

**Panasonic**  
ideas for life

**P2HD**

**AJ-HPD2500**  
Memory Card Recorder/Player

A NEW P2 DECK  
TO ENHANCE FILE-BASED BROADCASTING WORKFLOWS  
OVER HIGH-SPEED NETWORKS



**AVC INTRA** **DVC PRO HD** **DVC PRO 50** **DVC PRO** **IX** **AVCHD**

It features transmission and editing functions for broadcasting, server/client functions for networking, and AVCHD\*1 compatibility. It is an ideal for creating and operating a file-based workflow.



**P2HD**

- Comes standard with AVC-Intra codec for superior image quality and efficiency
- Gigabit-Ethernet-compatible server/client function for direct network connection
- Easy transmission with a one-clip playback remote, plus improved editing functions/GUI
- eSATA/USB hard disk drive interfaces for playing\*2 full frame rate content and copying it at high speed
- AVCHD compatibility for simultaneous P2HD/AVCHD recording and cross-conversion (optional)

\*1: When using the AJ-YCX250G AVCHD codec board.

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

## P2 Memory Card Recorder: Lower Operating Costs, Better for the Environment

### P2 Reduces Total Cost of Ownership

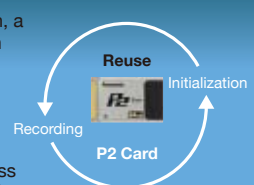
- (1) Faster, easier editing because digitization is not necessary
- (2) Lower media costs because memory cards are reusable
- (3) Lower maintenance costs because there is no moving mechanism

Reducing editing, media and maintenance costs, P2 can help improve your bottom line. Users can also take advantage of a special five-year free-repair service program that Panasonic offers for P2 HD equipment.



### The P2 Card Helps Preserve the Environment: Repeated Reusability and Low Power Consumption

Allowing repeated file copying and initialization, a single P2 card can be used and re-used, again and again. When combined with an IT-based workflow that requires no dubbing, P2 cards can greatly reduce storage media expenses. And because a memory card recorder has no moving mechanism, it uses less power. For example, the AJ-HPD2500 uses about 48% less power than the tape-based AJ-HD1800 recorder.





# MULTI-FORMAT RECORDING AND PLAYBACK SYSTEM – COMES EQUIPPED WITH AVC-INTRA AND SUPPORTS 24PsF

## AVC-Intra Codec

The new AVC-Intra codec 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. The AJ-HPD2500 can record in AVC-Intra 100 for maximum picture quality or in AVC-Intra 50, which adopts a lower bit rate, for versatile operation. It also supports DVCPRO HD codec.

- **AVC-Intra 100:** With the same bit rate as DVCPRO HD, this mode supports full 10 bit recording with 1920 x 1080\* pixels. It captures master-quality video for high-end video production.
- **AVC-Intra 50:** This mode delivers video quality very similar to DVCPRO HD with 1440 x 1080\* pixels, 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 and cuts the transferring time in half.

\* These figures are for 1080i/p mode. The AJ-HPD2500 also supports 720p mode.

## Up-/Down-/Cross-Conversion

The AJ-HPD2500 can convert up or down between HD and SD or cross-convert between 720p and 1080i during playback. It can also up-convert SD input for recording in HD, and it features an aspect conversion function.

\* The cross-converter function is disabled during up-conversion recording. During up-conversion recording, the closed caption signal in the SD signal is recorded as a 608-format HD (VANC) signal (59.94 Hz only). The closed caption signal in the SD signal is not output during up-conversion, down-conversion or cross-conversion playback.

## 24PsF Compatible, HD/SD Multi-Format

Supporting a wide range of HD formats, such as 1080p, 1080i and 720p, the AJ-HPD2500 can be switched between 59.94 Hz and 50 Hz to adapt to the world's HD broadcasting formats. The AJ-HPD2500 supports 1080/24p (30p/25p) native recording and playback with the AVC-Intra codec. In HD SDI mode, it supports 1080/24PsF input/output for use in high-end movie production. It also supports SD, and multi-codec recording (DVCPRO 50, DVCPRO, DV) is possible in both NTSC (480i) and PAL (576i).

