

# P2HD

# A New Line-up with Better Image Quality, Easier Operation and Lower Energy Consumption. The P2HD Series Advances the Future of Broadcasting and Video Production.

New additions to the P2HD Series combine high-speed, large-capacity, solid-state memory with the latest HD imagery and Panasonic's acclaimed technologies. The P2HD Series was developed for HD/SD production and uses the P2 card, which Panasonic designed for professional applications. By drawing on the outstanding reliability, speed and rewrite performance of the solid-state P2 card, and backed by a full 64 GB of storage capacity and the advanced AVC-Intra\* codec, the P2HD Series enables extended recording of high-quality images. Its seamless integration with IT equipment also leads to speedier workflows in broadcasting and video production. The P2HD Series also continues to grow and evolve. In addition to more robust editing functions, the new AJ-HPM200 P2 mobile and AJ-HPD2500 P2 deck feature new networking functions and AVCHD compatibility. And they combine with the handy AJ-PCD2G 1-slot P2 drive to further increase speed and efficiency for file-based broadcasting workflows. The new AG-HPX370 Series also brings a new, high-sensitivity MOS image sensor to the highly mobile 1/3-inch camera recorder. P2HD models have no transport mechanism and save to preserve the global environment. They offer an excellent solution to today's imaging needs and lead directly to the future of broadcasting and video production.

\*See the products listed on pages 11 to 18 for details of applicable models.



# P2HD



TCR 00:04:43.10\* JOG STILL TCR 00:00:09.25 STOP

OW 23:59:50.00 00:00:10.00 00:00:30.00

Y A1 A2 A3 A4

START TC : 23:59:50.00 DUR : 00:00:05.61 TOTAL DUR : 00:00:48.19

AVC INTRA100 1080/60i manual (2:P004R8)

- SUPER ON OFF
- BACKLIGHT LIGHT DARK OFF
- BRIGHTNESS
- LEVEL

Panasonic

Memory Card Portable Recorder/Player AJ-HPM200

FUJINON FUJIFILM

# With its high reliability, large capacity and fast data transfers

The time-saving P2 card reduces production costs, resulting in higher operating efficiency



## High Reliability Supports Creativity



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

Image disturbances can be caused by vibration and impact, while recording/playback heads can be clogged by dust and other particles. These problems, which often occur under harsh video production conditions, are eliminated by recording onto the solid-state P2 card. The P2 card withstands impacts up to 1,500 G and vibrations up to 15 G, operates in temperatures from -20°C to 60°C, and can be stored in temperatures from -40°C to 80°C. The P2 card's rugged specifications ensure reliable recordings under harsh conditions and enhance newsgathering mobility. Because solid-state memory requires no transport mechanism, it eliminates the possibility of clogging that occurs with tapes. Because data is saved in files, there is no risk of accidentally overwriting valuable data. Multi-card slots prevent roll change errors. And, in addition to instant startup and quick access, the P2 HD Series offers a wealth of functions, such as Pre-Rec, that ensure reliable recording of critical moments. With its superb reliability and performance, the P2 HD Series lets you record smoothly under rigorous field conditions and provides powerful support to creative video production.



## 64 GB Capacity Extends Recording Times and Lowers Costs

The P2 card offers up to 64 GB\*1 of storage capacity. A single P2 card can record up to 64 minutes\*2 with the DVCPRO HD or AVC-Intra 100 codec or up to 128 minutes\*2 with the AVC-Intra 50 codec.\*3 This large capacity provides sufficient recording time even for a handheld camera recorder or portable recorder with two card slots. More affordable E Series\*4 models have also been added to the lineup to respond to an even wider range of needs. With semiconductor memory capacity increasing yearly, you can expect even larger-capacity P2 cards with even greater economy in the future.

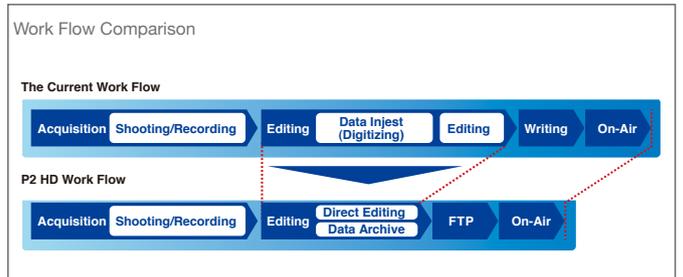
\*1: Total card capacity includes space for data management, such as system data; therefore, actual usable area is less than the capacity indicated on the card.  
 \*2: A 64GB P2 card can record 80 minutes in AVC-Intra 100 1080/23.98p or 160 minutes in AVC-Intra 100 / DVCPRO HD 720/23.98p.  
 \*3: See the products listed on pages 11 to 18 for details of AVC-Intra-ready models.  
 \*4: When using the P2 card E Series, software updates are necessary for certain P2 devices. For details, visit the Panasonic website at <http://pro-av.panasonic.net/>

## High-Speed Data Transfer to IT Systems Boosts Operating Efficiency

Files are saved onto the P2 card in MXF format. This allows direct data transfers to IT-based broadcasting and production systems configured with Non-linear editors and network servers. P2 equipment also comes with USB 2.0 and IEEE 1394 interfaces to support both Windows and Mac systems. A P2 drive with higher transfer speed of PCI express is also available. The P2 card mounts\* directly to the PC card slot of a laptop PC. In addition to file-based recording, the P2 card boasts fast access and data transfer speeds, enabling direct on-card editing. Non-linear editing can also begin without digitizing or other time-consuming operations. Further, editing can be performed while transferring or saving recordings to a hard disk or other archiving system in the background. These features significantly reduce program production times, decrease the size of production crews, save labor, and increase cost benefits to operation and management.

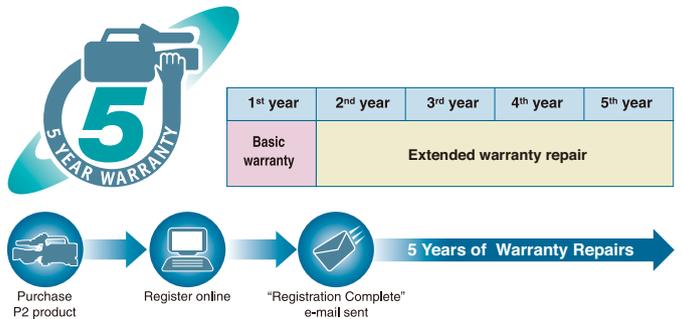


\* The PC must be installed with the included P2 driver in order to mount P2 cards. For editing, the PC must be installed with P2-compatible editing software available from various companies. Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.



## P2 HD 5 Year Warranty Repair Program

The P2 HD 5 year warranty repair program further enhances select P2 camera recorder's and recorder's outstanding reliability and durability, and helps to reduce running costs. Once you purchase an applicable model (indicated by a mark on the catalog's product introduction pages), simply register it at Panasonic's Website to be eligible for maximum five year warranty repair service.



\*Please note that this program is not available in some countries and regions. The basic warranty period may vary depending on the country or region. Not all repair work is covered by this extended warranty. The maximum warranty period may be adjusted depending on the number of hours the devices has been used. Details about user registration and the program: For US Customers; [www.panasonic.com/broadcast](http://www.panasonic.com/broadcast), For Outside US; [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)

Workflow Based on IT Integration

# High-Speed Transfer and Use of Metadata over the IT Infrastructure

P2 HD Revolutionizes Broadcast and Video Production Workflow



## P2 Completes the File-based Workflow

To transit from tape-based to file-based workflow, P2 supports from acquisition to archiving and from Broadcasters to Productions.

### File-based Workflow

P2 camera recorder records AV data as MXF (Material exchanged File) files with metadata. It can record the metadata onto the clips scene by scene when it loaded from SD/SDHC card containing the shooting information, or by using the included software keyboard on selected P2 camera recorders and recorders. It can also record recording start time and GPS location data (requiring optional device and supported model only). In addition, it supports proxy data which can be used for quick viewing or off-line editing (supported model only).

### Utilizing IT Infrastructure

P2 file can be easily checked and viewed by PC or Mac\*1. P2 Viewer\*2 or P2CMS\*2 which are able to be downloaded from Panasonic web site for free can manage and preview the clips. They can also check and edit metadata, and transfer the clips to the client or the broadcast station via the broadband

networks. In addition, they can backup the clips to the low cost IT media such as Hard Disk Drives etc.

\*1 The included P2 driver must be installed in the Windows PC or Mac.

\*2 See page 20 for details about P2 Viewer and P2 CMS.

### Speedy Production

The non-linear editing system supporting P2 can instantly start editing by mounting the P2 cards. The digitizing is not necessary. It can edit the clips in the P2 cards directly and copy them to the external storage or the server. It can also share the footage and allow co-editing via networks. The P2 clips can be handled by the On-Air server, too.

\*Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.

### Utilizing Video Assets

An archive system can be easily constructed by the Contents Management Software supporting P2.\* PC or Mac can search metadata and preview proxy via networks. It can utilize the valuable video assets which tended not to be used if stored on tape.

