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AVCHD
THE FUTURE OF VIDEO

THE REVOLUTION IS HERE

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# AVCHD

## The REVOLUTION is closer than you think

In the past there was only the TAPE. Today's camcorders provide greater possibilities...they make you want to be a professional!.

The history of film and video has been a constant search for better ways of capturing images. Thanks to massive advances in compression technology, film makers have enjoyed ever higher picture quality from simpler, easier-to-use formats which can store data more efficiently. In short, film to video and onto IT acquisition has become a quest for convenience as well as quality.

Panasonic has introduced AVCCAM, a line of next generation, affordable HD camcorders that offer incredible advantages over tape-based, MPEG-2 HDV systems. AVCCAM opens up a new world of creative possibilities for event videographers, schools, churches, website producers, law enforcement and much more.


# What is AVCHD?

## The main characteristics of AVCHD

AVCHD (Advanced Video Codec High Definition) is a high-definition compression system. It is a highly efficient video encoder and decoder, or "codec", based on MPEG-4 AVC (H.264). This means increased image quality moving forward and far superior to MPEG-2 encoding (used in the HDV format). AVCHD uses future-forward compression!.

As fast and simple as using a digital still camera, an AVCHD camcorder records high definition video directly on readily available SDHC memory cards. AVCHD camcorders have no moving parts, direct recording to Memory Cards is extremely reliable and there is no possibility for drop-outs or head clogs.

AVCHD is an IT file-based recording. You don't need to waste substantial time digitising your tape.

The entire AVCHD workflow is IT based. Acquisition, Editing and Archiving all take advantage of IT technologies!.

AVCHD camcorders use the AVCHD format and memory card media to offer high reliability, superb mobility, and advanced IT functions at low cost to meet diverse needs in video production.

Currently, the AVCHD portfolio contains first shoulder-mount AVCHD camcorder AG-HMC71E and soon, the incredible handheld model AG-HMC151E will be available.

AVCHD
THE FUTURE OF VIDEO

# BENEFITS

## The AVCHD format offers the new and revolutionary compressing technology based on the MPEG-4 AVC / H.264

KEY REASONS WHY TO USE AVCHD

1

### HD recording EFFICIENCY

Allows professionals to work with twice the compression efficiency of MPEG-2 (used by HDV). All new compression refinements are occurring at the MPEG-4 AVC (H.264) level.

2

Enables higher levels of

### ADAPTABILITY AND FLEXIBILITY

3

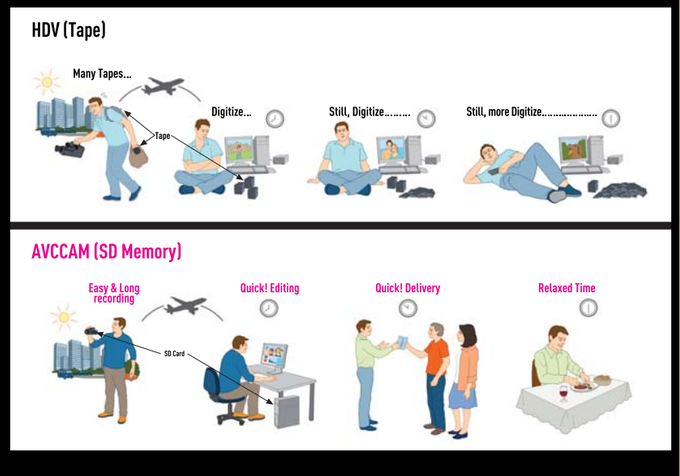
### EXCELLENT QUALITY:

Solid state recording provides superior reliability and quality to HDV tape based camcorders. AVCHD camcorders have three 1/4" progressive CCD Imagers (AG-HMC71E) and 1/3" progressive CCD (AG-HMC151E) that ensure high sensitivity. This results in high colour resolution, which enables detailed images with natural hues producing stunning HD content.