## VariCam Speed Effects

The AJ-HPD2500 can extract active frames from VFR (variable frame rate) signals output by a VariCam and record them in 720/24p (30p/25p). The AJ-HPD2500 can also provide VariCam-like 60p pull-down output (50p from 25p) by playing back a video clip in a P2 card recorded in native 720/24p (30p/25p) by the AJ-HPX2700, the AG-HPX500 Series, the AG-HPX300 Series, the AG-HPX170 Series or the AG-HVX200A Series P2HD camcorders.

## 16 Bit/48 kHz/8 Channel, High-Quality Digital Audio

The AJ-HPD2500 can record and play back high-quality, 16 bit/48 kHz digital audio. It comes with 8 channel AES/EBU digital audio input and output (BNC) terminals. This allows the connection of digital audio equipment with a 48 kHz sampling rate or digital VTR. Since the AJ-HPD2500 supports SDI embedded audio, it can record and play back up to 8 channels. For SD format, the AJ-HPD2500 records and plays 4 channel audio with all DVCPRO 50/DVCPRO/DV codecs.

## Advanced Recording Functions Employing Six Card Slots

The P2 card offers a large capacity of up to 64 GB\* in a small, lightweight package. Its rugged design withstands even harsh professional use. The AJ-HPD2500 comes with six P2 card slots. It enables continuous recording for up to 12 hours onto six cards (using the AVC-Intra 50 codec), for extended HD recording and transmission.

- **Hot-Swap Recording:** Endless recording can be achieved by replacing cards while recording. It newly supports to select the recording slot while recording.
- **New Auto Recording:** This new function automatically starts recording by SDI signal input.
- **Loop Recording:** Endless recording sequentially overwrites the oldest data with new data. When used with cameras for time-sensitive information gathering like weather news, the loop recording function holds the latest video data for a predetermined time period.

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

## Text Memo, Shot Marker and Metadata

- **Text Memo:** When recording or previewing a clip, you can attach a memo (similar to a bookmark) at a desired location (up to 100 locations on a frame basis). The simplified editing function lets you copy a segment between memos and create a new clip. Text information can be added to a memo.
- **Shot Marker:** During or after recording, you can mark each clip with OK, NG or another designation.
- **Clip Metadata:** This function lets you browse and edit metadata, such as the name of the camera operator and reporter, shooting location and text memos. Text data can also be easily inserted by connecting a USB or software keyboard, and metadata files can be uploaded from an SD/SDHC card.



# SPEED UP YOUR WORKFLOW WITH ENHANCED EDITING AND TRANSMISSION FUNCTIONS, AIDED BY AN EASIER-TO-USE GUI



Example of a thumbnail list (LCD and monitor output)



Playlist preparation example 1: Displaying player side and recorder side playback screens (with the player side selected)



Playlist preparation example 2: Displaying thumbnails

## New Clip Thumbnail Display with Free Clip Sequencing

The clip thumbnail (image list) display and GUI (graphical user interface) have been completely revamped. You can now select clips for instant playback, deletion, copying or resequencing. This makes it easy to gather and display clips for broadcasting or editing. The new GUI displays the clip properties on the same screen as the clips and clearly shows the source data – with scroll bar, clip count and playback position – at a glance. The thumbnail display can be changed to show any of the images in the clip, and the GUI can be output to a monitor.

## Edit Control Panel with Jog/Shuttle Dial

Like a broadcast editor, the AJ-HPD2500 is equipped with a jog and shuttle dial. You can shuttle search at up to 100x normal speed in forward or reverse and jog search within a range of -1x to +1x speed. Audio can be monitored up to 10x normal speed.