\*P2 CMS (see page 20) or other companies' software which support P2HD

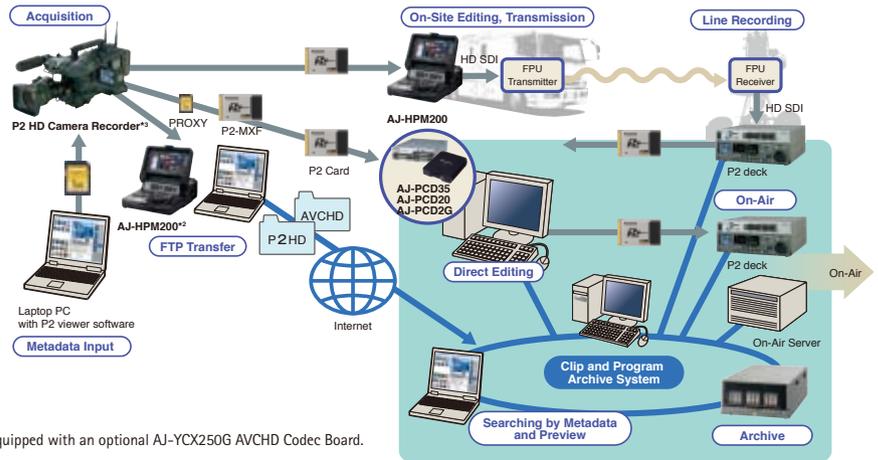
### News Workflow with P2 HD

The P2 HD Series lets you build a broadcasting system that maximizes IT performance in all stages, from news gathering to on-air transmission. During recording, a variety of information is registered as metadata in P2 HD files and proxy files. Recordings can then be transmitted to a station by Field Pick-up Unit (FPU) from a broadcast van equipped with the AJ-HPM200 or delivered on a P2 card. Prior to the data's arrival, low-rate proxy or AVCHD\*1 files can be transferred by FTP over the Internet for on-air broadcasting of news bulletins, program scheduling, or off-line editing.\*2 All recordings are archived so network terminals inside the station can search for and preview them based on metadata.

\*1: Conversion to AVCHD files requires an AJ-HPM200 Memory Card Recorder equipped with an optional AJ-YCX250G AVCHD Codec Board.

\*2: P2 Proxy editing support: GrassValley EDIUS v5.

\*3: AG-HPX170 series, AG-HVX200A series and AG-HPX500 series do NOT support Proxy.

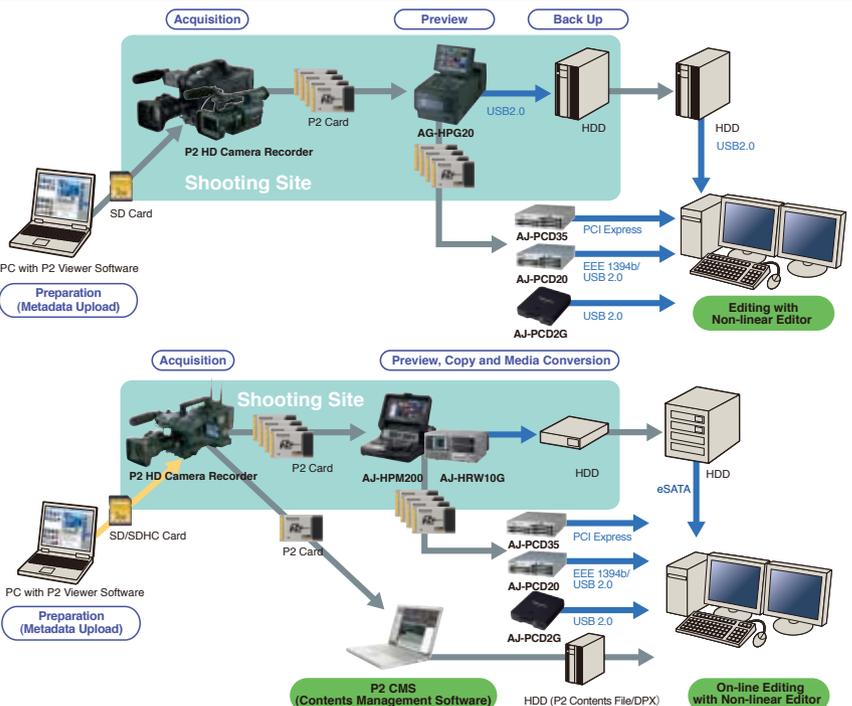


### P2 HD-Based Program Production Workflow

P2 HD can cut both time and costs from program production. P2 HD models record video data into files. Unlike conventional VTRs, they do not require digitization. The files can be directly uploaded to a non-linear editor with simple drag-and-drop operation. Using the metadata attached to each file, IT devices can then easily manage the recorded data.

The AJ-HRW10G P2 rapid-writer / AJ-HPM200 P2 mobile copies data recorded on a P2 card onto an inexpensive removable hard disk.

P2 Content Management Software (P2 CMS)\*, downloadable for free, lets you ingest P2 files, copy them to other media, manage databases, preview video clips, and transcode to DPX (uncompressed) data. It brings the kind of powerful support that video production operations need to manage content.



\*see page 20 for details of P2 CMS

\*See page 26 in this catalog for information on P2 alliance partners.

Helping the Environment

# Preserving Beauty. Both In Images and in the Environment.

P2 HD Helps the Environment by Reusing and Reducing

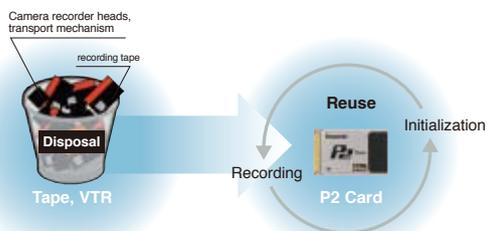




## P2 HD Can Reduce About 2 Tons\* of CO2 Emissions per TV Station per Year

Cutting CO2 emissions to protect the environment, and particularly to prevent global warming, is an urgent, worldwide issue. From a management standpoint, environmental efforts are being increasingly reflected in the image and value of today's corporations. P2 HD products meet the stringent Panasonic "Green Product" certification standards, which testifies for their excellent environmental performance.

**Reusing:** Because abrasion-free, dropout-free P2 cards can be rewritten, TV stations don't generate large amounts of used tape like they do with VTRs. Also, because P2 HD systems use solid-state memory, there are fewer parts to replace – such as recording heads and transport mechanism – which again cuts down on waste.



**Reducing:** P2 memory card recorders are lighter and require less power than VTRs for both recording and editing. For example, compared with our previous AJ-LT95 DVCPRO 50 Laptop Editor, the AJ-HPM200 P2 Mobile Recorder uses about 58% less electricity and its weight is reduced by about 49%.



These two achievements alone are able to cut about 2 tons\* of CO2 emissions per station per year. In actual use, a variety of other processes combine to reduce power consumption even more, such as the fact that a compact, lightweight design and fast start-up let you stand-by on location with the power turned off. P2 HD is closely linked with environmental conservation in routine broadcasting and production operations, making it a true, next-generation technology.

\* Using Panasonic 30-minute DVCPRO HD tapes and assuming that a TV station requires 10,000 cassette tapes per year. The reduction in CO2 emissions from the raw materials of 10,000 cassette tapes is calculated to be 1.52 tons.

Also, the difference in power consumption per unit between the AJ-LT95 Laptop Editor and AJ-HPM200 P2 Mobile Recorder is 84 watts, or approximately 245 kWh per year (84 W x 8 hours x 365 days). Assuming that a TV station replaces five AJ-LT95 units with five AJ-HPM200 units, the reduction in CO2 emissions is approximately 475 Kilograms.

Combining this with the 1.52 tons calculated above makes a total CO2 emission reduction effect of approximately 2 tons per year.

(According to a Panasonic survey.)

## New Devices Further Cut Power Consumption

Reducing power consumption is one of the highest priorities in the development of P2 HD products. In the new AG-HPX370 series camera recorder, new integrated circuits, including a digital signal processor and an AVC-Intra codec LSI, have further reduced the size of circuit boards. In addition to cutting size and weight, the new circuits lower power consumption in combination with a new 3MOS image sensor. Compared to conventional tape-based DVCPRO HD camera recorders, AG-HPX370 series power consumption has been reduced to less than half.

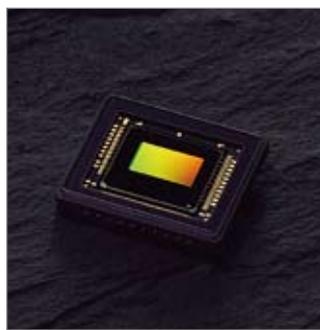


Image Sensor of AG-HPX370 series



AVC-Intra Codec LSI Board of AG-HPX370 series



The AG-HPG20 portable recorder also features a new circuit board that achieves AVC-Intra codec recording and playback in a smaller, lighter package with energy-saving efficiency. Compared to a tape-based HD D5 VTR with equivalent image quality, AG-HPG20 power consumption has been reduced to about 1/20.



# Practical Application of the New AVC-Intra Codec

A New HD Production Style with Stunning Images and Excellent Efficiency



AVC-Intra Codec LSI Board of AG-HPX370 series

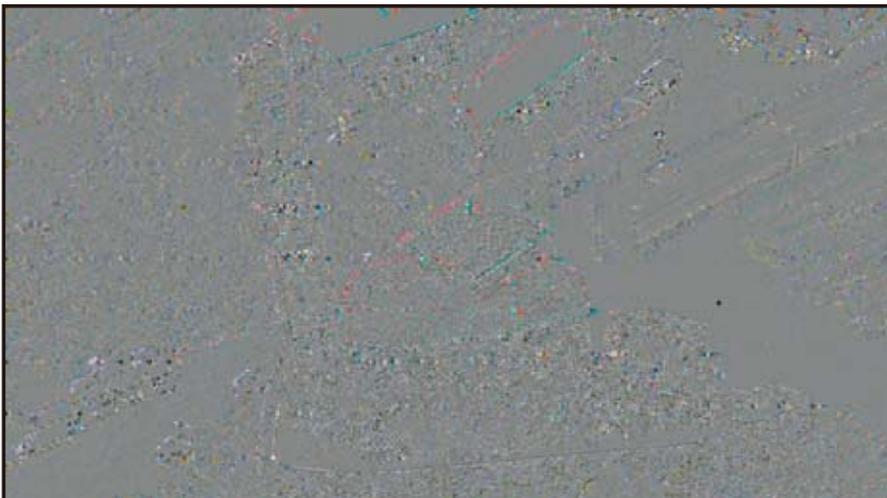
## Sample Images of Intraframe Prediction

Upper: Original image

Right: Intraframe predictive image

Bellow: Difference image obtained from subtracting the intraframe predictive image from the original image.

