifications of the PMW-EX1 camcorder?

A. The camcorder offers the following features:

- Three 1/2-inch type Exmor™ CMOS image sensors
- 1080/720 switchable recording
- Slow & Quick Motion
- Built-in lens with full manual focus ring
- 3.5-inch LCD monitor (viewable area, measured diagonally)
- Built-in stereo microphone
- Recording onto SxS™ memory cards
- MPEG-2 Long GOP codec
- 140 minutes recording onto two 16 GB cards
- Full range of interfaces including HD-SDI, SD-SDI, component video, S-Video, composite video, i.LINK®* HDV interface and USB

For more information, please visit sony.com/xdcam.

The XDCAM HD 2/3-inch Camcorder

Q: What is the XDCAM HD 2/3-inch camcorder?

A: This is a new XDCAM HD camcorder, the PDW-700, which will use three 2/3-inch type CCDs. Current XDCAM HD camcorders use 1/2-inch type CCDs. All things being equal, larger image sensors enable higher sensitivity, lower noise, and shallower depth of focus for selective focus effects. (Note that in real-world comparisons of actual camcorders, "other things" are hardly ever "equal.")

Q: Why is Sony introducing an XDCAM HD 2/3-inch camcorder?

A: To answer the customer demand for higher-end production equipment that also delivers the workflow advantages of tapeless recording.

Q: Does this replace HDCAM™ recording?

A: No. The HDCAM system retains advantages in bitrate and remains well accepted in the high-end production community.

Q: What codec will the PDW-700 camcorder use?

A: The PDW-700 2/3-inch camcorder will use a 50 Mbps version of the MPEG-2 Long GOP Codec, 4:2:2 Profile at High Level (422P@HL). The camcorder will also offer legacy format support for XDCAM HD and SD assets.

Q: Will the 2/3-inch camcorder be supported by a studio deck?

A: Yes, the PDW-HD1500.

Q: What will the price and availability?

A: The new camcorder will be priced between the PDW-F355 and HDCAM camcorders. Sony expects to deliver in the first half of 2008.

Q: Will the PDW-F700 and PDW-HD1500 support both single-and dual-layer Professional Disc™ media?

A: Yes.

Q: What are the basic specifications of the PDW-700 camcorder?

A. The camcorder will offer the following features:

- Three 2/3-inch type Power HAD™ FX image sensors with 2.1 million effective pixels (1920 x 1080)
- 1080/720 switchable recording
- MPEG-2 422P@HL codec
- Legacy format support for XDCAM SD and HD assets
- 4-channel audio (the PDW-HD1500 deck supports 8-channel audio)
- Support for dual-layer (50 GB) and single-layer (23.3 GB) Professional Disc™ media
- Thumbnail operation
- Proxy and Metadata origination
- 3.5-inch LCD monitor (viewable area, measured diagonally)
- Dual HD/SD-SDI output and composite/HD-Y output
- Built-in HD/SD up and downconversion
- Built-in 1080-720 cross conversion
- Optional pool feed input (HD/SD-SDI and composite)
- Ethernet 100Base-TX interface
- i.LINK®* interface

For more information, please visit sony.com/xdcam.

Technology & Media

Q: Why is Sony offering the Professional Disc media?

A: Sony believes that the Professional Disc media is a means by which our customers can achieve benefits in production workflows, where flexibility, speed, and cost effectiveness are key requirements. The Professional Disc media has been engineered specifically for professional content creation. It provides superb data rate, data capacity, transfer speed, robustness, and instant random access.

Q: Is the XDCAM system's Professional Disc media the same as the consumer Blu-ray Disc™ media?

A: No. While there are some similarities, the Professional Disc media uses a unique phase-change recording material to support higher read/write speeds. Blu-ray Disc media uses a bare disc without cartridge. There is no cross-compatibility between XDCAM products and Blu-ray Disc products.

Q: What is the difference between the recording material used for consumer Blu-ray Disc media and that used for the XDCAM system's Professional Disc media?

A: The higher transfer rates of the XDCAM system require a more sensitive phase-change recording layer. The Professional Disc recording layer must change from crystalline (high reflectivity) phase to amorphous (low reflectivity) phase fast enough to enable transfer speeds of up to 86 Mbps. In comparison, the writing speed of consumer media is 36 Mbps. Aside from the different phase-change material, the track pitch, recording density and production processes are the same.

Q: How does the read/write/erase life cycle of the XDCAM system's Professional Disc media compare to the Blu-ray Disc media?

A: They're identical in the minimum spec. Both are rated at a minimum of 1,000 read/write/erase cycles under normal operating conditions. The Professional Disc media has a maximum life of 10,000 read/write/erase cycles under ideal operating conditions (73 degrees F, 50% RH). All of this information is based on Sony's own testing.

Q: How does the XDCAM system's Professional Disc media differ from DVD?