## New Playlist Editor GUI for Intuitive Operation

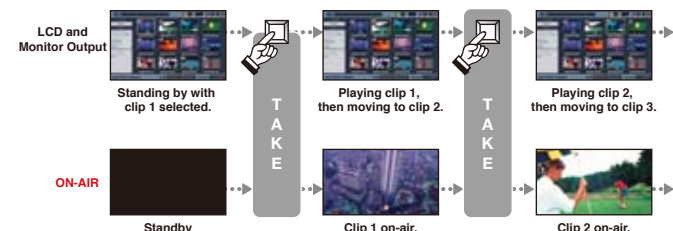
The playlist function lets you instantly cut edit\* up to 100 events or a timeline of up to 24 hours. Operating ease and functions have both been enhanced.

- **New Editor GUI:** The GUI simultaneously displays player-side (source material) thumbnails or a preview screen on the left side, a recorder-side (timeline) preview screen on the right side, and the timeline at the bottom. It can also be output to a monitor.
- **AV Independent Edit:** Any desired track can be independently selected and edited from the video track and 4-channel audio track. The IN/OUT points for each track on the timeline can also be trimmed.
- **Insert Edit and Overwrite Edit:** There are two editing modes – the insert editing mode for inserting a new event between events and the overwrite editing mode for overwriting an existing event with a new event.
- **Editcopy Function:** Playlists can be saved as files and reused. The editcopy function can also write out the result of playlist playback as a separate clip.

\* No transition settings or effects are available. V fade between events can be set only for audio.

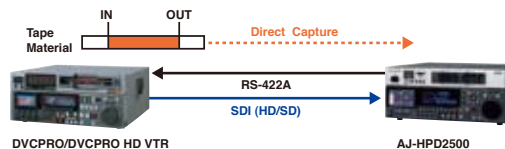
## New One-Clip Playback and GUI Hold for Easy Manual Data Transmission

The AJ-HPD2500 P2 Deck newly features easy manual transmission by itself. The one-clip playback function plays resequenced clips one at a time, and the new GUI Hold lets you check the thumbnail image of the next clip by displaying the thumbnail screen onto both the LCD and a monitor during playback. It can also be remote controlled through a parallel, RS-232C or RS422A interface, for easy operation while checking the thumbnail images on a control desk monitor.



## New Direct Capture from an External VTR

The AJ-HPD2500 is equipped with a Direct Capture function. It lets you set IN and OUT points on the player-side preview screen by controlling an external VTR connected via an RS-422A interface, and register or capture (digitization and clip creation) video footage directly onto the editing timeline. This allows quick P2HD production from tape sources in a linear-like fashion.



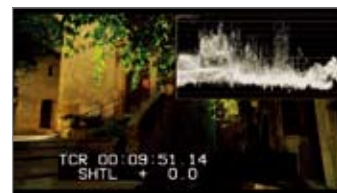
## New eSATA/USB 2.0 Interface for an External HDD

- **High-Speed Backup/Restore:** Data can be backed up or restored on an eSATA hard disk at up to 4x<sup>\*1</sup> normal speed. USB 2.0 transfer speed has also been approximately at up to 2x previous model. A Device mode allows a PC (nonlinear editor) to serve as a P2 card drive.
- **HDD Playback:** P2 MXF files on an external hard disk can be displayed at thumbnails and played back at full frame rate.\*<sup>2</sup> P2 audio playback is uninterrupted by slow hard disk performance, or when vibration temporarily delays data reading.
- **Playlist Editing:** The files on a hard disk can be used for playlists and direct captures in the same way as P2 card data.

\*1: For 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.

## Waveform or Vectorscope Display

The AJ-HPD2500 has waveform and vectorscope display functions for the playback or input video signal on the LCD monitor. During up-conversion recording, the post-conversion waveform is displayed. It can also displays on Monitor Out (SD)/SDI Out.



Example of a waveform display

\* No superimposition will be displayed when the waveform is displayed on an external monitor.

## Versatile Playback Functions Meet Diverse Needs

- **Format Auto Playback:** This automatically detects the video format and codec for each video clip to play back and output.
- **Variable Speed Playback:** For slow-motion and double-speed playback
- **PB Position Selection:** This lets you select the playback position when playing from a thumbnail image. You can select from three different options: Previous playback position, thumbnail time code position, or the beginning of the clip.
- **Repeat Playback:** This plays the selected clip (single or multiple) repeatedly.

