Panasonic
ideas for life

P2HD

AJ-HPX3000

Memory Card Camera-Recorder

P2HD

Native 1080p 4:2:2 10-bit Camcorder

AVC-INTRA DVCPRO HD DVCPRO 50

Beijing 2008

Official Worldwide Olympic Partner


Panasonic
Panasonic
P2HD

Now capture at the same quality you master: 1920 x 1080 / 10-bit/4:2:2 Sampling

Panasonic has brought its most advanced video imaging technologies together to create a camera-recorder that brings image quality and resolution to new heights. The new AJ-HPX3000 takes its place at the top of the P2 HD Series, Panasonic's solid-state line of professional broadcasting and video production equipment.

At the heart of the AJ-HPX3000 is a newly developed high-resolution 2.2-megapixel CCD and an AVC-Intra codec recording system that employs the industry's most advanced image compression technology. These combine to make the AJ-HPX3000 the first integrated camera-recorder to offer high-image-quality, high-resolution 1920 x 1080-pixel recording with full 10-bit/ 4:2:2 sampling.

The AJ-HPX3000 also adds a host of leading image-enhancing functions. For example, when used with a compatible zoom lens, the AJ-HPX3000 provides a chromatic aberration compensation (CAC) function to capture images that closely replicate those shot with a digital prime lens. There is also a dynamic range stretcher (DRS) function that suppresses blocked shadows and blown highlights while expanding the dynamic range.

The AJ-HPX3000 supports native 1080/23.98p (29.97p/25p) recording and is equipped for movie production with the FilmRec gamma mode and scan reverse function for film lenses. The AJ-HPX3000 can be used with conventional HD systems or for SD video production, and enables either DVCPRO HD or DVCPRO50 codec recording.

This integrated camera-recorder makes it possible to acquire the kind of high-quality video that in the past required a standalone HD camera plus a large VTR such as the HD-D5. That not only gives you a huge advantage in mobility, it also gives you the freedom to create new, innovative shooting techniques. Even better, the AJ-HPX3000 uses P2 solid-state memory, which provides outstanding features common throughout the P2 HD Series, including superior reliability, long record times, fast on-set workflow and compatibility with leading non-linear editing systems. P2 HD equipment also can reduce both total costs and production time.

The AJ-HPX3000 is the industry’s first native 1080p one-piece camcorder that delivers master quality video and features needed for shooting network television programs to commercials to music videos, movies and documentaries.

The AJ-HPX3000’s 2.2-megapixel HD CCD captures full 1920 x 1080-pixel HD images.

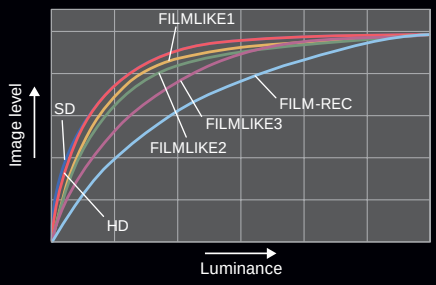
The standard AVC-Intra codec board achieves 10-bit/4:2:2 HD recording with full sampling.

New Heights in Video Production:
1920 x 1080-pixel Recording with 10-bit/4:2:2 Sampling

DSP (Digital Signal Processor)

The DSP performs 14-bit A/D conversion for the RGB signal input from the CCD, and completes all image processes, such as CAC, DRS, gamma, 12-axis independent color compensation and detail, simultaneously and digitally to achieve high image quality without degradation.

Gamma curve



HD:	Normal setting for HDTV
SD:	Normal setting for SDTV
FILMLIKE 1 — 3:	Film-like video production (3 modes of gradation)
FILM REC:	Movie production

New 2.2-megapixel Progressive/Interlace CCD

For the AJ-HPX3000, Panasonic developed a high-density 2.2-megapixel 2/3-inch CCD that provides high-resolution full-pixel (1920 x 1080) HD images. The AJ-HPX3000 provides a choice of progressive / interlace HD video formats; supporting native 1080 23.98p / 25p/29.97p, as well as 1080 50i and 1080 59.94i. The camera offers a high F10 sensitivity at 2000 lux when operating in 1080i.

Chromatic Aberration Compensation (CAC)

This exclusive technology works between lens and camera, allowing for a highly sophisticated algorithm to be deployed that automatically compensates the registration error that is caused mainly by lens chromatic aberration, and minimizes the neighboring blur. By using a CAC-compatible zoom lens, the AJ-HPX3000 can obtain images similar to those captured with a prime lens.

DRS (Dynamic Range Stretcher) Function

DRS recognizes the average brightness of highlight and shadow areas and then automatically adjusts the aperture and uses knee control to suppress blocking in the shadow areas. In scenes with mixed dark and light areas, such as when moving from indoors to outdoors, DRS automatically provides a wider dynamic range with minimal blown highlights and blocked shadows.

High-Sensitivity Digital Super Gain

The high-sensitivity F10 aperture and digital super gain (frame cumulative mode) let the AJ-HPX3000 record with a high S/N ratio*1 and less of the noise that commonly comes with higher gain. The gain and digital super gain can be flexibly combined to achieve highly sensitive recording of up to a +56 dB*2 gain increase and 0.064 lx minimum illumination, to suit different shooting conditions.

*1: Due to the use of image accumulation, the number of recorded frames per second decreases. This results in a frame-by-frame playback effect.
*2: With super gain set at +36 dB and digital super gain (6P cumulative mode) at +20 dB.

Scan Reverse Function for Film Lens Use

The AJ-HPX3000 can use an ultra prime lens and even an anamorphic lens adapter that creates a 2.35:1 aspect image for wide-screen cinematic shooting without cropping the image. Its scan reverse function cancels the image inversion that occurs when Angenieux's HD lens adaptor is used.

Six Gamma Modes Including VariCam Film-Rec

A new digital signal processing (DSP) circuit in the AJ-HPX3000 has six selectable gamma modes. These include F-Rec gamma for movie production, which is the same high-end function incorporated in the Varicam. Select the mode (see the diagram above) to match the application.