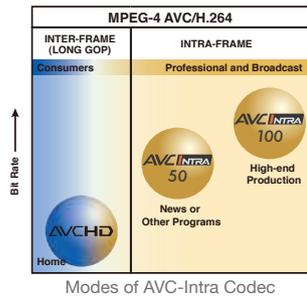
This shows the high accuracy of intra prediction.



AVC-Intra Codec Board of AG-HPG20

## New AVC-Intra 100/AVC-Intra 50 Codec

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 motion-image compression technology, and offers both superb image quality and high compression. It uses an intra-frame compression system to bring important advantages to professional editing.



Applicable products

Camera Recorder	AJ-HPX3700	Standard
	AJ-HPX2700	Standard
	AJ-HPX3000	Standard
	AJ-HPX2000/HPX2100	Option
	AG-HPX370 series	Standard
Recorder	AG-HPG20	Standard
	AJ-HPM200	Standard
	AJ-HPD2500*1	Standard
	AJ-HRW10*2	Standard

\*1: Not available in some area \*2: Copy from HDD to P2 card is not supported.

## AVC INTRA 100

With the same bit rate as DVCPRO HD - this mode supports full-HD recording with 1920 x 1080 pixels. It allows camera recorders to capture high-quality, HD-D5-level images.

## AVC INTRA 50

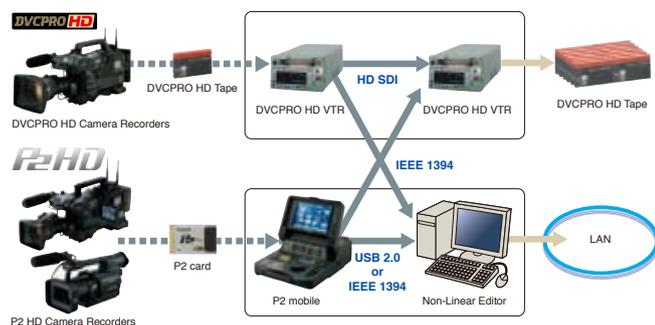
This mode delivers the same high picture quality as DVCPRO HD while using a bit rate similar to SD (DVCPRO 50). It also provides double the recording time of DVCPRO HD and allows quick data transfer and editing.

Codec Mode:	AVC-Intra 100	AVC-Intra 50
1080 Image Size:	1920 x 1080	1440 x 1080
720 Image Size:	1280 x 720	960 x 720
Sampling Format:	10 bit, 4:2:2	10 bit, 4:2:0
Bit Rate:	approx. 100Mbps	approx. 50Mbps
Recording Time (with a 64 GB P2 card):	64 minutes	128 minutes

\*The AVC-Intra codec is not supported by the AG-HPX170 series, AG-HVX200A series and AG-HPX500 series.

## The DVCPRO HD Codec Fits Smoothly into Your Current Environment

DVCPRO HD codec recording and playback are standard on the P2 HD Series. The DVCPRO HD format, which stands at the apex of DVCPRO migration, uses 4:2:2 sampling to retain color information and an intra-frame compression system just like that of AVC-Intra, supporting high-end video production with chromakey composition and high-precision editing. DVCPRO HD is widely used by broadcasting stations and production companies around the world. Because P2 files are recorded with the same codec as the DVCPRO family, degradation-free conversion between tape and file is possible using an IEEE 1394 digital interface. This lets the P2 cam fit smoothly into a tape-based production environment and also allows the use of DVCPRO HD materials in a P2-file-based broadcasting system. HD (SD) SDI and analog interfaces are also provided for added flexibility.



## AVC INTRA Technology

### Intra-Frame (I-Only) Compression Superiority

Motion-image compression can be divided roughly into two methods: I-Only compression, which completes all processing within each frame, and Long GOP compression, which processes across multiple frames. AVC-Intra and DVCPRO HD use I-Only compression, while HDV uses Long GOP compression. The MPEG-4 AVC/H.264 standard encompasses both methods. In the images of broadcasting like flash-filled press conferences, fast-action sports, and music shows with confetti and electronic displays, I-Only compression exerts its superiority.

Also, because processing is performed frame-by-frame in I-Only, new-generation multi-core CPUs offer high-speed parallel processing. This makes I-Only compression more suitable for Non-linear editing than Long GOP, for which parallel processing is difficult due to its inter-frame dependence.

With its I-Only compression, AVC-Intra produces remarkably stable images that are unaffected by adjacent frames, and meets professional needs in virtually all situations and workflows.

### Twice the Compression Efficiency of MPEG-2

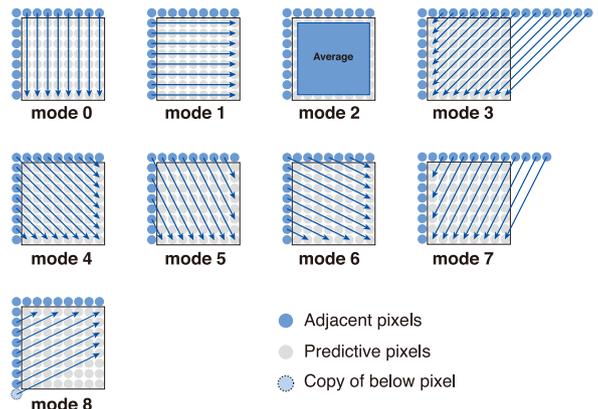
By selecting the most effective compression techniques from among those in compliance with the H.264 standard, AVC-Intra has doubled the compression ratio of MPEG-2, and with I-Only compression. Its intraframe predictive and context-adaptive entropy coding are particularly effective methods for boosting compression efficiency.

#### Intraframe predictive coding (intra prediction)

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.

The residual data (obtained by subtracting a predictive image from the original input image) is recorded together with the predictive image. 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 used in MPEG-4 AVC/H.264 utilizes CAVLC (Context Adaptive VLC) and CABAC (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.

## High-Quality P2 HD VariCam for High-End Production, with RGB 4:4:4 Output in Full 1920 x 1080 Pixel Resolution and P-10Log Gamma



AVC INTRA DVCPRO HD

### AJ-HPX3700

Memory Card Camera Recorder (P2 cam)

#### High-End 1080 HD Image Quality for Film/Cinema Production

- 2.2 megapixel 2/3" CCD for full 1920 x 1080 HD images.
- Recording format: AVC-Intra 100/50 and DVCPRO HD. AVC-Intra 100 uses the 10 bit 4:2:2 sampling.
- HD SDI output of 23.98PsF/24PsF video signals.
- Dual-link HD SDI output for camera through RGB4:4:4/10 bit log gamma signals. Compatible with uncompressed, high-end workflows.
- Dual-link RGB 4:4:4 output with simultaneous 4:2:2 record in-camera.
- Variable frame rate function ranging from 1 fps to 30 fps.
- Selectable gamma modes, including Film-Rec.
- Scan-reverse function for film lens use.
- Grip handle has five threaded holes to mount film accessories.
- Chromatic Aberration Compensation (CAC) function compensates for registration error and minimises lateral chromatic aberration in lenses.
- High F10 sensitivity at 2,000 lx. Minimum illumination of 0.042 lx (at 1 fps VFR and +30dB gain-up).
- 14 bit A/D processing, 12 pole linear matrix color correction function.
- DRS (Dynamic Range Stretch) provides a wider dynamic range with minimal blown highlights and blocked shadows.
- Scene file, user buttons, user menu and focus assist functions.
- 2 wheel (ND and CC) optical filters.
- 48 kHz/16 bit, 4 channel digital audio recording.

#### Advanced P2 Memory Card Recording

- Switchable between 59.94 Hz and 50 Hz recording.
- Five P2 card slots allow continuous recording, card selection, hot swapping, loop rec, pre-rec, interval rec and one-shot recording.
- Text memos and shot markers can be added.
- Proxy data recording possible (with the optional AJ-YAX800G).
- USB 2.0 (Host and Device) interface.
- Genlock input, switchable to return video (HD-Y).
- Camera studio system (option ) is supported.