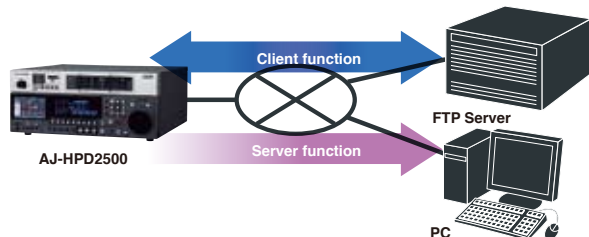
\* Repeat playback of multiple clips is possible only with clips of the same format.



# NETWORK-READY INTERFACES AND AVCHD RECORDING, PLAYBACK, AND CONVERSION FUNCTIONS

## New Gigabit Ethernet for FTP Transfers

The AJ-HPD2500 is provided with an Ethernet port (1000Base-T/100Base-TX/10Base-T) and features the following network functions.



- **FTP Client Function:** This function lets you connect the AJ-HPD2500 to an FTP server to send or receive clips to or from the server. You can upload files from a P2 card or external hard disk to an FTP server, or download files from the server to a P2 card or external hard disk. Files can be uploaded or downloaded easily by using thumbnails. SD/SDHC memory cards can be transferred card by card only.
- **FTP/Samba Server Function:** Files can be downloaded from a P2 card in an AJ-HPD2500 slot or from an external hard disk connected to the AJ-HPD2500 by using a PC connected to the network.\*1
- **HTTP Server Function:** You can view thumbnails and metadata from a PC connected to the network.\*1
- **WWW Browser Function:** You can access various web pages\*2 without a PC. It is also possible to enter authentication information (ID and password) for network access.

\*1: SD/SDHC memory cards cannot be accessed. In Server mode, transferring the data into a P2 card is not supported.

\*2: Some web pages may not be displayed properly due to content. Download functions on web pages cannot be used. Video clips on web pages or linked video files cannot be played.

## AES/EBU Digital Audio In/Out

The AJ-HPD2500 comes with 8-channel AES/EBU digital audio input and output (BNC) terminals. Since the AJ-HPD2500 supports SDI embedded audio, it can record and play back up to 8 channels.

## Serial Digital Interface

The AJ-HPD2500 has broadcast-standard SDI (HD/SD) input and output terminals. The input signal can be selected with the Video In and Audio In keys on the front panel. Start and stop recording operation can also be linked to a camera recorder. And AJ-HPD2500 can output superimposition or thumbnails.

## AVCHD Recording/Playback and P2HD/AVCHD Conversion (Option)

When equipped with the optional AJ-YCX250G AVCHD codec board, the AJ-HPD2500 can record and play back AVCHD files on an SD/SDHC memory card. It can also convert and copy files between P2HD and AVCHD at normal speed.



- **AVCHD Data Playback Output:** AVCHD can be played back on the built-in monitor and output from the HD SDI terminal. This function is useful for using an AVCCAM camera recorder or consumer AVCHD camera recorder.
- **P2HD/AVCHD Simultaneous Recording:** HD SDI input can be recorded in the AVC-Intra/DVCPRO HD format on P2 card and AVCHD format on SD/SDHC card simultaneously.
- **AVCHD to P2HD Conversion:** Clips recorded by an AVCCAM camcorder can be converted and copied into the AVC-Intra/DVCPRO HD format for use in playlist editing with the AJ-HPD2500 or editing with a P2HD-compatible nonlinear editor.
- **P2HD to AVCHD Conversion:** By copying P2HD clips into low bit rate AVCHD files, it is possible to transfer clips to a server at high speed.

\* It is not possible to record in AVCHD format only.

Use of DCF Technologies under license from Multi-Format, Inc.

\* The clip metadata will not be copied by conversion copying.

## Versatile Remote Control

The AJ-HPD2500 features RS-422A remote that is common in broadcast VTRs (allowing it to be controlled as a player for editing\*), RS-232C remote for use with PCs and other IT systems, parallel remote, and encoder remote for flexible system configurations.

\* Remote control with the RS-422A interface is not possible in AVCHD mode.