14-Bit Digital Processing with 12-Axis Color Correction

In the AJ-HPX3000, we offer a 14-bit A/D conversion system along with the new high-performance DSP circuit. The 12-axis color correction matrix lets you make fine adjustments in specific color regions. Functions such as skin detail let you further fine-tune the image.

Scene Files and Lens Files

• **Scene Files:** Store specific camera settings in built-in memory. Four files with settings can be stored in the camera's memory. Files can also be copied onto an SD/SDHC Memory Card, allowing storage of up to eight files.
• **Lens Files:** Store settings for interchangeable lenses. Eight files can be stored in the camera unit, and 64 (8 x 8) files can be saved on an SD/SDHC Memory Card.

Shooting Assist Functions

• **Three User Buttons:** Assign a function to each, and then you can select functions with pushbutton ease.
• **Focus Assist:** Facilitates focusing by displaying the frequency.
• **Variable Color Temperature:** Color temperature can be adjusted with the jog dial after the white balance is set.
• **Electronic Shutter with Half-Speed:** The AJ-HPX3000 has a full collection of shutter angle options like the VariCam. It also includes Six fixed speeds of up to 1/2000sec, plus "half-speed" (180-degree) slow and synchro-scan capability.
• Two optical filters, ND and CC, have four positions each. The 3200K, 4300K, 5600K and 6300K positions of the CC filter help to express deeper colors.
• A 3-point locking viewfinder mount allows precise adjustment.
• The Audio Rec level adjustment features a push lock function.
• The Audio Input level adjustment (front) can be switched ON/OFF and allocated to desired channels.

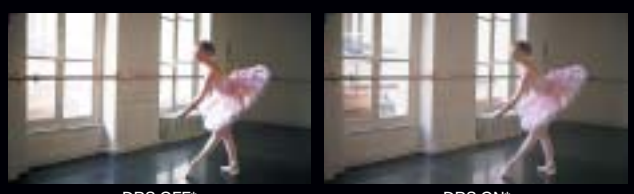
Simulation Showing the CAC (Chromatic Aberration Compensation) Effect

Full screen image (simulated*) CAC OFF (simulated*) CAC ON (simulated*)

When a zoom lens is used, chromatic aberration occurs near the perimeter of the R, G and B channels (with CAC turned off). When the advanced CAC function is utilized, after the CCD captures the image, the CAC function uses the DSP circuit to perform digital compensation using a table prepared for selected lens**.
The beneficial effect is more prominent for higher-resolution images".

** FIJINON 2/3" LENS compatible with CAC HA22x7.8BERM-M58/HA22x7.8BERD-S58/ HA16x6.3BERM-M58/HA16x6.3BERD-S58
CANON 2/3" LENS compatible with CAC HJ22ex7.6B IASE/HJ17ex7.6B IASE

Simulation Showing the DRS (Dynamic Range Stretcher) Effect

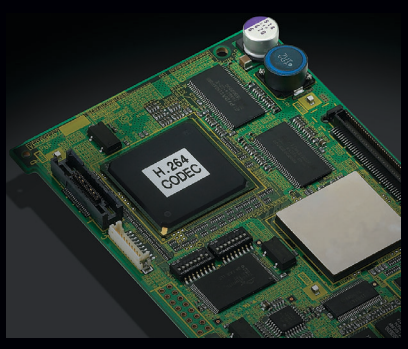


DRS OFF* DRS ON*

As seen in the image at the left, the ordinary auto knee function results in blown highlights outside the window or blocked shadows inside the room. The DRS detects the average brightness of both light and dark areas, and prevents blown highlights and blocked shadows to provide a broader dynamic range. This is especially effective for film-like HD production.

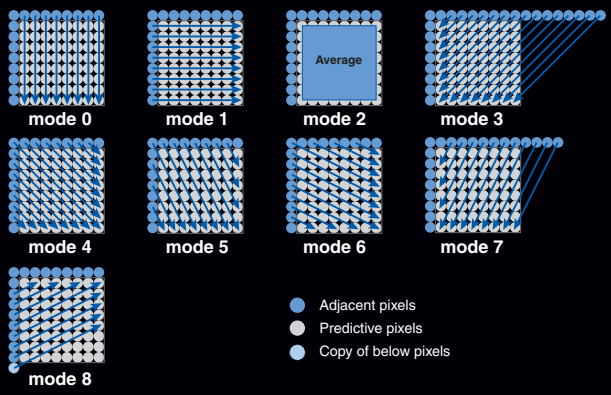
* These simulated images ware prepared for the purpose of explaining the function. It is not actual captured image. The effect is emphasized, and the actual image differs from the simulated images shown here.

AVC-Intra: The most advanced compression technology for Master Quality Video Acquisition.



Top photo: A sample image recorded by an AVC-Intra 100 codec. It is a still image captured from 1920 x 1080-pixel video recorded using 10-bit/4:2:2 sampling.
Left photo: The AJ-HPX3000 includes the AVC-Intra codec board as standard equipment. It enables recording and playback with the AVC-Intra 100 or AVC-Intra 50 codec in compliance with the MPEG-4 AVC/H.264 international standard. The board can also be retrofitted as an option to the currently available AJ-HPX2000 (for the U.S market) P2 HD camera-recorder, AJ-HPX2100 (for Outside U.S market) P2 HD camera-recorder and AJ-HPM100 P2 HD mobile recorder.

Conceptual Illustration of Luminance Signal (Y) Intra Prediction Mode



This process generates predictive images based on adjacent blocks of 8 x 8 pixels. Selecting the most suitable predictive mode from among nine luminance signal modes (see illustration) and four color signal modes, it generates accurate predictive images.