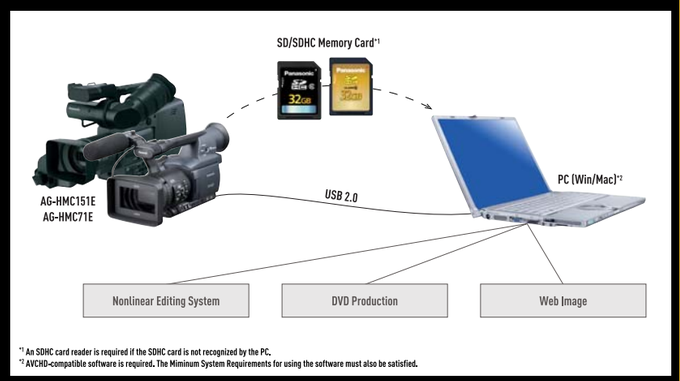
4

### SIMPLE AND FAST WORKFLOW

Unlike tape, AVCHD is file-based (HD images are recorded on to a solid state SDHC card) system that can easily edit without digitising. There is no time wasted digitising your tape into a non-linear editing system. You just copy the files from your SDHC card onto your computer and begin editing HD immediately.




Offers direct access to IT. This makes it easier to use motion images in new IT applications, like content production, Internet distribution and source material archiving.




*1 An SDHC card reader is required if the SDHC card is not recognized by the PC.
*2 AVCHD-compatible software is required. The Miminum System Requirements for using the software must also be satisfied.

5

## LOWER COST

Panasonic brings the professional features to AVCHD at very affordable prices.

6

## SOLID STATE ACQUISITION SD/SDHC MEMORY CARD

AVCHD uses the most popular semi-conductor media: SD memory Cards (solid state). Providing compression efficiency surpassing that of MPEG-2, for the first time in the world this system enables 1080i high definition recording with AVCHD onto an SD/SDHC Memory Card

- Small, Lightweight and Reliable SD/SDHC Card - A Professional's choice

THE SD/SDHC MEMORY CARD:

- Assures excellent reliability
  It resists the effects of dust particles, temperature changes, impacts and is equally robust by condensation, dropout or vibration.
- Is easy to use.
- Incredibly flexible re- usable media.
- Assures fast operation.
- Starts operating immediately - "no missed" shooting opportunities.
  There's no need for a motor to start when you switch the power on, so you're ready to shoot those not-to-be-missed scenes.
- Enables mechanism-less construction* without the need for a tape or disc drive system.
  * The use of an SDHC Memory Card/SD Memory Card eliminates the need for a drive mechanism to move a tape or disc.
- Offers long recording time (up to 720 min of HD video onto a single SDHC card).
  You can enjoy up to 720 min of HD (1080i) recording onto a 32GB SDHC Memory Card.

Contributes to global environmental conservation thanks to the memory card-based reuse of cards and reduction of moving parts.



| CARD CAPACITY | RECORDING MODES | | | | |
|---|---|---|---|---|---|
| | PH mode (approx. 21 Mbps) | HA mode (approx. 17 Mbps) | HG mode (approx. 13 Mbps) similar to HDV quality | HN mode (approx. 9 Mbps) | HE mode (approx. 6 Mbps) |
| 2GB | 10 min. | 15 min. | 20 min. | 30 min. | 45 min. |
| 4GB | 21 min. | 30 min. | 40 min. | 60 min. | 90 min. |
| 8GB | 45 min. | 60 min. | 80 min. | 120 min. | 180 min. |
| 16GB | 90 min. | 120 min. | 160 min. | 240 min. | 360 min. |
| 32GB | 180 min. | 240 min. | 320 min. | 480 min. | 720 min. |

Table: Card Capacity / Recording Time onto a SDHC card
Condition: valid for working in 1080/50i

* PH Mode only for AG-HMC151E Camera-Recorder

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# WORKFLOW & SYSTEM APPLICATIONS
## based on IT Integration

Solid state recording enables new workflow procedures to speed up and enhance transfer to editing solutions.

### A) DATA TRANSFER to a PC and WRITING to DVDs
(Using Provided PC Software: HD Writer 2.5E for HDC)

The HD Writer 2.5E software for Windows PCs that comes standard with the AG-HMC71E lets you play video files; upload them to a PC; divide, delete and merge scenes; and write files to an SD/SDHC card or DVD. This software also has an AVCHD-to-MPEG-2 conversion function for producing standard-definition DVD-Video.

Panasonic is developing new viewing software for the AG-HMC151E camcorder. The specification for this software is expected soon and will be published on the Panasonic website <http://panasonic-broadcast.com>.