#### AJ-HPX3700 Specification

Power Source :	DC 12 V, battery or DC input
Power Consumption :	42 W, main unit only
Weight:	4.9 kg (10.8 lbs), main unit only
Dimensions (W x H x D):	137 mm x 209 mm x 318 mm (5-7/16" x 8-1/4" x 12-9/16") without handle and option cover (exclude projection)

## Multifunctional P2 HD VariCam with a Variable Frame Rate from 1 to 60 fps: Superior Creativity and Outstanding Cost-Performance



AVC INTRA DVCPRO HD

### AJ-HPX2700

Memory Card Camera Recorder (P2 cam)

#### Master-Quality and VariCam's Exclusive Variable Frame Rate

- Variable Frame Rate of 1 fps to 60 fps in 720p, for creative overcranked or under-cranked shooting.
- Recording format: AVC-Intra 100/50 and DVCPRO HD. AVC-Intra 100 uses the 10 bit 4:2:2 sampling.
- HD SDI Output at 23.98PsF/24PsF Video Signals.
- Selectable gamma modes, including Film-Rec.
- Scan-reverse function for film lens use.
- Two independent HD SDI outputs with parallel use capability.
- Grip handle has five threaded holes to mount film accessories.
- HD progressive 2/3" 3 CCD system.
- Chromatic Aberration Compensation (CAC) function compensates for registration error and minimises lateral chromatic aberration in lenses.
- High F10 sensitivity at 2,000 lx. Minimum illumination of 0.021 lx (at 1 fps VFR and +30 dB gain-up).
- 14 bit A/D processing, 12 pole linear matrix color correction function.
- DRS (Dynamic Range Stretch) provides a wider dynamic range with minimal blown highlights and blocked shadows.
- Scene file, user buttons, user menu and focus assist functions.
- 2 wheel (ND and CC) optical filters.
- 48 kHz/16 bit, 4 channel digital audio recording.

#### Advanced P2 Memory Card Recording

- Switchable between 59.94 Hz and 50 Hz recording.
- Five P2 card slots allow continuous recording, card selection, hot swapping, loop rec, pre-rec, interval rec and one-shot recording.
- Text memos and shot markers can be added.
- Proxy data recording possible (with the optional AJ-YAX800G).
- DVCPRO (IEEE 1394) output terminal\*1 for back-up use.
- USB 2.0 (Host and Device) interface.
- Camera studio system (option ) is supported.

\*1: Outputs DVCPRO HD codec recording only.

#### AJ-HPX2700 Specification

Power Source :	DC 12 V, battery or DC input
Power Consumption :	38 W, main unit only, LCD monitor ON
Weight:	4.9 kg (10.8 lbs), main unit only
Dimensions (W x H x D):	137 mm x 209 mm x 318 mm (5-7/16" x 8-1/4" x 12-9/16") without handle and option cover (exclude projection)

## High-End P2 Camcorder that Offers 1920 x 1080, 10 bit 4:2:2 Shooting with SD recording capability



AVC INTRA DVCPR0 HD DVCPR0 50 DVCPR0 IX

### AJ-HPX3000

Memory Card Camera Recorder (P2 cam)

#### High-end image quality for 1080i or 1080p productions

- 2.2 megapixel 2/3" CCD for full 1920 x 1080 HD images.
- Recording format: AVC-Intra 100/50 and DVCPR0 HD. AVC-Intra 100 uses the 10 bit 4:2:2 sampling.
- Chromatic Aberration Compensation (CAC) function compensates for registration error and minimizes lateral chromatic aberration in lenses.
- Switchable between 59.94 Hz and 50 Hz recording for use anywhere in the world.
- SD (standard definition) codec (480/59.94i and 576/50i) supports DVCPR0 50, DVCPR0, and DV.\*1
- High F10 sensitivity at 2,000 lx (at 1080i). Minimum illumination of 0.064 lx (at +56 dB gain-up).
- 14 bit A/D processing, 12 pole linear matrix color correction function.
- DRS (Dynamic Range Stretch) provides a wider dynamic range with minimal blown highlights and blocked shadows.
- F-REC mode Cine-gamma and scan-reverse function.
- 48 kHz/16 bit, 4 channel digital audio recording.

#### P2 Card Recording and Advanced Functions

- Five P2 card slots allow continuous recording, card selection, hot swapping, loop rec, pre-rec, interval rec and one-shot recording.
- The One-Clip Record function enables multiple clips that were recorded separately by start/stop operations to be handled as a single clip.\*1
- Text memos and shot markers can be added.
- Proxy data recording possible (with the optional AJ-YAX800G).
- HD/SD SDI input allows line recording (with the optional AJ-YA350AG).
- IEEE 1394a (AVC)\*2, USB 2.0 (Host and Device) interface.
- Genlock input for HD Y or VBS input use.
- Scene file, user buttons, user menu and focus assist functions.
- 2 wheel (ND and CC) optical filters.
- UniSlot wireless receiver slot.
- Camera studio system (option ) is supported.

\*1: The camera recorder software must be upgraded to the latest version.

For details, visit <http://pro-av.panasonic.net/>

\*2: IEEE 1394a input/output are not available AVC-Intra codec files.

#### AJ-HPX3000 Specification

Power Source :	DC 12 V, battery or DC input
Power Consumption :	43 W, with optional HD/SD SDI input, LCD monitor off
Weight:	4.8 kg (10.5 lbs), main unit only
Dimensions (W x H x D):	137 mm x 209 mm x 318 mm (5-7/16" x 8-1/4" x 12-9/16") without handle and option cover (exclude projection)

## High-End P2 Camcorder that Offers DVCPR0 HD (1080i/720p) Recording



AVC INTRA DVCPR0 HD DVCPR0 50 DVCPR0 IX

### AJ-HPX2000/2100

Memory Card Camera Recorder (P2 cam)

#### High Sensitivity, High Quality HD/SD Recording

- DRS (Dynamic Range Stretch) provides a wider dynamic range with minimal blown highlights and blocked shadows.
- HD Progressive 2/3" 3 CCD System.
- High sensitivity of F10 (at 2000 lx). Minimum illumination of 0.007 lx (at +74 dB gain).
- 14 bit A/D processing and improved digital image processing technology.
- 12 pole linear matrix color correction function.
- DVCPR0 HD (1080i and 720p) recording and playback. 59.94 Hz/50 Hz switchable for recording and playback in any HD system worldwide.
- SD (standard definition) codec (480/59.94i and 576/50i) supports DVCPR0 50, DVCPR0, and DV.
- 48 kHz/16 bit, 4 channel digital audio recording.
- Line recording via HD/SD SDI input (with the optional AJ-YA350AG).
- Supports AVC-Intra 100/50 codec (with the optional AJ-YBX200G).

#### Reliable P2 Recording and Advanced Functions

- Five P2 card slots allow continuous recording, card selection, hot-swap rec, loop rec and pre-rec.
- The One-Clip Record function enables multiple clips that were recorded separately by start/stop operations to be handled as a single clip.\*1
- Immediate playback using a clip thumbnail display.
- Text memos and shot markers can be added.
- Scene file, user buttons, user menu, auto white balance with ATW.
- AJ-HPX2000: 4 Position Optical Filter.
- AJ-HPX2100: 2 wheel (ND and CC) Optical Filters.
- Proxy data recording possible (with the optional AJ-YAX800G).
- IEEE 1394a (AVC), USB 2.0 (Host and Device) interface.
- UniSlot wireless receiver slot.
- Camera studio system (option ) is supported.

\*1: The camera recorder software must be upgraded to the latest version.

For details, visit <https://www.pavc.panasonic.co.jp/pro-av/>

\*2: IEEE 1394a input/output are not available AVC-Intra codec files.

#### AJ-HPX2000/2100 Specification

Power Source :	DC 12 V, battery or DC input
Power Consumption :	36 W, main unit only, LCD monitor off
Weight:	4.5 kg (9.9 lbs), main unit only
Dimensions (W x H x D):	137 mm x 209 mm x 317 mm (5-7/16" x 8-1/4" x 12-1/2") without handle and wireless option cover (exclude projection)



**Outstanding Cost-to-Performance and Superb 2/3" Quality – a P2HD Camera Recorder for Video Professionals**



**DVCPRO HD DVCPRO 50 DVCPRO IX**

## AG-HPX500 series

Memory Card Camera Recorder (P2 cam)  
(AG-HPX500/502, model number varies on regions/areas.)

### 2/3-inch P2 cam for Professional HD/SD Production

- Standard 2/3-inch interchangeable lens mount system.
- Chromatic Aberration Compensation (CAC) function compensates for registration error and minimizes lateral chromatic aberration in lenses.
- APT (Advanced Progressive Technology) produces higher image quality with HD Progressive 3 CCD and 19 bit digital signal processor.
- 1080i and 720p HD recording using the DVCPRO HD codec for broadcast use assures both superior images and top reliability.
- 50 Hz/60 Hz selector function allows 1080/50i and 720/50p HD recording for PAL areas.
- SD (480i/576i) recording in DVCPRO 50, DVCPRO or DV multi-codec.
- Four P2 card slots allow continuous recording, card selection, hot swapping, loop rec, pre-rec, interval rec and one-shot recording.
- Text memos and shot markers can be added.
- 48 kHz/16 bit, 4 channel digital audio recording.

### Variable Frame Rate Shooting and Variety of Interfaces

- Variable frame rate feature (in 720p, 11 steps) allows film-like low-speed or high-speed shooting.
- 720p native mode achieves a speed effect without requiring additional equipment. A VariCam-compatible 720p over 60p mode is also provided.
- Eight-mode gamma, includes two Cine-Like modes.
- Slow, synchro and high-speed shutter.
- Scene file, user buttons, user menu and focus assist functions.
- Output for HD/SD SDI (BNC), Video (BNC) and Component (D4), with built-in downconverter.
- TC input/output provides multi-camera synchro shooting.
- IEEE 1394a (AVC, Host and Device), USB 2.0 (Device) interface.
- DC power supply for the BT-LH80WU LCD monitor.
- RCU terminal for optional AJ-RC10G or AG-EC4G remote control unit.
- Camera studio system (option ) is supported.