Comes Equipped with AVC-Intra Codec

When using AVC-Intra 100, the AJ-HPX3000 is the industry's first, one-piece camcorder for master quality, full raster 1920 x 1080 4:2:2 recording. Even better, this model allows users the flexibility of the AVC-Intra 50 codec for bandwidth efficient applications. AVC-Intra is a new codec that further advances HD production. It complies with the MPEG-4 AVC/H.264 international standard based on advanced image compression technology, and offers both superb image quality and highly efficient compression. It uses an intra-frame compression system to bring important advantages to professional editing.

High-Image-Quality, AVC-Intra 100 Mode

With the same bit rate as DVCPRO HD - this mode supports full-HD recording with 1920 x 1080 pixels. It enables the AJ-HPX3000 to capture master-quality video and brings new opportunities to high-end video production.

Low-Rate, AVC-Intra 50 Mode

This mode delivers video quality very similar to DVCPRO HD, yet is able to do so at bit rates usually associated with standard definition, (e.g. DVCPRO 50.) AVC-Intra 50's lower bit rate doubles the recording time per P2 card over DVCPRO HD and lower storage requirements for editing.

HD Multi-Format Capability, Including Native 1080p

The AVC-Intra 100 and 50 codecs let you record in a choice of HD video formats: 1080p 23.98/25/29.97, as well as 1080 50i / 59.94i. These world-wide HD formats provide extra flexibility in all of you production needs.

Selectable DVCPRO HD/DVCPRO 50 Recording

The AJ-HPX3000 supports the conventional DVCPRO HD codec and also offers DVCPRO 50 capability for SD recording. This lets it flexibly adapt to various applications and system environments.

48-kHz/16-Bit, 4-Channel Digital Audio

The AJ-HPX3000 can record full 48-kHz/16-bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic, line, wireless receiver, and others. A 5-pin XLR jack with 2-channel compatibility is used for the front mic input. Using the AJ-MC900G optional stereo microphone lets you record stereo with a single mic.

AVC-Intra Technology

Intra-Frame (I-Only) Compression Superiority

Image compression technology can be divided into two basic approaches, Intra (frame-bound) compression, in which all processing is completed within the bounds of each field or frame, and Inter (Long GOP) compression, in which the processing is applied across multiple frames. AVC-Intra uses Intra frame technology. When the image content of adjacent frames is similar, Long GOP compression achieves a low bit rate, making it suitable for transmission and for applications where low bit rates are desirable yet very little editing is required, e.g. consumer camcorders. However, when image quality cannot be compromised, such as in movies, commercials, fast-action sports, or any content with rapidly changing lighting, Intra-frame compression provides the best video quality.
For stable and reliable recording regardless of subject type, an intra-frame compression method that completes compression in each frame is more suitable. If editing requires frame-by-frame trimming, an intra-frame compression method enables stream editing* without degrading the image. Because each AVC-Intra frame is composed of 10 slices*, a multi-core CPUs processing approach can be used to perform high-speed parallel processing, this makes AVC-Intra compression much better suited to the era of multi-core CPUs than inter-frame compression, which poses difficulties to parallel processing because of the dependence between frames.

* Editing of data in a compressed state.

Twice the Compression Efficiency of MPEG-2

Using advanced compression techniques, AVC-Intra has doubled the compression ratio of MPEG-2, even with I-Only compression. Its intra-frame predictive and context-adaptive entropy coding are particularly effective methods.

- **Intra prediction:** This process generates predictive pixels based on adjacent pixels (see illustration). The residual data (obtained by subtracting a predictive image from the original input image) is recorded together with the predictive mode information. Because the prediction accuracy is high, there's minimal residual data, and thus high compression is achieved. This process is conducted within the frame, so prediction accuracy remains high even with fast-motion images.
- **Context-adaptive entropy coding:** The entropy coding process utilizes CAVLC (Context Adaptive VLC) and CAVBAC (Context Adaptive Binary Arithmetic Coding), both of which are context adaptive. MPEG-2 uses a fixed table when performing the VLC coding, with the result that compression efficiency is low with some types of images. In context-adaptive coding, on the other hand, operation varies with different kinds of images and high compression efficiency is maintained at all times.

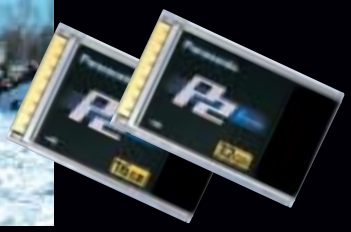
Sample Image of the Intra Prediction Process

Left: Original image **Center:** Intra-frame predictive image **Right:** Difference image obtained from subtracting the intra-frame predictive image from the original image. This shows the high accuracy of intra prediction.

P2 Card: Superior Mobility, Reliability, Compatibility, plus Fast workflow and long record times.

*AJ-P2C032RG will be available at the end of year 2007.

The P2 HD being used in Alaska. Because no condensation or head clogging occurs with P2 equipment, it offers reliable operation under extremely harsh shooting conditions.



The P2 card features an original design to ensure higher durability and reliability than ordinary optical, disk, and solid-state recording mediums.

This shows the text memo editing window of the provided Windows PC software, P2 Viewer. A list of memos is shown on the right side. The clip time line below the view window shows the memo marks. Text can be written to an empty memo space created by the camera-recorder. Memos can also be added, deleted or moved.

P2 Cards Offer Outstanding Mobility and Reliability

The 16-GB*1 P2 card (AJ-P2C016RG) offers great flexibility and interoperability with leading NLE systems and boasts a high data transfer speed of 640 Mbps*2 max. This solid-state memory card is highly resistant to shock and vibration, so it brings high reliability and mobility to outdoor shooting. It lets the camera start recording immediately from standby mode, and allows shooting to start within two seconds of turning the power on. This speedy response shortens downtime when replacing batteries, and greatly cuts down on battery power consumption by letting you turn the power off during standby. P2 cards can even be exchanged with the power off. Recorded data is automatically stored in blank card areas with no cueing required. This eliminates the risk of accidentally overwriting valuable data.