### B) EDITING ENVIRONMENT

#### 1. ED:T:NG W:TH AN AVCHD COMPAT:BLE NON-L:NEAR ED:T:NG SYSTEM*

The AG-HMC71E camera can be connected to an AVCHD nonlinear editing system by means of the USB interface or an SDHC card reader. This reduces production time by allowing high-speed data transfers without the need for digitising.

For information on the compatibility of other nonlinear editing software, please contact the manufacturer.

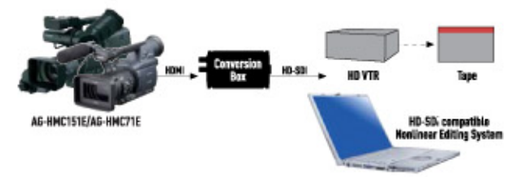
For information on the compatibility of the camcorder AG-HMC151E with the nonlinear editing software, please visit the Panasonic website http://panasonic-broadcast.com.

Free transcoder software (from AVCHD to P2-DVCPRO HD) is available. For details, please visit the Panasonic website at <https://eww.pavc.panasonic.co.jp/pro-av/>.

* Panasonic has confirmed AG-HMC71E compatibility with the following AVCHD nonlinear Software (as of February 2008). APPLE: Final CutPro 6, i Movie 08, Final Cut Express 4, GRASS VALLEY: Edius Pro 4.5, Edius Neo, ADOBE: Premiere Pro CS3 (with MainConcept AVCHD Transcoder), AV:D: Pinnacle Studio Plus 11, Studio Ultimate 11, NERO: Nero7 Premium Reloaded, ULEAD: Video Studio 11 Plus, DVD Movie Factory 6 Plus


#### 2. COMPAT:B:L:TY W:TH EX:ST:NG HD ED:T:NG ENV:ROMENTS

By using an HDM:/HD-SD: conversion box to convert data to an uncompressed HD stream, the AVCCAM can be linked to existing linear/non-linear HD production environments using the DVCPRO HD format.

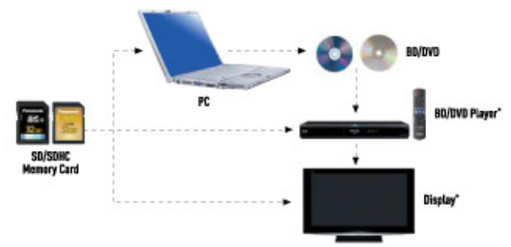



### C) PLAYBACK ENVIRONMENT

PLAYBACK ON COMPAT:BLE COMPONENTS

*need to be compatible with AVCHD. Not available in some areas.

*Panasonic cannot guarantee that all laptops support the system applications.



# THE PROFESSIONAL IMPLEMENTATION OF AVCHD: AVCCAM

## AG-HMC71E

A Professional Shoulder-Mount Memory Card Camera-Recorder

AVCHD
12x zoom lens
1/4" progressive 3CCD,
up to 360 minutes* of high-quality High Definition (HD) video

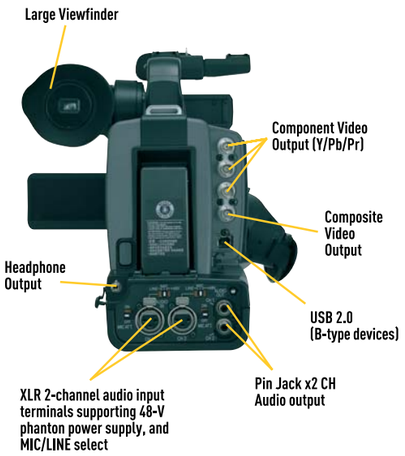
### A) EXTENDED, HIGH-QUALITY HD RECORDING WITH OUTSTANDING RELIABILITY AND MOBILITY