#### AG-HPX500 series Specification

Power Source :	DC 12 V, battery or DC input
Power Consumption :	19 W, when record without option, LCD monitor on
Weight:	3.8 kg (8.4 lbs), without viewfinder 4.5 kg (9.9 lbs), with viewfinder
Dimensions (W x H x D):	140 mm x 261 mm x 318 mm (5-9/16" x 10-5/16" x 12-9/16") without handle (exclude projection)

**Full F10\*1 Sensitivity from a Newly Developed MOS Image Sensor. High-Quality Images in a Lightweight, Mobile, Compact Body.**



**AVC INTRA DVCPRO HD DVCPRO 50 DVCPRO IX**

## AG-HPX370 series

Memory Card Camera Recorder (P2 cam)  
(AG-HPX370/371/372/373/374, model number varies on regions/areas.)

**New**

### High-Sensitivity, High-Quality HD Recording

- Featuring a new 1/3-inch MOS sensor for full-HD (1920 x 1080) resolution and F10\*1 sensitivity.
- Comes mounted with a Fujinon 1/3-inch 17x zoom lens (included).
- Chromatic Aberration Compensation (CAC) function.
- DRS (Dynamic Range Stretch) provides a wider dynamic range.
- Recording format: AVC-Intra 100, AVC-Intra 50 and DVCPRO HD.
- HD multi-format recording: 1080i and 720p.
- SD multi-codec recording in DVCPRO 50/DVCPRO/DV.
- 59.94 Hz/50 Hz selector function.
- Variable frame rate feature (in 720p, 20 steps) allows film-like low-speed or high-speed shooting.
- Seven-mode gamma, includes two Cine-Like modes.

### Design and Interfaces Improve Mobility and Operating Ease

- These redesigned shoulder-held cameras have a low center of gravity.
- Two P2 card slots are provided on the side operation panel.
- The One-Clip Record function enables multiple clips that were recorded separately by start/stop operations to be handled as a single clip.
- Scene file, user buttons, and focus assist functions.
- Waveform and vectorscope display.
- A color viewfinder featuring the Liquid Crystal On Silicon (LCOS) display panel for bright, high-resolution images.
- A high resolution, 16:9 aspect ratio, 3.2-inch LCD monitor.
- Output for HD/SD SDI and Video, with built-in downconverter.
- USB 2.0 (Host/Device) and IEEE 1394a (AVC)\*2 interfaces. TC IN, TC OUT and GENLOCK IN terminals.
- RCU terminal for optional AJ-RC10G or AG-EC4G remote control unit.
- Proxy data recording possible (with the optional AJ-YAX800G).
- Camera studio system (option ) is supported.

\*1: Its sensitivity is F10 in 1080/59.94i and F11 in 1080/50i.

\*2: IEEE 1394a input/output are not available AVC-Intra codec files.

#### AG-HPX370 series Specification

Power Source :	DC 12 V (11V-17V), battery or DC input
Power Consumption :	19 W, when record without option, LCD monitor on
Weight:	3.6 kg (7.9 lbs), without Lens, 5 kg (11.0 lbs), with lens
Dimensions (W x H x D):	246 mm x 251 mm x 441 mm (9-11/16" x 9-7/8" x 17-3/8") excluding prominent parts 246 mm x 251 mm x 549 mm (9-11/16" x 9-7/8" x 21-5/8") with Fujinon lens, excluding prominent parts (exclude projection)

Compact, Lightweight HD/SD Camera Recorder Brings High Image Quality and Easy Handheld Mobility



DVCPRO HD DVCPRO 50 DVCPRO DV

## AG-HPX170 series

Memory Card Camera Recorder (P2 handheld)  
(AG-HPX170/171/172/173/174, model number varies on regions/areas.)

### High-Quality HD Shooting

- A 13x zoom lens with 28 mm (35 mm equivalent) wide-angle setting, 72mm diameter and cam-driven manual zoom.
- New 1/3" 16:9 progressive CCD for high image quality and sensitivity.
- High-performance DSP with 14 bit A/D conversion and 19 bit inner processing capability.
- 20 step frame rate selector for creative variable-speed shooting. Features 720p native mode and over 60p/50p mode.
- Selectable gamma including Cinelike mode.

### Advanced P2 Memory Card Recording

- HD recording in 1080/24p, 1080/60i and 720/60p in 59.94 Hz model. (1080/25p 1080/50i and 720/50p in 50 Hz models.)\*
- SD multi-codec recording in DVCPRO 50/DVCPRO/DV. 59.94 Hz: AG-HPX170/171, 50 Hz: AG-HPX171/172/173/174.
- Two P2 card slots allow up to 128 minutes of continuous HD recording when using 64 GB P2 card in full frame rate DVCPRO HD.
- Multifunction P2 capabilities. Hot swapping (changing cards while recording), loop rec, pre-rec, one-shot rec and interval rec capability.
- Text memos and shot markers can be added.
- 48 kHz/16 bit, 4 channel digital audio recording. XLR 2 channel audio input terminals supporting 48 V phantom power supply.

### Lightweight, Versatile Interfaces, Professional Design

- Compact hand-held size weighs only 1.9 Kilograms (4.2 lbs).
- Auto or manual operation of focus and aperture.
- Focus assist functions of center zoom, histogram and focus bar display.
- Waveform and vectorscope display. Scene files, user buttons.
- IEEE 1394 and USB 2.0 terminals for PC interface.
- HD/SD SDI output, component output (mini-D), time-code setting via IEEE 1394, and camera remote function.

\*60i, 24p, 30p, are actually recorded in 59.94Hz, 23.98Hz, 24Hz, 29.97Hz, respectively.  
1080/24p is to be recorded in 1080/60i (59.94i) pull-down. 1080/25p is to be recorded in 1080/50i pull-down.

#### AG-HPX170 series Specification

Power Source :	DC7.2 V with battery, DC7.9 V with DC input
Power Consumption :	10.9 W, 11.7 W (LCD), 13.0 W (Max)
Weight:	1.9 kg (4.2 lbs), without battery and accessories
Dimensions (W x H x D):	154 mm x 179.5 mm x 397 mm (6-1/8" x 7-1/8" x 15-11/16") without prominent parts

Equipped with P2 Card Slots and DV Tape Drive, A Multifunctional Model for Down-Conversion and Frame Rate Conversion of P2HD Shooting



DVCPRO HD DVCPRO 50 DVCPRO DV

## AG-HVX200A series

Memory Card Camera Recorder (P2 handheld)  
(AG-HVX200A/201A/202A/203A/204A, model number varies on regions/areas.)

### HD/SD Multi-Format Recording, Built-in DV Tape Drive

- A 13x zoom lens with a wider, 30 mm (35 mm equivalent) angle of view.
- New progressive CCD greatly improves S/N ratio and lowers smear.
- High-performance DSP with 14 bit A/D conversion and 19 bit inner processing capability.
- HD recording in 1080/24p, 1080/60i and 720/60p in 59.94 Hz model. (1080/25p 1080/50i and 720/50p in 50 Hz models.)\*
- SD multi-codec recording in DVCPRO 50/DVCPRO/DV. 59.94 Hz: AG-HVX200A/201A, 50 Hz: AG-HVX201A/202A/203A/204A
- Multifunction P2 capabilities. Hot-swap (changing cards while recording), loop rec, pre-rec, one-shot rec, and interval rec functions.
- Immediate playback using a clip thumbnail display on the built-in LCD monitor.
- Built-in DV tape drive. Allows DV recording, down-conversion recording from P2 HD sources, and frame-rate conversion of clips recorded in native 720p.

### Variable Frame Rate Function and Professional Specifications

- 11 step frame rate selector for creative variable-speed shooting. Features 720p native mode and over 60p (or 50p) mode.
- Auto or manual operation of cam-driven zoom, focus and aperture.
- XLR audio input terminals supporting 48 V phantom power supply, magnesium-alloy chassis, zebra, marker and tally lamp.
- Scene file, user buttons, white balance with ATW.
- IEEE 1394/USB 2.0: Directly mountable to Mac/Windows Non-linear editors. IEEE 1394 output for synchro backup recording. 1394 host mode for copying files onto an external HD.
- Analog component output, time-code setting via IEEE 1394, and camera remote function.

\*60i, 24p, 30p, are actually recorded in 59.94Hz, 23.98Hz, 24Hz, 29.97Hz, respectively.  
1080/24p is to be recorded in 1080/60i (59.94i) pull-down. 1080/25p is to be recorded in 1080/50i pull-down.

#### AG-HVX200A series Specification

Power Source :	DC7.2 V with battery, DC7.9 V with DC input
Power Consumption :	11.6 W (viewfinder), 12.0 W (LCD), 14.0 W (Max)
Weight:	2.5 kg (5.5 lbs), without battery and accessories
Dimensions (W x H x D):	168.5 mm x 180 mm x 390 mm (6-11/16" x 7-1/8" x 15-3/8") without prominent parts



Featuring HD SDI Input for High-Quality AVC-Intra Recording. Ideal for HD Field Recording or for Video Playback at Events



AVC INTRA DVCPRO HD DVCPRO 50 DVCPRO IN

## AG-HPG20

Memory Card Portable Recorder (P2 Portable)

### AVC-Intra Codec and HD SDI Input for High-Quality HD Recording

- Three recording and playback codecs supported: AVC-Intra 100 for high-quality 10-bit 4:2:2 images, AVC-Intra 50, and DVCPRO HD.
- 1080i (60i/50i), 720p (60p/50p) multi-format and DVCPRO50/DVCPRO/DV multi-codec capabilities.
- HD/SD SDI input/output provided to allow line recording. Enables REC Start/Stop in sync with camcorder.\*1
- Allows up-/down-conversion between HD and SD as well as cross-conversion between 720 and 1080 during playback.