*1: Total card capacity includes space for data management such as system data, so the actual usable area is less than the capacity indicated on the card.
*2: This data transfer speed is a theoretical value. The actual data transfer speed varies according to the operating condition and devices.

Recording Functions with Five P2 card Slots

With five ultra-reliable 16GB P2 cards installed, the HPX3000 can capture up to 100 minutes of master quality 1080 24p content. It also provides several entirely new recording functions that are possible only with memory cards.

• **Card selection:** The recording slot can be changed (sequential switching) even during recording. This lets you review, organize and transmit just recorded content on an AJ-HPM100 P2 Mobile, or, off-load content to a non-linear editing system for quick editing, without interrupting the recording. the recording. Recorded content can also be organized while shooting, by switching cards for each scene category.

• **Hot-swap-rec:** You can replace a full memory card with a blank one while the P2 cam is recording onto a second card. Successively swapping cards this way gives you virtually unlimited recording capability.

• **Loop-rec:** By loop recording onto a specified recording area, you can continue to record over a fixed area.

• **Pre-rec:** While in standby mode, you can continuously store, and subsequently record, up to 8 seconds of video and audio. In effect, this lets you record footage of events that occur even before you press the rec start button, giving you a way to "go back" and capture moments you otherwise would have missed.

• **Interval rec:** This gives you automatic intermittent recording based on a set interval and recording time.

• **One-shot rec:** This frame-shot recording function is useful for producing animations.

Clip Thumbnail Function

The P2 cam automatically generates a thumbnail image for each clip. You can view thumbnails on the AJ-HPX3000's 3.5" color LCD monitor, or, by connecting the camera's Monitor Out to a separate display. Any of the clips can be accessed instantly. Thumbnail images can be paused, fast-forwarded, and reversed just like a tape, and unwanted cuts can be deleted by selecting and deleting the corresponding thumbnail image. You can also specify a number of clips for seamless playback* or on-air broadcasting. And if a shooting opportunity should arise during playback, the P2 cam lets you start recording immediately with no cueing required and no risk of accidentally overwriting valuable data.

*Seamless playback is not possible between clips recorded in different formats.

Text Memo (Bookmark) for Simple Editing

When recording or previewing a clip, press the Text Memo button at any of up to 100 locations and a text memo label, similar to a bookmark, is registered. Using only the P2 cam, you can create a new clip with data copied between text memo labels. Text information can also be written into each memo using the AJ-HPX3000 or a PC with P2 Viewer installed. A shot mark, which allows convenient OK and NG marking, can also be added to each clip during or after recording.

SD/SDHC Memory Card Slot

The AJ-HPX3000 comes with an SD/SDHC Memory Card slot. You can create a metadata upload file (produced with P2 Viewer) containing information such as the name of the camera operator, the name of the reporter, the recording location, and text memos on an SD/SDHC Memory Card, and load it as clip metadata. The SD slot is also used to upload scene files and firmware updates.

Proxy Data Recording (Option)

Install the AJ-YAX800G proxy video encoder,, and the AJ-HPX3000 records MPEG-4 proxy (low-resolution) data onto the P2 card and an SD/SDHC Memory Card. This can be used for quick viewing of dailies with timecode and it's low bit-rate provides easy transmission over wired and wireless networks.

* Proxy data is AV data with low-resolution MPEG-4 video and audio containing a time code, metadata, and other control information.
* Use of DCF technologies under license from Multi-Format, Inc.

HD Recording Format supported by AJ-HPX3000

Recording video Format	Pull down	Rec. Time (using 5 16GB P2 cards) and Codec		
		DVCPRO HD	***AVC-Intra 100***	***AVC-Intra 50***
1080/59.94i	—	80min.	80min.	160min.
1080/29.97p (over 59.94i)	—		—	—
1080/23.98p (over 59.94i)	2-3		—	—
1080/23.98pA (over 59.94i)	2-3-3-2		—	—
1080/29.97p (native)*	—	—	80min.	160min.
1080/23.98p (native)*	—	—	100min.	200min.
1080/50i	—	80min.	80min.	160min.
1080/25p (over 50i)	—		—	—
1080/25p (native)*	—	—	80min.	160min.

*Native modes record only the effective frames.

SD Recording Format supported by AJ-HPX3000

Recording video Format	Pull down	Rec. Time (using 5 16GB P2 cards) and Codec
		DVCPRO 50
480/59.94i	—	160min.
480/29.97p (over 59.94i)	—	
480/23.98p (over 59.94i)	2-3	
480/23.98pA (over 59.94i)	2-3-3-2	
576/50i	—	160min.
576/25p (over 50i)	—	

HD-SDI, IEEE 1394, USB 2.0, RCU — For Interfacing with IT (PC) -Based Broadcasting and Video Systems

Digital Backup Recording (HD/SDI/IEEE 1394)

The AJ-HPX3000 comes equipped with an HD-SDI output terminal that can provide HD/SD baseband output. Use the AJ-HPX3000 in tandem with the AJ-HPM100 P2 Mobile or a digital VTR (such as the AJ-HD1400), and you can link rec start and stop operations for simultaneous backup recording.

The AJ-HPX3000 also comes equipped with an IEEE 1394-compliant DVCPRO output (6-pin) terminal. Use the AJ-HPX3000 in tandem with a compatible recorder such as the AG-HPG10G P2 Gear, AJ-HPM100 P2 Mobile or FOCUS FS-100 "FireStore," and the AJ-HPX3000 can make degradation-free backup recordings with a DVCPRO HD or DVCPRO 50 stream output.*1

The AJ-HPX3000's two digital output systems — HD-SDI and IEEE 1394 — provide compatibility with a wide range of broadcasting and IT-based equipment.

*1: IEEE 1394 backup recording is possible only with the DVCPRO HD/DVCPRO 50 codec.

HD/SD SDI Line Recording (Option)

When the AJ-YA350AG optional HD/SD SDI input board is installed, HD/SD line recording is possible from SDI (serial digital) input.

