

THE FUTURE IS HERE

# High Definition Video

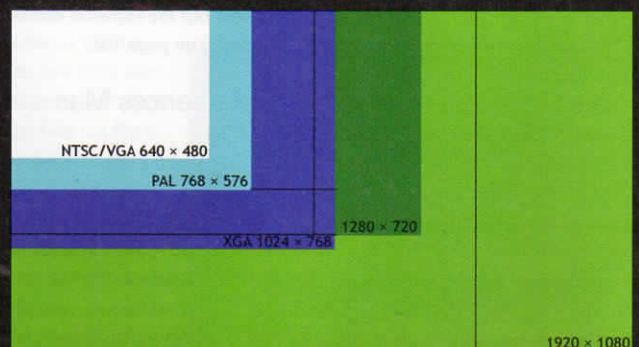
## But what exactly is HD?

Firstly HD is a catch-all term which covers a variety of standards for the recording, display and broadcast of high definition video, television or the next generation of DVD. HD provides significantly better pictures than standard definition, or SD, due to the increased resolution that it provides.

SD pictures are broadcast at a resolution of 648x480 (704x480 for widescreen) in the US and other countries that use the NTSC standard or 768x576 (834x576 for widescreen) in the UK and those countries that have adopted the PAL standard. Additionally SD pictures are interlaced, which means that only half the frame is broadcast at a time, odd numbered lines in one field and even numbered ones the next. For NTSC 60 fields are broadcast a second and for PAL 50 fields. This interlacing can introduce some fuzziness if there is movement on the

screen as a single frame is not captured and then broken up into two fields, instead each field is captured separately by the camera so it is possible for an object to move position from one field to the next causing sharp edges to be broken up.

<http://commons.wikimedia.org/wiki/Image:Videores.png>





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In January this year Steve Jobs told the audience at the MacWorld San Francisco that 2005 would be the year of HD. Apple have since announced HD enabled versions of their main video editing and DVD creation applications, Sky have announced that they will begin HD broadcasting next year, you can buy an HD ready TV from your local Currys and the BBC screened an HD version of Live 8 to Cardiff's Bute Park.

HD pictures are, by default, widescreen and there are two resolutions that are commonly used, these are 1920x1080 and 1280x720. The 1920x1080 broadcasts are interlaced if broadcast at 50 or 60 fields a second or progressive if broadcast at 30 frames a second or less. With progressive broadcasting an entire frame is transmitted at a time rather than just the odd or even lines. The 1280x720 format only supports progressive transmission at either 50 or 60 fields a second. The formats are named after their resolution, interlace type and scan rate, so the format that uses 1920x180 with interlaced fields at 60 fields a second is called 1080i60 and the one that uses 1280x720 with progressive fields and 50 frames a second is 720p50.

Unlike SD there are no geographic rules as to where the different systems will be used, for example in the UK the BBC are believed to prefer 720p because it gives better performance for live action, due to it being progressive so there is no chance of objects changing position between the two fields of a frame, whereas Sky will be using both 720p and 1080i.

## HD Recording Formats

There are two HD recording formats currently available, HDV and DVCAM. The HDV format uses MPEG-2 compression on standard DV or mini DV cassettes and has a frame size of either 1280x720 or 1440x1080 at 25/50 or 30/60 fields per second and tends to be used in more affordable cameras. Although the larger of these two frame sizes is less than the 1080i standard Sony HDV cameras use wide ratio pixels on their imagers so their output covers the same area as 1920x1080 would do. VC have a variant of HDV called ProHD which adds 720p at 24 frames a second, which is ideal for

transferring the video to film as film works at 24 frames, and uses whole frames at a time.

HDCAM is an HD version of Digital Betacam which uses the same frame formats and rates as HDV, with higher quality due to using different compression schemes, but adds 24 and 23.976 frame per second modes and tends to be used for broadcast work. The HDCAM SR variant is capable of capturing a full 1920x1080 frame at 24 frames a second and tends to be used for digital cinema.

## Within the reach of mortals

Prior to this year HD video recording and editing equipment was the preserve of TV studios and broadcasters due to the cost of the equipment and software involved. However, as with SD digital video before it, HD is now becoming a cost-effective option for both small businesses and consumers with the launch of cheaper camcorders and the release of software such as iMovie HD and Final Cut Pro 5.

Two such camcorders are the Sony HDR-FX1E and the JVC GY-HD100E

### Sony HDR-FX1E

The Sony HDR-FX1E is an HDV format camera featuring a 3 1/3" 16:9 Advanced HAD™ CCD system, 12x Carl Zeiss®, Vario-Sonar®, T\* lens, Super



SteadyShot®, Optical® Stabilisation System and a 3.5" Wide Precision Hybrid SwivelScreen™ LCD Display. The camcorder also offers manual control over zoom, focus and iris and can record in both HDV and DV formats.

**SONDFX1E  
SONY HDR-FX1E HIGH  
DEFINITION DIGITAL  
CAMCORDER - £ 2082.00**



### JVC GY-HD100E

The JVC GY-HD100E is an HDV format camcorder which also uses JVC's ProHD to give 720p24 recording for eventual transfer to film. The camera has professional features such as interchangeable lenses, mechanical stops on the zoom, focus and iris controls, twin XLRs for audio and optional recording direct to hard disk. Camera set-up positions can be memorised on SD card to ensure consistency

**JVCHD100  
JVC GY-HD100E DIGITAL  
CAMCORDER - £ 3284.00**