### Speeds Up Acquisition Workflow Using P2 Cards and External HDD

- Equipped with two P2 card slots to enable continuous recording, hot-swap REC, loop REC and UMID recording.
- Clip thumbnail display on the LCD monitor can be used for playback, deletion, clip copy, metadata editing, and text memo/shot marker addition.
- Diverse playback functions ideal for video demos and presentations, such as Format Auto, Variable Speed for slow-motion/double-speed playback, Resume, Single-clip and Repeat.
- Supports simplified waveform monitor and vectorscope display.
- USB 2.0 (HOST): For copying files between an external HDD and a P2 card. HDD Preview function allows playback<sup>\*2</sup> of HDD files.
- USB 2.0 (DEVICE): For transferring files to/from a nonlinear editor
- IEEE 1394a (AVC) interface enables DVCPRO HD/SD stream input/output.

### Compact, Lightweight, Battery-Operated Mobility

- At about 1.1 kilograms (approx. 2 lbs), easy to carry with one hand.
- Battery operation boosts convenience (with a 5,400 mAh battery pack).
- AC power can be supplied via the AC adaptor (included).
- Highly reliable, durable memory card recording has no moving parts, eliminating the concerns of a tape transport.

\*1: For interlinked recording, the camera recorder must support this function.

\*2: In simplified HDD playback, the frame rate for refreshing the display is reduced.

#### AG-HPG20 Specification

Power Source :	DC7.2 V with battery, DC7.9 V with DC input
Power Consumption :	approx. 12W
Weight:	approx. 1.1 kg (2.4 lbs)
Dimensions (W x H x D):	104 mm x 83 mm x 227 mm (4-1/8" x 3-5/16" x 8-15/16") without rubber shoes

Advanced P2 Mobile with Versatile Functions Such as Networking, AVCHD Compatibility (Optional) and eSATA Interface



AVC INTRA DVCPRO HD DVCPRO 50 DVCPRO IN AVCHD

## AJ-HPM200

Memory Card Recorder /Player (P2 mobile)

### Multi-Format HD Recording with AVC-Intra and 24PsF

- Three recording and playback codecs supported: AVC-Intra 100 for high-quality 10-bit 4:2:2 images, AVC-Intra 50, and DVCPRO HD.
- 1080i and 720p recording and playback. 59.94 Hz/50 Hz switchable for any HD system worldwide.
- 1080/24PsF input/output, native 1080/24p recording with the AVC-Intra codec.
- SD (standard definition, 480/60i and 576/50i) format supports DVCPRO 50, DVCPRO, and DV.
- Allows up-/down-conversion between HD and SD as well as cross-conversion between 720 and 1080 during playback, and up-conversion during recording.

### Playlist Editor GUI for Intuitive Operation

- Equipped with six P2 card slots and one SD card slot.
- Play-list function includes advanced GUI and new functions such as independent AV tracks, insert/overwrite modes.
- Direct capture from an external VTR source onto the editing time-line via an RS-422A interface.
- Jog/shuttle dial and large audio fader.
- Supports simplified waveform monitor and vectorscope display.

### Network Functions and AVCHD Compatibility

- Gigabit-Ethernet-compatible server/client function enables direct file transfer via internet.
- eSATA and USB 2.0 interfaces enable max. x4<sup>\*1</sup> high-speed copying to an external HDD and playback.<sup>\*2</sup>
- AVCHD compatibility: playback, recording and cross-conversion between P2HD/AVCHD (with the optional AJ-YCX250G board).
- HD/SD SDI input/output provided to allow line recording. Enables REC Start/Stop in sync with camcorder.
- IEEE 1394a (AVC) interface enables DVCPRO HD/SD stream in/out.<sup>\*3</sup>

\*1: when recorded in AVC-Intra 100.

\*2: Playback is based on disk drive performance, including spindle speed. Panasonic cannot guarantee smooth playback without dropped frames.

\*3: IEEE1394a input/output are not available in AVC-Intra mode.

#### AJ-HPM200 Specification

Power Source :	AC 100 V to 240 V, 50 Hz/60 Hz / DC 12V
Power Consumption :	AC: 60W, DC: 12V/4.8A (full-option)
Weight:	6.6 kg (14.6 lbs)
Dimensions (W x H x D):	301 mm x 120 mm x 412 mm (11-7/8" x 4-3/4" x 16-1/4") without rubber shoes

## A New P2 Deck Enhances File-Based Broadcasting Workflows with Versatile Editing, Transmission and Networking Functions



AVC **INTR**A **DVCPRO HD** **DVCPRO 50** **DVCPRO** **IX** **AVCHD**

### AJ-HPD2500

Memory Card Recorder/Player (P2 deck)

**New**

#### HD/SD Multi-Format Editing and On-Air Transmission

- Three recording and playback codecs supported: AVC-Intra 100 for high-quality 10-bit 4:2:2 images, AVC-Intra 50, and DVCPRO HD.
- 1080i and 720p recording and playback. 59.94 Hz/50 Hz switchable for any HD system worldwide.
- 1080/24PsF in/out, native 24p recording with the AVC-Intra codec.
- SD (480/60i and 576/50i) format supports DVCPRO 50, DVCPRO, and DV.
- Allows up-/down-conversion between HD and SD as well as cross-conversion between 720 and 1080 during playback, and up-conversion during recording.
- 8 channel, high-quality digital audio.

#### New Playlist Editor GUI for Intuitive Operation

- Equipped with six P2 card slots and one SD card slot.
- An LCD monitor is built into the front panel.
- Easy manual on-air transmission with one-clip playback and GUI hold.
- New playlist function includes advanced GUI and new functions such as independent AV tracks, insert/overwrite modes.
- Direct capture from an external VTR source onto the editing time-line via an RS-422A interface.
- Supports a simplified waveform and vectorscope display.

#### Network Functions and AVCHD Compatibility

- Gigabit-Ethernet-compatible server/client function enables direct file transfer via internet.
- eSATA and USB 2.0 interfaces enable max. x4\*1 high-speed copying to an external HDD and playback.\*2
- AVCHD compatibility: playback, recording and cross-conversion between P2HD/AVCHD (with the optional AJ-YCX250G board).
- HD/SD SDI In/Out and AES/EBU digital audio In/Out.
- Analog I/O and versatile remote (RS-422A, RS-232C and parallel).
- 4U-size height for mounting into a 19 inch rack (with optional adaptor).

\*1: when recorded in AVC-Intra 100 or DVCPRO HD.

\*2: Playback is based on disk drive performance, including spindle speed. Panasonic cannot guarantee smooth playback without dropped frames.

#### AJ-HPD2500 Specification

Power Source :	AC 100 V to 240 V, 50 Hz/60 Hz
Power Consumption :	Max. 65 W (full-option)
Weight:	13 kg (28.7 lbs)
Dimensions (W x H x D):	424.0 mm x 175.2 mm x 414.7 mm (16-3/4" x 6-15/16" x 16-3/8") excluding feet, connector and jog dial

## Portable, Network-Connectable P2 Rapid Writer for High-Speed Data Copying from P2 Cards to Large-Capacity HDDs



AVC **INTR**A **DVCPRO HD** **DVCPRO 50** **DVCPRO** **IX**

### AJ-HRW10G

Hard Disk Storage Unit (P2 Rapid Writer)

#### Transfers Files from P2 Cards to a Removable HDD at High Speed

- Internal P2 drive with five P2 card slots and PCI Express interface transfers data to an HDD at high speed.
- 5-inch bay slot allows installation of two commercial 3.5 inch HDDs\*1 for use as removable media.
- Supports RAID1 (mirroring) for enhanced reliability. Also enables use in the normal 2-HDD setting (JBOD mode).
- FAT32 file format allows editing without digitizing when using a Windows/Mac/Linux-base nonlinear editor.
- Files can be shared through Gigabit LAN (1000 Base-T) networks.\*2

#### Portable Touch Panel with Preview Capability

- The 5-inch color LCD panel with touch panel mounted on the front panel allows various operations, such as previewing content and copying files, as well as easy function setting.
- Lets you confirm P2 card and HDD recording status, clip properties and metadata. Metadata can be edited by using a software keyboard.
- Auto Copy mode can be set for automatic copy starts when the P2 card is inserted.
- Simplified playback of clips recorded by AVC-Intra and DVCPRO HD/DVCPRO 50/DVCPRO/DV codecs.\*3
- Provided with an Anton Bauer battery plate and carrying handle for excellent field portability.

\*1: Recommended HDD specifications: 3.5-inch type, SATA-II interface, 7,200 rpm or higher (commercially available HDD case for 5-inch bay is required for installation to the main unit.) However, please use 5-inch bay unit which depth is under 215 mm (8-15/32 inches).

\*2: Transfer speed varies depending on the network environment and host PC environment. HDD data is Read Only.

\*3: Black frames may be generated between clips, but this is not a malfunction. Since frames are dropped during AVC-Intra clip playback, the accuracy of the playback time cannot be guaranteed.

#### AJ-HRW10G Specification

Power Source :	DC 12 V, with battery or AC adaptor
Power Consumption :	70 W
Weight:	approx. 6.3 kg (13.9 lbs)
Dimensions (W x H x D):	368 mm x 177 mm x 303 mm (14-1/2" x 7" x 11-15/16")
PC System Requirement:	Connectable with Microsoft Network via Gigabit LAN



## Portable Hard Disk Unit Copies P2 Card Data at High Speed



### AJ-PCS060G

Portable Hard Disk Unit (P2 store)

- A portable hard disk unit with a P2 card slot, P2 store quickly and easily copies data from P2 cards.
- It runs on DC power, so you can use batteries or an AC adaptor.
- USB 2.0 connection makes it easy to link to a PC\* or a P2 mobile.