## Analog Input/Output

The AJ-HPD2500 is equipped with various analog I/Os: Composite Video In, Composite Monitor Out, Audio In/Out (2 channels), Audio Monitor Out (2 channels), Time Code In/Out and Reference Video In (with loop-through).

## 4U Rack Size

The AJ-HPD2500 has the same height and 4U size as our DVCPRO VTRs and mounts easily into a 19-inch rack. It can slip right in as a replacement for an older VTR.

\* Mounting adaptor must be purchased separately.



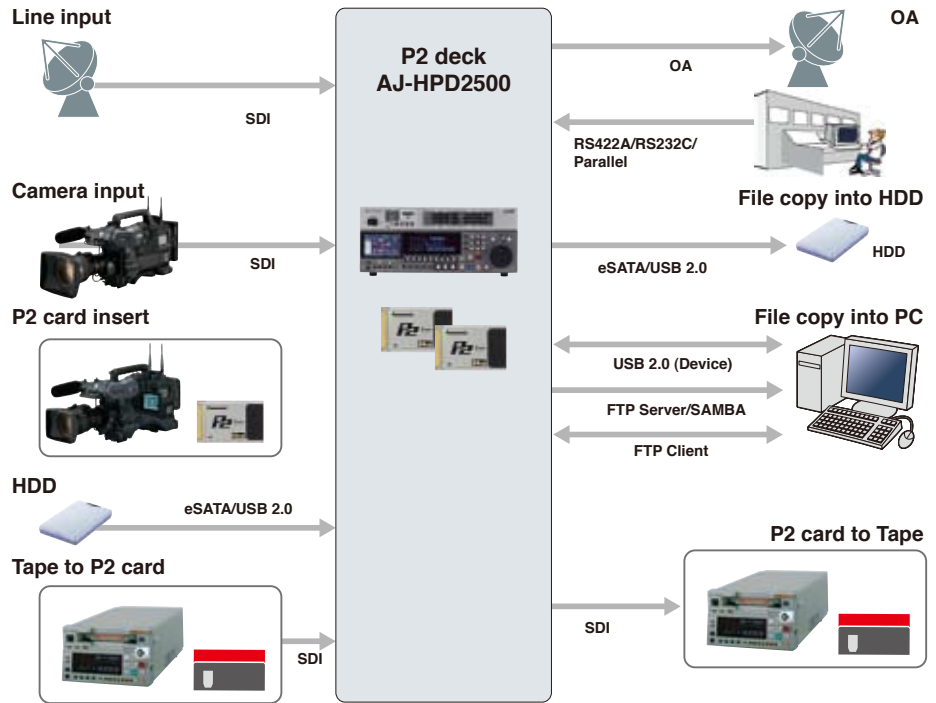
Front terminal



Rear terminal

## AJ-HPD2500 INPUT/OUTPUT WORKFLOW

Versatile input and output terminals of the AJ-HPD2500 meet a wide range of broadcast station and CATV needs, from line and studio recording to editing, transmitting and archiving. This new P2 Mobile is also equipped with the RS-422A, RS-232C and 25-pin parallel remote control interfaces that are used by conventional VTR systems. Its networking functions and eSATA/USB 2.0 interface further allow the AJ-HPD2500 to serve as the core of a file-based broadcasting system, while allowing continued use of existing tape materials and serving as a flexible add-on to smooth the transition from a tape-based to a file-based system.