- Low cost, readily available SD/SDHC memory cards as its media.
- Leica Dicomar* Lens with Wide-Angle and 12x Zoom Range
  Wide-angle shots with a wide end of 38.5mm (35mm equivalent) from a compact unit.
- Optical Image Stabiliser Compensates (OIS) for Hand-Shake.
- 1/4-inch Progressive 3x CCD Faithfully Reproduces Colours.
- High-Precision Progressive Scan.
- Professional Tuning for Superb Colour Reproduction
  Colour reproduction with features like colour matrix, chroma gain and gamma curve.
- Auto/Manual Selector ( Focus, Iris Control and AWB).
- Manual Focus Assist
  Enlarges the image at the centre of the frame for easier focusing.
- Guidelines (Markers)
  The LCD and viewfinder can display three types (horizontal, grid, 4:3) of guidelines. The horizontal and grid guidelines enable easy confirmation of camera tilt for stable framing.
  The 4:3 guidelines let you check images as they will display in Standard Definition (SD) format.
- Other Shooting Functions:
  - 2.1-megapixel still image recording lets you take stills while shooting video.
  - Two-step selection of maximum 30x or 700x digital zoom.
  - Black fade or white fade selectable for fade-in/out.
  - Zebra pattern (white washout warning) on the LCD monitor and viewfinder.
  - Five scene modes (Sports, Portrait, Low Light, Spot Light and Surf & Snow) speed up shooting under various situations.
- Small, Lightweight and Reliable SD/SDHC Card.

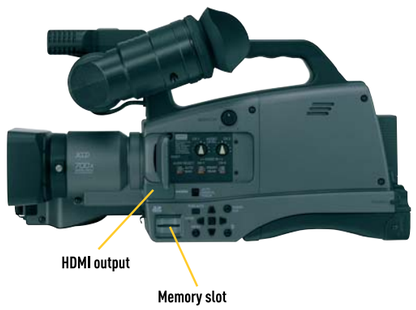
### B) AVCHD FORMAT FOR HIGH-QUALITY, EFFICIENT HD RECORDING

- AVCHD format for 8-bit 4:2:0 digital component recording of high-resolution 1080i (1440 x 1080) HD video.
- Up to 360 Minutes* of HD Recording
  * When recording in HE mode using a 16GB SDHC card.
- Fast Scene Searches with Thumbnail View to enable smooth, easy confirmation and deletion of files displayed on the LCD monitor.

### C) PROFESSIONAL DESIGN AND INTERFACES




Shoulder-Mount Design (compact and light)




Recessed Trigger and Zoom Control on Upper Handle Grip

## AG-HMC151E

Memory Card Camera-Recorder
Highly mobile handheld model

Solid State Recording in a Multi-Format Camera Recorder with features that appeal to a wide range of Professionals

AVCHD
28mm Wide Zoom
1/3" Progressive CCD
23.98p/29.97p Cinelike Shooting


### A) WIDE-ANGLE HD IMAGES THAT APPROACH BROADCAST QUALITY

- Low-cost, readily available SD/SDHC memory cards as its media.
- Leica Dicomar* 13x zoom lens with 28mm (35mm equivalent) wide-angle setting, 72 mm diameter and cam-driven manual zoom.
- Newly developed 1/3" 16:9 progressive 3CCD for high image quality and sensitivity.
- High-performance DSP with 14-bit A/D conversion and 19-bit inner processing capability.
- 1080/23.98p, 1080/59.94i or 720/59.94p HD multi-format recording.
- Selectable gamma including Cinelike mode (Thanks to cinelike gamma, an HD multi-format that supports 23.98p/29.97p recording, and a variety of manual functions, the AG-HMC150E is also suited to cinema-like video production).
- Time Date Stamp capability for Legal deposition applications.
- Optical Image Stabilizer Compensates (OIS) for Hand-Shake.

*Leica and Dicomar are registered trademarks of Leica Microsystems IR GmbH.

### B) HIGH-QUALITY, PROFESSIONAL AVCHD RECORDING

- Professional High-quality (PH) mode for full-pixel HD recording.
- Records for 180 minutes* (approx.) in the highest-quality (PH) mode, or 720 minutes* (approx.) in extended (HE) mode.
- Professionally oriented recording functions include pre-rec, shot marker, INDEX, TC/UB, and metadata.
- Transport Mecanism-free memory-card recording for high durability and reliability against vibration, impacts and temperature change.
- Inexpensive, readily available SD/SDHC memory cards with repeated reuse capability.

*When using a 32-GB SDHC card.

### C) VERSATILE INTERFACES, PROFESSIONAL DESIGN