*The input signal must be in the same format as the recording format of the camera-recorder.

HD-SDI/SD-SDI Down-Conversion Output

The AJ-HPX3000 comes equipped with two BNC video line outputs for flexible monitoring or line recording use.

P2 Viewer 3.5 Software

For use with Windows PCs, Panasonic's P2 Viewer 3.5 software lets you view P2 files, edit metadata and make copies. The newest version can be downloaded free of charge from the following Panasonic Website: http://panasonic.biz/sav/p2.

• PC requirements: Microsoft® Windows 2000 SP4 or later, Microsoft® Windows XP Professional SP2 or later, or Microsoft® Vista Business or later; installation of DirectX 9.0 or later; full-color (32-bit) display; sound function; installation of P2 driver; and Pentium M, Pentium 4, Pentium D, Celeron D or other CPU that supports SSE2 commands.

• Recommended specifications for HD video editing: Pentium D 3.2-GHz CPU or higher, 1 GB or more of RAM

• **VIDEO OUT:** Switchable between HD-SDI/SD-SDI (down conversion) and analog composite (down conversion) output.

• **MON OUT:** Outputs down-converted SD video only. Switchable to analog composite (thumbnail output possible), VF or Y.

USB 2.0 Interface Compatible with Host Mode

In device mode, the P2 cam's card slot can be used to connect a PC as an external device for nonlinear editing and transmission over networks. In host mode, P2 files can be copied onto a hard disk without using a PC.

Multi-Function RCU System (Option)

The AJ-HPX3000 comes equipped with an RCU terminal for connecting the optional AJ-RC10G Remote Control Unit. This lets you adjust the image and control the recording operation while monitoring the camera image.

Additional Features

• By mounting the optional AJ-GPS910G GPS unit, the AJ-HPX3000 can record real-time position data (latitude, longitude, and altitude), conforming to UMID standards.

* The GPS unit is not available in some areas.

• DC power supply for the BT-LH80W LCD monitor

• Color bar (switchable between SMPTE, ARIB, and full color) and standard audio signal (1-kHz test tone) output

• Built-in SMPTE time code generator/reader, with time code In/Out terminal

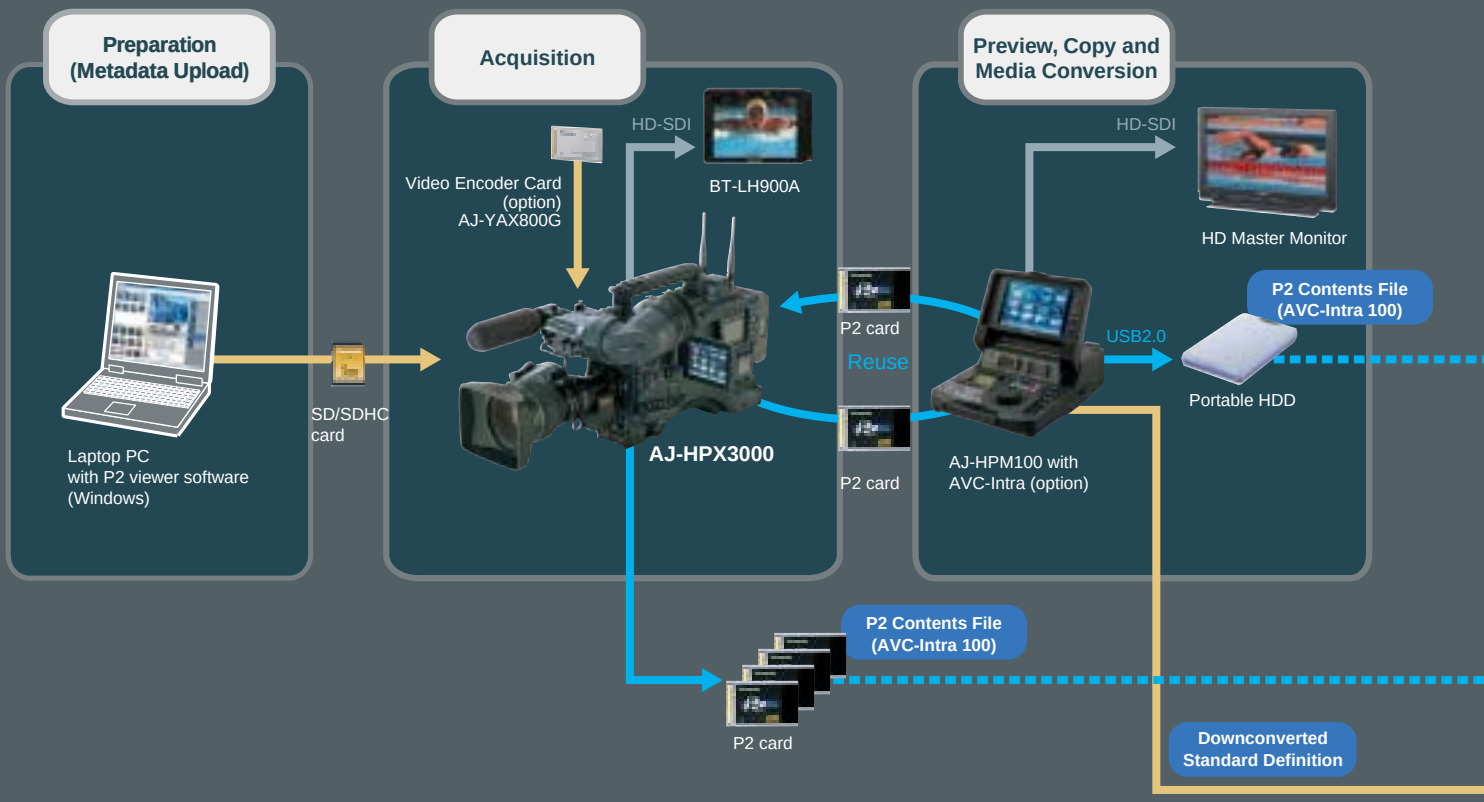
• Genlock input terminal can also be used as return video (HD-Y/VBS)

• UniSlot® wireless receiver compatible

* UniSlot® is a trademark of Ikegami Tsusinki Co., Ltd.