## AJ-HPD2500 CORRESPONDING INPUT/RECORDING FORMATS

HD/SD Input Signal	HD Recording Format	Recording Time (With Six 64 GB P2 cards)			SDI Output*1		
		AVC-Intra100	AVC-Intra50	DVCPRO HD	1080	720	480/576
1080/59.94i	1080/59.94i	384 min.	768 min.	384 min.	1080/59.94i	720/59.94p	480/59.94i
1080/50i	1080/50i	384 min.	768 min.	384 min.	1080/50i	720/50p	576/50i
1080/29.97PsF	1080/29.97pN <sup>3</sup>	384 min.	768 min.	—	1080/29.97PsF	720/29.97PsF over 59.94p	480/29.97PsF over 59.94i
	1080/59.94i	—	—	384 min.	—	—	—
1080/23.98p over 59.94i <sup>2</sup>	1080/23.98pN <sup>3</sup>	480 min.	960 min.	—	1080/23.98PsF	720/23.98p over 59.94p	480/23.98p over 59.94i
	1080/59.94i	—	—	384 min.	1080/23.98p over 59.94i	—	—
1080/23.98PsF	1080/23.98pN <sup>3</sup>	480 min.	960 min.	—	1080/23.98PsF	—	—
1080/24PsF	1080/23.98pN <sup>3</sup>	480 min.	960 min.	—	1080/24PsF	—	—
1080/25PsF	1080/25pN <sup>3</sup>	384 min.	768 min.	—	1080/25PsF	720/25PsF over 50p	576/25PsF over 50i
720/59.94p	720/59.94p	384 min.	768 min.	384 min.	1080/59.94i	720/59.94p	480/59.94i
720/50p	720/50p	384 min.	768 min.	384 min.	1080/50i	720/50p	576/50i
720/29.97p over 59.94p <sup>2</sup>	720/29.97pN <sup>3</sup>	768 min.	1536 min.	768 min.	1080/29.97PsF	720/29.97p over 59.94p	480/29.97p over 59.94i
720/23.98p over 59.94p <sup>2</sup>	720/23.98pN <sup>3</sup>	960 min.	1920 min.	960 min.	1080/23.98PsF	—	—
720/24p over 60p <sup>2</sup>	720/23.98pN <sup>3</sup>	960 min.	1920 min.	960 min.	1080/24PsF	—	—
720/25p over 50p <sup>2</sup>	720/25pN <sup>3</sup>	768 min.	1536 min.	768 min.	1080/25PsF	720/25p over 50p	576/25p over 50i
720/25p over 60p <sup>2</sup>	720/25pN <sup>3</sup>	768 min.	1536 min.	768 min.	1080/25PsF	720/25p over 50p	576/25p over 50i
480/59.94i	1080/59.94i	384 min.	768 min.	384 min.	1080/59.94i	—	480/59.94i
	720/59.94p	384 min.	768 min.	384 min.	—	720/59.94p	480/59.94i
576/50i	1080/50i	384 min.	768 min.	384 min.	1080/50i	—	576/50i
	720/50p	384 min.	768 min.	384 min.	—	720/50p	576/50i

SD Input Signal	SD Recording Format	Recording Time (With Six 64 GB P2 cards)		SDI Output*1		
		DVCPRO 50	DVCPRO/DV	1080	720	480/576
480/59.94i	480/59.94i	768 min.	1536 min.	1080/59.94i	720/59.94p	480/59.94i
480/29.97p over 59.94i	480/59.94i			1080/29.97PsF	720/29.97p over 59.94p	480/29.97p over 59.94i
480/23.98p over 59.94i	480/59.94i			1080/23.98PsF <sup>4</sup>	720/23.98p over 59.94p	480/23.98p over 59.94i
576/50i	576/50i			1080/50i	720/50p	576/50i
576/25p over 50i	576/50i	—	—	1080/25PsF	720/25p over 50p	576/25p over 50i

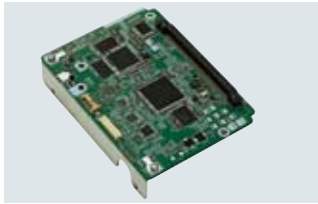
\*1: Settings must be made on the menu screen (system frequency mode). \*2: 2-3, 2-3-3-2 or 2-2 pull-down output signal from P2HD Camera Recorder or DVCPROHD Camera recorder.

\*3: N=Native This mode records only effective frames. \*4: Output is produced only when the playback system frequency is set to 23.98 or 59-23.