#### AJ-PCS060G Specification

Power Source :	DC 7.2 V with battery pack, DC 7.9 V with AC adaptor
Power Consumption:	Max. 1.3 A (0.8 A when standard operation)
Weight:	0.65 kg (1.4 lbs)
Dimensions (W x H x D):	90 mm x 45 mm x 180.5 mm (3-9/16" x 1-13/16" x 7-1/8")
PC System Requirement:	Microsoft® Windows XP Professional (SP2 or later), Microsoft® Windows 2000 (SP4 or later), Microsoft® Windows Vista Business, Ultimate Mac OS X (10.5)

\*The hard-disk drive is a high-precision device, and partial damage, or in the worst case, the loss of data can occur under some operating conditions. Do not consider the internal hard-disk drive as a permanent data storage device. No guarantee against data damage or loss is implied.

## P2 Card Drive with Five P2 card Slots and High Speed PCI Express Interface



### AJ-PCD35

*PCI Express Interface*

Memory Card Drive (P2 drive)

- High speed data transfer to Windows PC/Mac based Nonlinear Editor\*.
- Install the P2 drive into a 5 inch bay on a desktop PC\*.
- With the AC adaptor, you can use it as a stand-alone external drive.

#### AJ-PCD35 Specification

Power Source:	AC 100 V to 240 V (1.20 A) 50 Hz / 60 Hz, DC 16 V (0.6 A) with AC adaptor, DC 12 V (0.8 A) when PC built-in
Weight:	1.2 kg (2.6 lbs)
Dimensions (W x H x D):	148.4 mm x 42.5 mm x 199.5 mm (5-7/8" x 1-11/16" x 7-7/8") excluding protruding parts
PC System Requirement:	Microsoft® Windows 7 Professional, Ultimate 32bit/64bit Microsoft® Windows Vista Business (SP1), Ultimate (SP1) 32bit/64bit Microsoft® Windows XP Professional (SP2,SP3) 32bit Mac OS X (Intel based Mac) 10.4.11/10.5.6 /10.6.1, 1 GB or more memory

\*The included P2 driver must be installed in the Windows PC or Mac.  
Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.  
\*AJ-PCD35 P2 drive requires a latest software upgrade. When P2 card E Series is used.  
For more detail, Please visit Panasonic web site (<http://panasonic.biz/sav/p2/index.html>)

## Large Data Storage Capacity, High Transfer Speed, Superb Reliability. Solid-State Memory Card for Professional Use.



AJ-P2E064XG

AJ-P2E032XG

AJ-P2E016XG

Memory Card (P2 card E Series)

## P2 Card Drive with Five P2 card Slots and USB 2.0/IEEE 1394b Interfaces



### AJ-PCD20 *USB2.0/IEEE 1394b Interface* Memory Card Drive (P2 drive)

- High speed data transfer to Windows PC/Mac based Nonlinear Editor\*.
- Install the P2 drive into a 5 inch bay on a desktop PC\*.
- With the AC adaptor, you can use it as a stand-alone external drive.

#### AJ-PCD20 Specification

Power Source:	AC 100 V to 240 V (1.20 A) 50 Hz / 60 Hz, DC 16 V (0.6 A) with AC adaptor, DC 12 V (0.8 A) when PC built-in
Weight:	1.2 kg (2.6 lbs)
Dimensions (W x H x D):	148.4 mm x 42.5 mm x 199.5 mm (5-7/8" x 1-11/16" x 7-7/8") excluding protruding parts
PC System Requirement:	Microsoft® Windows 7 Professional, Ultimate 32bit/64bit Microsoft® Windows Vista Business (SP1), Ultimate (SP1) 32bit/64bit Microsoft® Windows XP Professional (SP2,SP3) 32bit Microsoft® Windows 2000 (SP4) Mac OS X 10.4.11/10.5.6 /10.6.1, 512 MB or more memory (Windows Vista 1GB or more memory)

\*The included P2 driver must be installed in the Windows PC or Mac.  
Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.

## USB-Bus-Powered 1-Slot P2 drive Compact, Lightweight, Low-Cost Unit – Ideal for Mobile Applications



### AJ-PCD2G *USB2.0 Interface* Memory Card Drive (P2 drive)

- USB bus powered operation, connecting to a PC or a Mac with USB cables (2 cables\*1).
- Compact of 25.5 mm (1-1/16") thick, lightweight of 200 g (0.44 lbs) and low-cost.
- High-speed data transfers of 30 MB/s,\*2 and comes with driver software for both Windows (7/ Vista /XP) and Mac OS X (10.5/10.6).

\*1: One cable for data transmission and power supply, and the other cable exclusively for power supply.

\*2: The 30 MB/s transfer rate is the maximum rate. The actual transfer rate may be lower due to various factors, such as the file being transferred, the performance of the system (computer/OS) used, the application software and the P2 card version.

#### AJ-PCD2G Specification

Power Source:	DC5V 0.5 A
Weight:	200 g (0.44 lbs) main unit only
Dimensions:	W 97 mm x H 25.5 mm x D 113 mm (3-7/8" x 1-1/16" x 4-1/2") excluding protruding parts

#### AJ-PCD2G PC System Requirement

OS:	Microsoft® Windows 7 Professional, Ultimate 32 bit/64 bit Microsoft® Windows Vista Business (SP2), Ultimate (SP2) 32 bit/64 bit Microsoft® Windows XP Professional (SP3) 32 bit Mac OS X 10.5.6 (Intel based Mac) Mac OS X 10.6.2 (Intel based Mac)
Main Memory:	512MB or more memory (Windows Vista, Windows 7, Mac OS X 10.6 1GB or more memory)

\*The included P2 driver must be installed in the Windows PC or Mac.  
Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.

### Large Data Storage Capacity and High Transfer Speed

- With four SD cards packaged into one, the P2 card offers four times the data storage capacity and four times the transfer speed of the SD card.
- Up to 64GB P2 card is available and it achieves a long recording time.
- Complies with the Type-II PC Card Standard (Card Bus) for direct plug-in to the PC card slot of a laptop PC.\*1

### High Reliability Withstands Repeated Use

- Highly reliable, solid-state memory resists shock, vibration, and temperature changes.
- Ensures a long service life with repeated recording and initialization.\*2
- An individual serial number, bar code, and write-protect switch ensure strict security.
- The P2 card transfers data at a high speed up to 1.2 Gbps.\*3

\*1: The included P2 driver must be installed in a Windows PC or Mac.  
To use the P2 card, the driver must be updated in some P2 products.  
Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.

\*2: Card replacement interval is about five years when entire (100%) data is rewritten once a day.

\*3: 1.2 Gbps is maximum transfer speed when using P2card E series. Transfer speed is subject to be changed depended on system configuration.

#### P2 card Specification

Interface:	CardBus (PC Card standards)
Power Source:	DC 3.3 V ±0.3 V
Power Consumption:	approx. 1.5 W approx. 2.5 W for E Series with AJ-PCD35
Operating Temperature/Humidity:	-20 °C to 60 °C/5 % to 90 % (no condensation)
Storage Temperature/Humidity:	-40 °C to 80 °C/5 % to 90 % (no condensation)
Weight:	approx. 45 g
Dimensions (W x H x D):	54 mm x 5 mm x 85.6 mm

Capacity	AJ-P2E016XG	AJ-P2E032XG	AJ-P2E064XG
Recording Capacity:*	approx. 16 GB	approx. 32 GB	approx. 64 GB
Rec/Play Time	AJ-P2E016XG	AJ-P2E032XG	AJ-P2E064XG
AVC-Intra 100 1080/23.98pN, 24pN:	approx. 20 min.	approx. 40 min.	approx. 80 min.
720/23.98pN:	approx. 40 min.	approx. 80 min.	approx. 160 min.
1080/59.94i, 50i, 720/59.94p,50p:	approx. 16 min.	approx. 32 min.	approx. 64 min.
AVC-Intra 50:	approx. 32 min.	approx. 64 min.	approx. 128 min.
DVCPRO HD:	approx. 16 min.	approx. 32 min.	approx. 64 min.
DVCPRO 50:	approx. 32 min.	approx. 64 min.	approx. 128 min.
DVCPRO/DV:	approx. 64 min.	approx. 128 min.	approx. 256 min.

\* Total card capacity includes space for data management such as system data, therefore, actual usable area is less than capacity indicated on the card.

Mandatory tool for the all P2 users.

Visit <<https://www.pavc.panasonic.co.jp/pro-av/support/desk/e/index.htm>>



## Support Desk

Website for Downloading P2 Software

### P2 Driver

Win Mac

The driver software is required for Windows PC or Mac to recognize the P2 Card.

\*Include USB Driver, PCI Express (PCIe) Driver, CardBusDriver, IEEE1394 Driver, P2 Store Manager, and P2 Card Formatter for Mac (only for AJ-PCD20/PCD35/Card Bus Driver)

### P2 Viewer

Win

This viewing application lets you play P2 files on a Windows PC.

Please note that the newest P2 driver must be installed on your PC to use this application.

\*This application does not support Mac. For Macintosh computers, please use the P2 Content Management Software.