The P2 HD System Workflow Adapts to HDTV and Movie Production

Example of work flow (When AVC-Intra 100 is used)

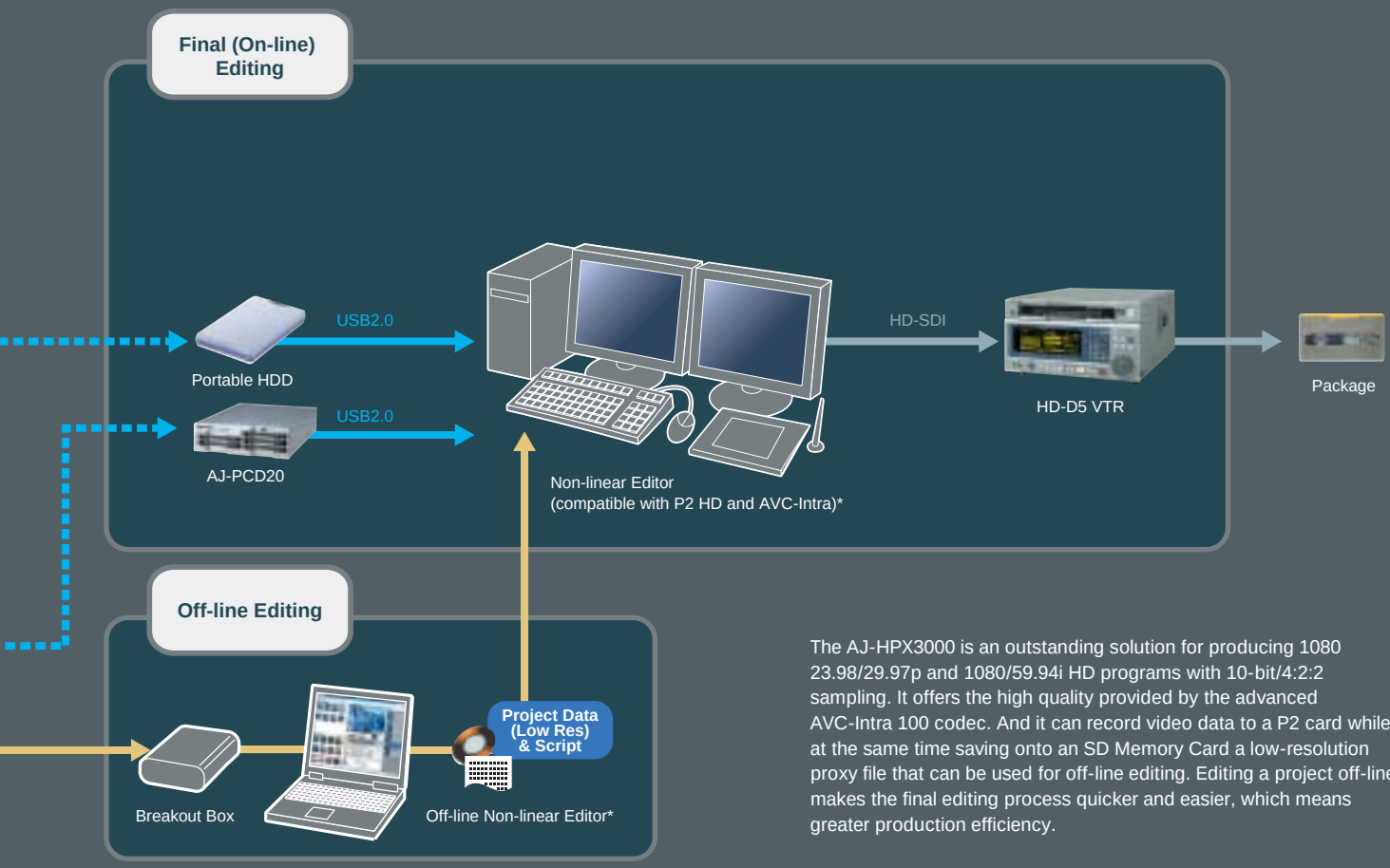


Support Gear

AJ-HPM100
Portable 10-bit* 4:2:2 Recorder/Player (P2 mobile)
*Requires AJ-YBX200 AVC-Intra option

AG-HPG10
Memory Card Portable Recorder (P2 gear)

BT-LH80W/LH900A/LH1700W/LH2600W
HD/SD LCD Monitor



The AJ-HPX3000 is an outstanding solution for producing 1080 23.98/29.97p and 1080/59.94i HD programs with 10-bit/4:2:2 sampling. It offers the high quality provided by the advanced AVC-Intra 100 codec. And it can record video data to a P2 card while at the same time saving onto an SD Memory Card a low-resolution proxy file that can be used for off-line editing. Editing a project off-line makes the final editing process quicker and easier, which means greater production efficiency.

*Please refer to the latest P2 Compatibility Table at <https://eww.pavc.panasonic.co.jp/pro-av/sales_o/p2comp/index.html>.

AJ-RC10G
RCU (Remote Control Unit)
with 10m remote control cable

AJ-HD3700B
HD D5 Multi-format Recorder

Optional Accessories

AJ-HVF21G
2" HD EVF 59.94Hz/50Hz switchable

HA22x7.8BERM-M58
HA22x7.8BERD-S58
HA16x6.3BERM-M58
HA16x6.3BERD-S58
FIJINON 2/3" LENS compatible with CAC

HJ22ex7.6B IASE
HJ17ex7.6B IASE
CANON 2/3" LENS compatible with CAC

AJ-MC900G
Stereo Microphone

AJ-GPS910G
GPS Unit

SHAN-TM700
Tripod Adapter

AJ-P2C016RG
AJ-P2C032RG
P2 card

*AJ-P2C032RG will be available at the end of year 2007.