AVCHD Mode <sup>1</sup>	HD Recording Format	Image Size (H x V)	Bit Rate	Max. Recording Time (With 32GB SDHC Memory Card <sup>2</sup> )
PH Mode	1080/59.94i, 1080/50i	1920 x 1080	Approx. 21 Mbps (Average), Max. 24 Mbps	Approx. 180 min.
	720/59.94p, 720/50p	1280 x 720		
HA Mode	1080/59.94i, 1080/50i	1920 x 1080	Approx. 17 Mbps (Average)	Approx. 240 min.
HG Mode	1080/59.94i, 1080/50i	1920 x 1080	Approx. 13 Mbps (Average)	Approx. 320 min.
HE Mode	1080/59.94i, 1080/50i	1920 x 1080	Approx. 6 Mbps (Average)	Approx. 720 min.

\*1: When AVCHD Codec Board AJ-YCX250G is equipped. If P2 card recording is not possible, AVCHD recording will not be possible either. AVCHD recording is not possible for composite signal input.

\*2: A Class 4 or higher SDHC or SD Memory Card is required for PH and HA recording. Use a Class 2 or higher SDHC or SD Memory Card for other modes. (Panasonic SDHC or SD Memory Cards are recommended.)



**AJ-YCX250G**  
AVCHD Codec Board



**AJ-MA75P**  
Rack Mount Adaptor



**AJ-P2E064XG**  
**AJ-P2E032XG**  
**AJ-P2E016XG**  
P2 Card (E series)



SD/SDHC Memory Card

## AJ-HPD2500 SPECIFICATIONS

(As of March2010)

### General Specification

Power Source:	AC 100 V to 240 V, 50 Hz/60 Hz 65W (full option)
Operating Temperature:	5°C to 40°C (41 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Keeping Temperature:	-20°C to 50°C (-4 °F to 122 °F)
Weight:	13 kg (28.66 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.
Recording Media:	P2 card, SD/SDHC Memory Card (AVCHD Recording*)
Recording Format*2:	see left page for detail
Recording Time*3:	see left page for detail
Recording Video Signal:	see left page for detail
Recording Audio Signal:	48kHz/16bits/8CH (AVC-Intra100/AVC-Intra50/DVCPRO HD) 48kHz/16bits/4CH (DVCPRO 50) 48kHz/16bits/2CH/4CH switchable (DVCPRO/DV)

### Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra 100/DVCPRO HD (59.94 Hz): Y:74.1758 MHz, P <sub>B</sub> /P <sub>R</sub> :37.0879 MHz (50 Hz): Y:74.2500 MHz, P <sub>B</sub> /P <sub>R</sub> :37.1250 MHz DVCPRO 50: Y:13.5 MHz, P <sub>B</sub> /P <sub>R</sub> :6.75 MHz DVCPRO: Y:13.5 MHz, P <sub>B</sub> /P <sub>R</sub> :3.375 MHz
Quantizing:	AVC-Intra 100/AVC-Intra 50: 10 bits DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bits
Compression Format:	AVC-Intra 100/AVC-Intra 50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra100: Y:P <sub>B</sub> :P <sub>R</sub> = 4:2:2
Resolution:	AVC-Intra 100: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) AVC-Intra 50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)

### Video Input Signal

Analog Composite Input:	BNC x 1 (loop-through x 1), 75 Ω auto (Video In), 1.0 V[P-P] (75 Ω)
Reference Input:	Black Burst/HD 3 value SYNC, BNC x 1 (loop-through x 1), 75 Ω auto
SDI (HD/SD) Input:	BNC x 1, (HD SDI Input/SD SDI Input switchable) HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT.656-4 standard

### Video Output Signal

SD Analog Composite Output:	BNC x 1 (Super On/Off)
SDI (HD/SD) Output:	BNC x 2, (HD SDI Output/SD SDI Output switchable) HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT.656-4 standard
SD SDI MON Output:	BNC x 1, SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard

### Video Adjustment Range

Output Gain:	-∞ to +3 dB or -∞ to +6 dB (Menu switchable)
Chroma Output Gain:	-∞ to +3 dB
Chroma Phase:	± 30°
Setup Level:	± 10%
Sink Phase:	± 15 μs
SC Phase:	± 180°

### Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (sync video)
Quantizing:	16 bits
Frequency Response:	20 Hz to 20 kHz, ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, emphasis off, "A" weighted)
Distortion:	Less than 0.1% (1 kHz, emphasis off, reference level)
Cross Talk:	Less than -80 dB (1 kHz, between 2 channels)
Headroom:	20/18/12 dB switchable
De-emphasis:	T1=50 μsec, T2=15 μsec (On/Off auto)

### Audio Input Signal

Analog Input:	XLR x 2 (CH1/CH2), 600 Ω/high-impedance switchable, +4/0/-3/-20 dBu switchable
Digital Input:	BNC x 4 (CH1/2, CH3/4, CH5/6, CH7/8), AES/EBU format SMPTE 276M
SDI Input:	BNC x 1 (HD SDI Input/SD SDI Input switchable) HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard

### Audio Output Signal

Analog Output:	XLR x 2, low-impedance, +4/0/-3/-20 dBu switchable
Digital Output:	BNC x 4 (CH1/2, CH3/4, CH5/6, CH7/8), AES/EBU format SMPTE 276M
SDI Output:	BNC x 2 (HD SDI Output/SD SDI Output switchable) HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
SD SDI MON Output:	BNC x 1, SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
Monitor Output:	XLR x 2 (CH1/CH2), low-impedance, +4/0/-3/-20 dBu switchable
Headphones:	Stereo mini jack (3.5 mm diameter), 8 Ω, variable level

### Other Input and Output

Time Code Input:	BNC x 1, 0.5 V[P-P] to 8.0 V[P-P], 10 kΩ
Time Code Output:	BNC x 1, 2.0 V[P-P] ± 0.5 V[P-P], low impedance
RS-232C Input/Output:	D-sub 9pin, RS-232C Interface x 1
RS-422A Input/Output:	D-sub 9pin, RS-422A Interface x 1
Parallel:	D-sub 25pin x 1
Encoder remote:	D-sub 15pin x 1
USB2.0:	Host x 1, Device x 1
LAN:	1000BASE-T/100BASE-TX/10BASE-T x 1
eSATA:	eSATA 3Gbit port x 1

\*1: When using the AJ-YCX250G AVCHD codec board. Only possible when simultaneously recording P2HD and AVCHD. Recording only AVCHD is not possible.  
\*2: To record and play back AVCHD is only possible when an AJ-YCX250G AVCHD codec board (optional) is installed.

\*3: All of the times apply when single clips are recorded continuously one after the other on the P2 card. Depending on the number of the clips to be recorded, the recordable time may be shorter than the times given.

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

# P2 Asset Support System The member's service program

## Providing necessary information when you need it

P2 Asset Support System assists your P2HD use by providing extended warranty repairs & various technical information (update notices, operation guides, etc.) upon registration.

### Free registration, no membership fees

### 5-year extended warranty repairs

Exclusive offer for P2HD !

Maximum 5-year extended warranty repairs are applied for P2HD models after registration. Several other services are also provided to members.



1st year	2nd year	3rd year	4th year	5th year
Basic warranty*1	P2HD Extended warranty repair*2			

### Latest news only for you

In the member's web site, information is selected and presented for your models only. To be alerted to new firmware information and other releases, an email newsletter can be subscribed to.

### Document library

You can filter through and find various technical information (operation guides, technical descriptions, etc.) quickly from the library.

### Manage your equipment

You can easily know the update status and past service history of each unit, and can leave comments in free text as memos about your equipment.

\* Not all models are eligible for extended warranty coverage.

\* Please note that this extended warranty is not available in some countries/region see website below for the details.

\*1: The basic warranty period may vary depending on the country/region see enclosed warranty card for warranty coverage.

\*2: Not all repair work is covered by this extended warranty see enclosed warranty card for warranty coverage.

The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Details and user registration: [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)

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. The included P2 driver is compatible with Windows Vista, Windows , Windows 2000 and Mac OS X. 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 web site. Visit <http://pro-av.panasonic.net/> 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 <http://pro-av.panasonic.net/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

# Panasonic®

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JQA-0443



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