### P2 Contents Management Software

Win Mac

In addition to letting you view P2 content, this application program allows you to ingest data into the HDDs of ordinary PCs, and also manage data within the PC. Please note that the newest Windows or Mac P2 driver must be installed on your PC to use this application.

#### Applicable Functions

Windows XP Version:	Supports AVC-Intra files and proxy files.
Mac OS X Version:	Supports AVC-Intra files and proxy file DPX conversion function (which runs only on Intel Mac)

\*DPX (Digital Picture Exchange) is an image file format for use in digital film work. Plug-in software must be separately installed for converting from AVC-Intra 100 to DPX files. For details, please see the P2 CMS explanation on page 20.

### P2 Card Format Station

Win

P2 Card Format Station enables users to perform format, update firmware, and error check the P2 Card through PCMCIA card drive on the PC or P2 Drive AJ-PCD10/PCD20/PCD35.

#### PC operating condition

OS: Microsoft® Windows 7, Windows Vista, Windows XP or Windows 2000  
Latest P2 driver for Windows is installed. Log in with Administrator status

### P2 Store Manager

Win

Application for P2 Store (AJ-PCS060G).

### Drive Mount Converter

Win

The Drive Mount Converter is a Windows application for managing Type-S hard disks on which P2 card data is copied.

\*A Type-S hard disk refers to one that is connected, via USB 2.0 or IEEE 1394, to a P2 device that is equipped with a USB Host or 1394 Host function. The Type-S hard disk is used for copying P2 card data. Please check the Operating Manual for your P2 device to determine whether or not it supports the configuring of a Type-S hard disk. Also, be sure to use a Type-S hard disk that allows connection via USB 2.0 or IEEE 1394.

### AVC-Intra Software Decoder for Mac

Mac

(AVC-Intra to QuickTime Transcoder software for Apple FinalCutPro) This Panasonic AVC-Intra Software Decoder enables users to preview and import AVC-Intra format clips recorded by Panasonic recorders on FinalCutPro, by installing on Mac OS installed FinalCutPro software.

Please select version of AVC-Intra Decoder for version of FinalCutPro.

Ver1.3 for FinalCutPro6.0.3-6.0.5

\* Notice: When previewing AVC-Intra on MacBookPro, "Limited Preview" is displayed on Log and Transfer window of FinalCutPro and audio is not able to be monitored.

### AVCHD Transcoder

Win

This application software transforms AVCHD clips recorded by Panasonic camera such as AVCCAM into P2 DVCPRO HD format. This enables users to edit the clips on non-linear editors which do not support AVCHD but P2 DVCPRO HD.

#### Available format

1080i59.94, 1080i50 and the following HD format that AG-HMC150 series cameras record are supported. 1080p29.97, 1080p25, 1080p23.98, 720p59.94 720p50, 720p29.97, 720p25, 720p23.98

\*Cross-conversion is not available.

\*Please control the data size under 4GB when you export a clip to a P2 card. The export speed to a P2 card is slower than a hard disk drive.

\*This application software transforms AVCHD clips recorded by Panasonic camera only.

### Driver Software for P2 Products



The firmware inside each product is the newest version available.

Upgrading is possible with the use of an SD card.

### CAC File for P2 Camera Recorder

(for AJ-HPX3700/HPX2700/HPX3000/AG-HPX500)



The CAC function of the camera corrects the registration error caused by the slight chromatic aberration that the lens cannot compensate for.

This minimizes color bleeding into the surrounding image areas.

Lenses compatible with the CAC function whose CAC data is registered in the camera will automatically start CAC operation.

Supports P2 HD. This Windows PC utility makes it easy to view and copy P2 files.



▲ Windows Vista Version

## P2 Viewer 3.6

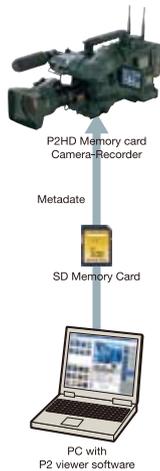
P2 Application Software (Download Free)

- Supports P2 clips (AVC-Intra, DVCPRO HD, DVCPRO 50, DVCPRO, DV) and proxy files.
- Displays shot markers, voice memos, HD 16:9 wide, and proxy clip information as thumbnail icons.
- Indicates metadata as tags in clip filtering displays.
- Displays the properties of each clip and allows certain properties to be edited.
- Lets you create metadata for uploading to a P2 cam using an SD Memory Card.
- Lets you play, delete, move, or write text memos and voice memos.
- Lets you copy clips to other P2 cards or hard disks.
- P2 users can download the latest version of this software from the Support Desk.\*

\*see page 19 for details about Support Desk.



▲ Metadata edit dialog



### PC System Requirements for P2 Viewer 3.6

Operating System:	Microsoft® Windows7 (Professional, Ultimate) Microsoft® Windows Vista (Business, Ultimate) Microsoft® Windows XP Professional (SP2 or later) Microsoft® Windows 2000 (SP4 or later)
Requirements:	Microsoft® DirectX 9.0b or later must be installed. P2 driver must be installed.
Recommended PCs:	SD: Pentium 4, 1.5 GHz or higher; 512 MB RAM or more (1 GB or more for Windows Vista) DVCPRO HD: Pentium D, 3.2GHz or higher, 1GB RAM or more AVC-Intra 50: Core2 Duo, 2.66GHz or higher, 1GB DDR2-667 RAM or more AVC-Intra 100: Dual Xeon, 3GHz or higher, 1GB DDR2-667 RAM or more Full-color (32bit) display and an audio function
Languages Supported:	Japanese, U.S. English, Chinese (automatic recognition)

\*DVCPRO HD clips can only be played by PCs that are equipped with a CPU that supports SSE2 commands, such as Pentium M, Pentium 4, Pentium D, and Celeron D.  
To play back the AVC-Intra format, it is necessary to download the AVC-Intra decoder.  
To play back the Proxy, it is necessary to download the Proxy decoder.

Easy to Ingest and Manage P2 Content. The Newest Version is compatible with Mac OS X 10.6 "Snow Leopard".



▲ Mac Version

## P2CMS 1.4

P2 Contents Management Software (Download Free)

- Supports a plug-in for converting AVC-Intra 100 files to DPX files. This helps to speed up and lower the cost of film production.
- P2 Viewer is built in and able to view P2 contents easily. In addition to the normal play back, able to view with +/- 4x speed at 0.5x steps.
- Display P2 contents by three modes; Thumbnail, Detail and Text.
- Contents can be speedily retrieved by automatically constructing the data base by using the metadata of P2 contents at the time of ingestion. Able to add, change and delete metadata.
- Quick search of P2 contents by using metadata keyword or categorized view.
- Property window indicate lists of P2 contents metadata. Some metadata can be changed by editing property.
- Text memo and voice memo are can be indicated, changed, deleted or added.
- Export: Able to handout and keep by copying P2 contents onto HDD and Optical media.
- Back up: Able to copy P2 contents onto optical media by the native P2CMS format. It aims to back up P2 contents registered in data base. When HDD trouble, P2CMS can restore P2 contents.
- Archive: It automatically delete MXF files of Video and Audio from HDD after copying onto optical media to reduce the capacity of HDD.
- P2 users can download the latest version of this software from the Support Desk.\*

\*see page 19 for details about Support Desk.

### Operating Environment

- Mac OS X 10.4.11\* (Quick Time 7.6.4) • Mac OS X 10.5.8\* (Quick Time 7.6.4) • Mac OS X 10.6.2\* (Quick Time 10.0) • 2 GHz or greater Intel Core Duo processor.
- 1 GB or more RAM • 1,024 x 768 or greater display • The P2 driver included with the P2 product must be installed.

\* CMS applies to 32bit mode only.

\*\* To play back the AVC-Intra format, it is necessary to download the AVC-Intra decoder. When you convert into DPX files, it is necessary to download the AVC-Intra decoder and DPX Plug-in. The system requirements of the installed software influences the system requirements of the application.

### Recommended Environment to Play AVC-Intra Format Clips, and Convert into DPX Files

- Dual CPU configuration quad-core Xeon processor •2 GB or more RAM

\*For Windows version, visit <http://pro-av.panasonic.net/>

Please refer to the latest Non-linear Compatibility Information, P2 Support and Download and Service Information, etc. at panasonic web site.



<http://pro-av.panasonic.net/>

**\*NOTES REGARDING THE HANDLING OF P2 FILES USING A PC**

**Mounting and Transferring Files**

The PC must be installed with the included P2 driver in order to recognize, copy and transfer P2 files. This driver is also necessary when using the PC card slot and when handling P2 files stored on a hard-disk device, such as P2 store. For other operating requirements, refer to the P2 installation manual. The P2 driver and the P2 installation manual can be downloaded free from a Panasonic website. Visit <https://www.pavc.panasonic.co.jp/pro-av/> and click "P2 Support and Download."

**Preview and Nonlinear Editing**

To preview (play) P2 files on a PC, it is necessary to install P2 Viewer software (downloadable for free, for Windows only) or P2 CMS content management software (downloadable for free, for both Windows and Mac), both from Panasonic, or P2-compatible editing software available from other companies (for details, visit [https://www.pavc.panasonic.co.jp/pro-av/sales\\_o/p2/partners.html](https://www.pavc.panasonic.co.jp/pro-av/sales_o/p2/partners.html)). Note that each software places specific requirements on the operating environment, and the operating environment must meet additional requirements to play and edit HD content on Windows PCs and Macs. For P2 Viewer or P2 CMS download and operating requirement information, visit <https://www.pavc.panasonic.co.jp/pro-av/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

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