SD/SDHC memory card

AJ-YAX800G
Proxy Video Encoder

AJ-YA350AG
HD/SD SDI Input Board

BT-LH900A
8.4" HD/SD LCD monitor

BT-LH80W
7.9"Wide HD/SD LCD monitor

BT-CS80G
VF Cable (Viewfinder Cable, DC Cable)

AJ-RC10G
RCU (Remote Control Unit) with 10m remote control cable

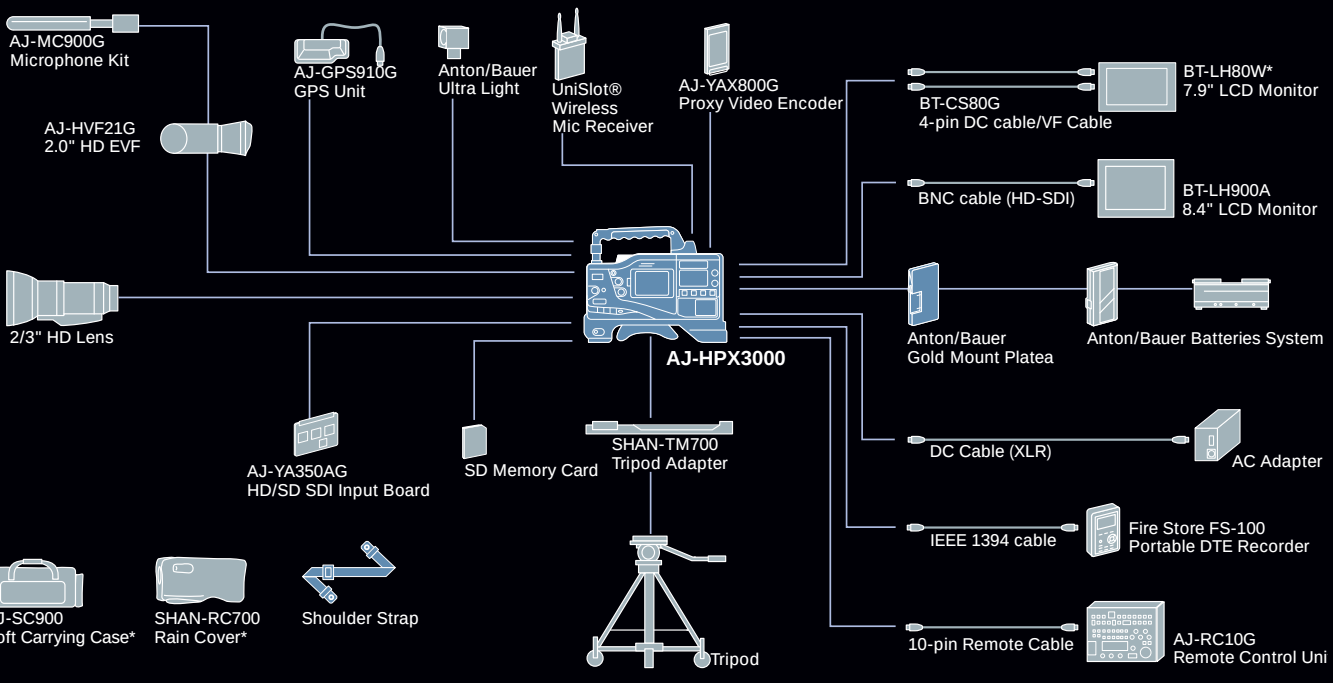
AJ-C10050G
Remote Control cable (50m)

FireStore FS-100
Portable DTE Recorder (FOCUS Enhancements, Inc.)

Anton/Bauer
Battery System

AJ-SC900
Soft Carrying Case
*Not available in some areas.

SHAN-RC700
Rain Cover
*Not available in some areas.



Specifications

General Specification

Power Source:	DC 12 V (11.0 V to 17.0 V) 43 W (excluding SDI-IN option, LCD Monitor OFF)
Operating Temperature:	0 °C to 40 °C (32 °F ro 104 °F)
Keeping Temperature:	–20 °C to 60 °C (–4 °F ro 140 °F)
Operating Humidity:	10 % to 85 % (relative humidity)
Operating Time:	Approx. 120 min., when using DIONIC90 battery
Weight:	Approx. 4.8 Kilograms/10.5 lbs (main unit only)
Dimensions (W x H x D):	137 x 209 x 318 mm (5-7/16" x 8-1/4" x 12-9/16") excluding handle and option cover

Camera Section

CCD Elements:	2/3-Inch, RGB 3CCD
Picture Elements:	Total: 2010 (H) x 1120 (V) Effective: 1920 (H) x 1080 (V)
Optical Filters:	CC: 3200K, 4300K, 5600K, 6300K ND: CLEAR, 1/4ND, 1/16ND, 1/64ND
Quantizing:	14 bits
Horizontal Drive Frequncy:	74.1758 MHz (59.94 Hz), 74.25 MHz (50 Hz)
Sampling Frequncy:	74.1758 MHz (59.94 Hz), 74.25 MHz (50 Hz)
Digital Signal Process:	74.1758 MHz (59.94 Hz), 74.25 MHz (50 Hz)
Programmable Gain:	–3/0/+3/+6/+9/+12/+15/+18/+21/+24/+27/+30 dB
Digital Super Gain:	+6/+10/+12/+15/+20 dB switchable
Super Gain:	+30/+36 dB switchable
Shutter Speed:	1/60 (50 Hz), 1/100 (59.94 Hz),1/120/, 1/250,1/500, 1/1000, 1/2000, HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg
Syncro Scan Sutter:	1/61.7 to 1/7200 sec. (1080/59.94i, 480/59.94i) 1/30.9 to 1/3600 sec. (1080/29.97p, 480/29.97p) 1/24.7 to 1/2880 sec. (1080/23.98pA, 480/23.98pA) 1/51.4 to 1/6000 sec. (1080/50i, 576/50i) 1/25.7 to 1/3000 sec. (1080/25p, 576/25p)
Lens Mount:	2/3-inch bayonet mount
Optical System:	F1.4 Prizm
Sensitivity:	F10 (2000 lx, 89.9 % reflect, 1080/59.94i)
Minimum Luminance:	0.064 lx (F1.4, Super gain +36 dB, Digital super gain +20 dB)
Video S/N:	54 dB (standard)
Horizontal Resolution:	1,000 TV lines (at center standard)
Registration:	Less than 0.03 % (whole zone, without lens distortion)