A: Profoundly. Although both are 12 cm in diameter and 1.2 mm thick, Professional Disc media has five times the capacity, 13 times the transfer rate, a shorter laser wavelength and a protective cartridge for the media. Professional Disc media capacity is 23.3 GB for the single layer and 50 GB for the dual layer, compared to 4.7 GB for single-layer DVD. The XDCAM HD decks and camcorders have a transfer rate of 86 Mbps, compared to 11 Mbps for DVD. The XDCAM system uses a blue-violet laser as opposed to the red laser used for DVD.

Q: Is the XDCAM system's Professional Disc media playback—or record—compatible with DVD drives?

A: No. They have different file formatting, track pitch and pickup specifications, in addition to different mechanical requirements.

Q: Will the Professional Disc media replace tape?

A: The Professional Disc media can store a variety of formats. Therefore, Sony expects that the optical disc will supplement and reinforce existing videotape. There are application areas where tape media is quite suitable, and areas where disc technology is more suitable. Sony anticipates that Professional Disc media and tape will coexist for years to come.

Q: For what applications are XDCAM Professional Disc systems intended?

A: XDCAM Professional Disc systems are intended for all video applications including newsgathering, production, postproduction, event videography, and so on.

Q: Is it necessary to format a disc prior to use?

A: Yes. Formatting, which creates a file system, is required for brand new discs; however, this is a very quick process that is done when the disc is inserted into a camcorder or deck. Because this happens so quickly, an end user will not be aware that the disc is being formatted.

Q: What is the operating temperature range for XDCAM systems?

A: The specified operating temperature for XDCAM camcorders ranges from 5°C (23°F) to 40°C (104°F) ambient temperature, which is a wider range than current professional tape-based camcorder products. XDCAM products operate as well as (if not better than) current VTRs and tape-based camcorders in extreme heat, cold and humidity.

Q: Once a Professional Disc media has been partially recorded, can I record more video without first initializing (erasing) the entire disc?

A: Yes. The disc media is fully rewriteable, and always appends new recordings after the last clip, regardless of what clip was being viewed. You can keep recording more video/audio until the disc is full. Even then, you can delete the last clip, selected clips or all clips on the disc to free up needed space.

Q: What is the archival life of the Professional Disc media?

A: When stored at room temperature (68°F and 40% relative humidity), the estimated archival life of the Professional Disc is greater than or equal to 50 years based on Sony's own accelerated testing.

Q: Does the XDCAM system's Professional Disc media have copy protection?

A: No.

Q: Is it possible to erase recordings on a disc?

A: Yes, all XDCAM camcorders and decks can delete the last recorded shot, one by one. A "Quick Format" of a disc, which is equivalent to "all file delete," can be done in about two seconds.

Q: Is there protection from accidentally erasing data on a disc?

A: Yes, there is write protection tab on the disc cartridge. This is similar to a rec/save tab on DVCAM tape media or a rec/inhibit tab on other professional tape media. There is also a REC INH function on all deck products to help prevent a user from accidentally erasing material.

Q: Can I erase the disc (or files on the disc) without using the deck?

A: The camcorder has a DISC MENU that enables you to delete that last clip, selected clips, all of the clips, or perform a "Quick Format".

Q: Is there a possibility of a bulk eraser type machine?

A: At this time, there are no plans to develop a bulk eraser. Unless desired for security purposes, there is no need to bulk erase data because unlike tape, directly overwriting data on discs does not degrade quality.

Q: What is the Professional Disc cartridge made of?

A: The cartridge is made of polycarbonate and the storage case is made of polypropylene.

Q: What is the warranty on the Professional Disc media?

A: Sony warranties Professional Disc media from defects in material or workmanship for 90 days. See actual warranty for details.

Q: We want to manage Professional Discs using bar codes. Can we place a bar code label on the front of the cartridge?

A: Yes, adhesive labels, including bar code labels, can be attached to the front of the cartridge.

Q: Are there any effects from magnetic fields or airport X-ray scanners?

A: Since recordings on Professional Disc media are not made using magnetic material like tape, or light sensitive material like film, it is highly unlikely that magnetic fields or X-ray scanners will affect the media.

Q: Is there protection from accidentally scratching a disc?

A: Yes. A polycarbonate cartridge shields the disc from dust and helps prevent the disc from being scratched. Even if a disc is accidentally scratched, robust error correction enables data on the disc to be played out. The worst-case scenario is when the scratched portion of the disc contains the file system, the data that enables access to all other data on a disc. In this case a mirrored file system in a different physical location enables the XDCAM system to access files.

Q: Is there any way to recover data from a damaged or corrupt disc?

A: The Error Correction on Sony XDCAM products can recover extensive lost data. However, just as with videotape, if the damage is too severe for error correction to recover, or if the media is broken into pieces, there is no way to recover data.

Q: Are there additional sources for the media?

A: Sony supports secondary suppliers for optical disc media. Currently Professional Disc media is also available from TDK, Maxell and Fuji. Please contact the respective manufacturers for details.

Laser Pickup

Q: How long does the laser last?