Memory Card Recorder Section

Recording Format	AVC-Intra 100/AVC-Intra 50/DVCPRO HD/DVCPRO 50 Format switchable	
Recording Video Signal:	48 kHz/16 bits, 4 CH	
Recording Media :	P2 card	
Recording Playback Time*:	when using 16GB P2card AJ-P2C016RG	
	by single card	using 5 card slot
AVC-Intra 100	Approx. 16 min.	Approx. 80 min.
AVC-Intra 50	Approx. 32 min.	Approx. 160 min.
DVCPRO HD	Approx. 16 min.	Approx. 80 min.
DVCPRO 50	Approx. 32 min.	Approx. 160 min.

* Time shown above is when you record a series of 1 shot to P2 card. Depending on numbers of shots you record, time will get shorter than the number shown above.

•Digital Video

Sampling HD Frequncy:	Y: 74.1758 MHz (59.94 Hz), 74.25 MHz (50 Hz) PB/PR: 37.0879 MHz (59.94 Hz), 37.125 MHz (50 Hz)
Sampling SD Frequncy:	Y: 13.5 MHz,PB/PR: 6.75 MHz
Quantizing:	AVC-Intra100/AVC-Intra50: 10 bits DVCPRO HD/DVCPRO 50: 8 bits
Video Compression:	AVC-Intra100/AVC-Intra50: H.264/AVC-Intra Profile DVCPRO HD/DVCPRO 50: DV base SMPTE379M/314M

•Digital Audio

Sampling Frequncy:	48 kHz (sync. with video)
Quantizing :	16 bits
Frequncy Response:	20 Hz to 20 kHz ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, AWTD)
Distortion:	Within 0.1 % (1 kHz, reference level)
Headroom :	18/20 dB selectable

Input and Output

GENLOCK IN:	BNC x 1, 1.0Vp-p, 75Ω (switchable to VIDEO IN or Return Video)
MONITOR OUT:	BNC x 1, 1.0Vp-p, 75Ω
VIDEO OUT:	BNC x 1 (switchable to HD-SDI/SD-SDI/Composite) HD-SDI: 0.8Vp-p, 75Ω (SMPTE292M/299M standards) SD-SDI: 0.8Vp-p, 75Ω (SMPTE259M-C/272M-A/ITU-R.BT656-4 standards) Composite: 1.0Vp-p, 75Ω
TC IN:	BNC x 1, 0.5～8Vp-p, 10kΩ
TC OUT:	BNC x 1, low-impedance, 2.0±0.5Vp-p
DVCPRO:	6-pin (Input and Output), Transfer Speed:400/200/100Mbps (selectable) Data: IEEE 1394-1995/1394a-2000, IEC61883-1,2,SPMTE396M standards Control Command: AV/C Command Set
HD/SD SDI-IN (Option):	BNC x 1, 0.8Vp-p, 75Ω HD/SD-SDI Input board (AJ-YA350AG) HD: SMPTE292M/299M standards SD: SMPTE259M-C/272M-A/ITU-R.BT656-4 standards
AUDIO IN :	XLR-3pin x 2 (CH1/CH2) LINE/MIC/MIC+48Vswitchable LINE: –3/0/+4 dBu selectable MIC : –60/-50 dBu selectable MIC+48 V: Phantom +48 V, –60/–50 dBu selectable
MIC IN:	XLR-5pin x 1, –50/–40 dBu selectable, Phantom +48 V ON/OFF
WIRELESS IN:	25-pin、D-SUB、–40 dBu
AUDIO OUT :	XLR x 5-pin (CH1/CH2) –3/0/+4 dBu selectable, balanced, low-impedance
PHONES OUT:	Stereo Mini Jack x 2
DC IN:	XLR-4-pin x 1, DC12V (11 to 17V)
DC OUT:	4-pin, DC12V (11 to 17V), Max.1.5A
LENS:	12-pin
EVF:	20-pin
RCU:	10-pin for AJ-RC10G
GPS:	6-pin for AJ-GPS910G
USB 2.0:	HOST: 4-pin Type-A, DEVICE: 4-pin Type-B

Included Accessories

Shoulder strap, Front audio volume knob (with screw), Software CD-ROM

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

5 year warranty repair program is available for AJ-HPX3000.

Panasonic P2HD "No Cost" 5 Year Warranty Repair Program[*1]

Thank you for purchasing this Panasonic P2HD device.
Register as a owner for this device to receive a special service warranty up to five years of free warranty repairs.

Customers who register as owners on the website will receive a "no cost" extended warranty repair valid for up to five years.

	1st year	2nd year	3rd year	4th year	5th year[*5]
P2HD device[*2]	Basic warranty[*3]	"No cost" extended warranty repair[*4]			

*1: Please note that this extended warranty is not available in some countries/regions see web site below for details . *2: Not all models eligible for extended warranty coverage. *3: The basic warranty period may vary depending on the country/region see enclosed warranty for warranty coverage. *4: Not all repair work is covered by this extended warranty see warranty card enclosed with the product for warranty coverage. *5: The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Purchase P2 product → Register online within 1 month → "Registration Complete" e-mail sent

Make sure to save the "Registration Complete" e-mail during the warranty period.

Details about user registration and the extended warranty: http://panasonic.biz/sav/pass_e

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Factories of Systems Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)

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