A: In the decks, Sony's recommended replacement interval for the laser is 6,000 hours of operation (recording and playback combined). This corresponds to three years of use at a constant eight hours a day, five days a week, 50 weeks a year. On the camcorders, the interval is 4,000 hours of operation. These replacement intervals are based upon Sony's simulation of normal usage. Sony XDCAM optical camcorders, decks and drives constantly monitor the laser's health by checking the current to the laser. As the laser approaches the end of its life, the current will fall out of tolerance, triggering an alarm. In this way, you can replace the laser before failure occurs.

Q: Can I replace the laser myself?

A: It depends. The replacement item is not the laser itself, but an optical block that includes the laser. Replacing and adjusting the optical block requires no special skill. But the installer would require a special measurement tool called an Autocollimator. However, Sony does not expect that a customer will want to buy an Autocollimator for such infrequent servicing.

Camcorders

Q: Do XDCAM hardware and media work well in humid environments?

A: Incredibly well. Thanks to non-contact recording and playback, the XDCAM system has nothing that would cause the sticking that interferes with videotape operation. Sony specifies operating humidity up to 90%. However, in Sony's own tests the camcorders have been shown to operate as long as there is no condensation or dew on the surface of the disc. Should condensation exist on media while in a camcorder or deck, the user will be prompted with a HUMID alarm. In case of dew, if you allow the disc to acclimate to room temperature and humidity (68°F/40%RH) you can resume recording. One other hidden benefit of the media type is that even when moisture appears on the surface, there are no permanent effects. With other media types utilizing pins for contact, often when those pins come in contact with moisture, they have a tendency to short out, causing loss of data.

Q: Is there shock and vibration resistance built into XDCAM camcorders?

A: Yes, Sony XDCAM camcorders use rubber dampers to hold the disc drive block in place, thereby minimizing the effect of any shock or vibration. In addition, a tracking system, based on the best Sony servo technologies, reduces the chance of the optical head recording off track. In the event a shock exceeds the servo's capacity, causing the head to move off track, recording continues in a buffer memory until the head is positioned properly. Once the head is back on track, the buffered information is recorded to disc. A substantial amount of buffering is built into the camcorder to operate in harsh environments.

Q: What happens if the camcorder battery is removed or power is suddenly lost from an AC adaptor while recording?

A: The emergency recovery system is designed to restore as much AV data as possible even if the file system is not closed properly. If power is suddenly lost during a recording, the AV data can be recovered automatically once power is reapplied. When this type of recovery occurs, the duration of a lost recording is a maximum of four (4) seconds from the time just before power was lost.

Q: What if a battery runs out while recording?

A: The system controller automatically stops recording and closes the file system before the full exhaustion of the battery. The camcorder also provides customizable battery settings for notifying the operator when battery power is below a desired level.

Q: What is the time from power on to being able to record, if the disc is already in?

A: Approximately 3.5 seconds. Tape camcorders take around four seconds.

Q: What is the time from pushing the EJECT button to full ejection of a disc?

A: The EJECT button on the camcorder does not abort the recording process. Whether an EJECT is done shortly after a REC STOP or while the camera is idle, the EJECT process is completed in approximately 5 seconds.

Decks

Q: How do I know my signal is being recorded? Is there a playback confidence function?

A: XDCAM products automatically confirm laser-writing conditions by checking the focus servo, tracking servo, reflection of laser beam, and laser power. An alarm will alert you if an unusual condition is detected. Because optical recording is fundamentally different from tape recording, there is no traditional playback confidence monitoring.

Q: How long does it take from inserting the disc to a picture being displayed on screen?

A: Approximately 10 seconds.

Q: Is Metadata transferred together with proxy AV?

A: Yes.

Q: When an optical deck receives MXF files from another machine, will there be proxy AV?

A: Yes. All XDCAM decks automatically create proxy AV that is not included in the MXF file. This function also works at high data transmission speeds via the Gigabit Ethernet or i.LINK (file access mode) interface.*

Q: Can I play back while transferring over Ethernet?

A: No, it is not possible.

Q: Are the DVCAM and MPEG HD files supported by Material eXchange Format (MXF) for Ethernet file transfers?

A: Yes, both DVCAM and MPEG HD formats are supported.

Q: Does the product line allow for direct file access to the disc in any model?

A: Direct file access on the disc is provided over the i.LINK interface* (via 'file access mode'). "File access mode" over the i.LINK interface* enables such operations as Browse File Directory, Direct read, Get File, Put File, etc. Since it occurs over the i.LINK interface, all products except for the PDW-U1 bare drive support the feature as all XDCAM units except for the U1 include the i.LINK interface as part of the standard offering.

High definition. It's in our DNA.

SONY

Sony Electronics Inc.
1 Sony Drive,
Park Ridge, New Jersey 07656

click: sony.com/XDCAM

* i.LINK is a Sony trademark used only to designate that a product is equipped with an IEEE 1394 connector. All products with an i.LINK connector may not communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connector for information on compatibility, operating conditions, and proper connection.