

XDCAMEX

Format, Compression, Workflow

Details



- The XDCAM family
- Resolution...
- Sensor...
- Frame Rate...
- Overcrank...
- Compression & Datarate...
- Format & Recording Media...
- Workflow...

XDCAM EX

XDCAM Family



XDCAM™
Professional Disc System

Standard Definition 720x576 4:2:0

XDCAM HD
Professional Disc System

High Definition 1440x1080 4:2:0

MPEG HD422

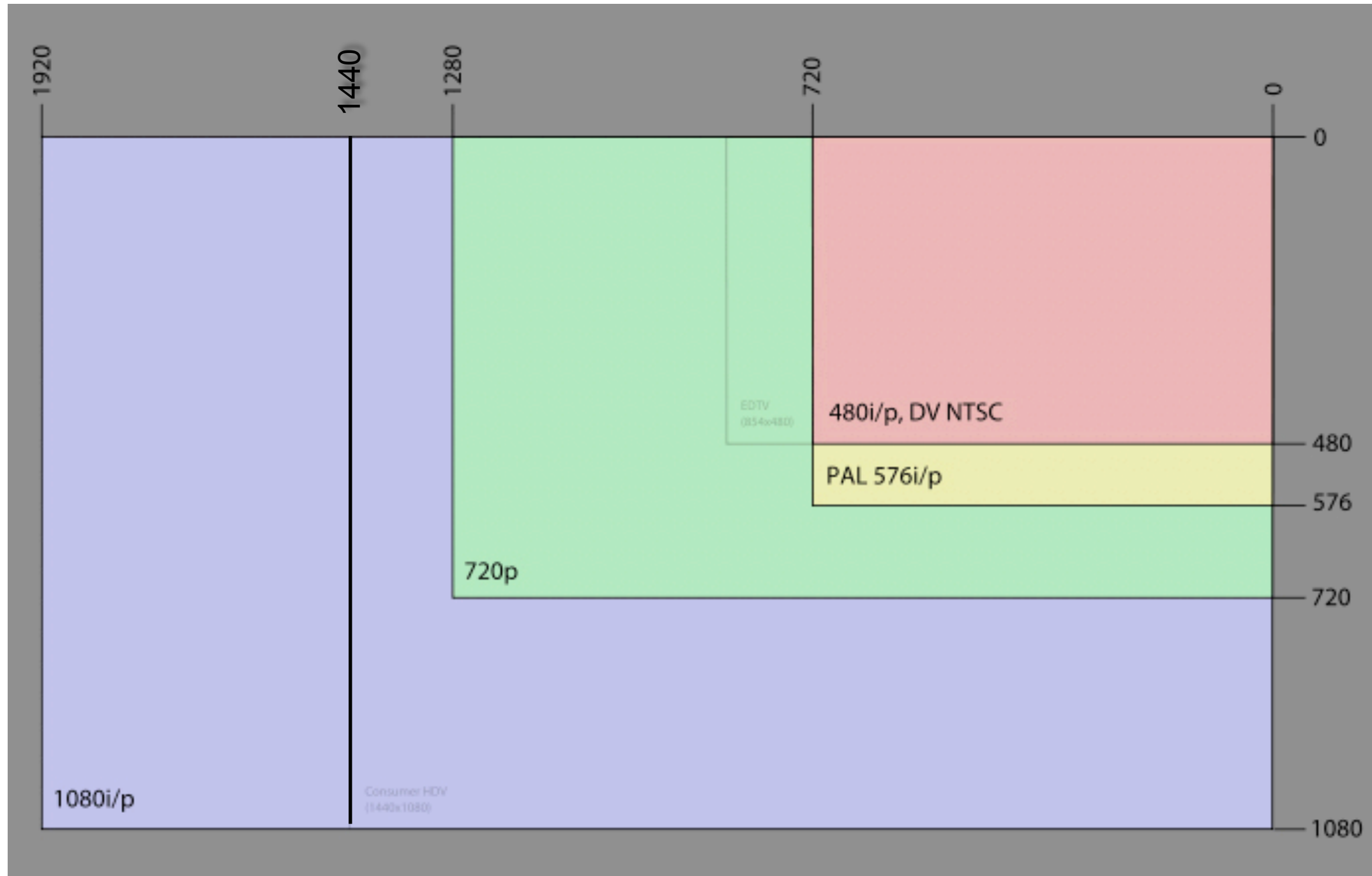
High Definition 1920x1080 4:2:2
1280x720



XDCAM EX

High Definition 1920x1080 4:2:0
1280x720

Resolution



HDV=
1280x720 Sq pixels
1440x1080 PAR 1.333:1

XDCAM EX=
1280x720 Sq pixels
1920x1080 Sq Pixels

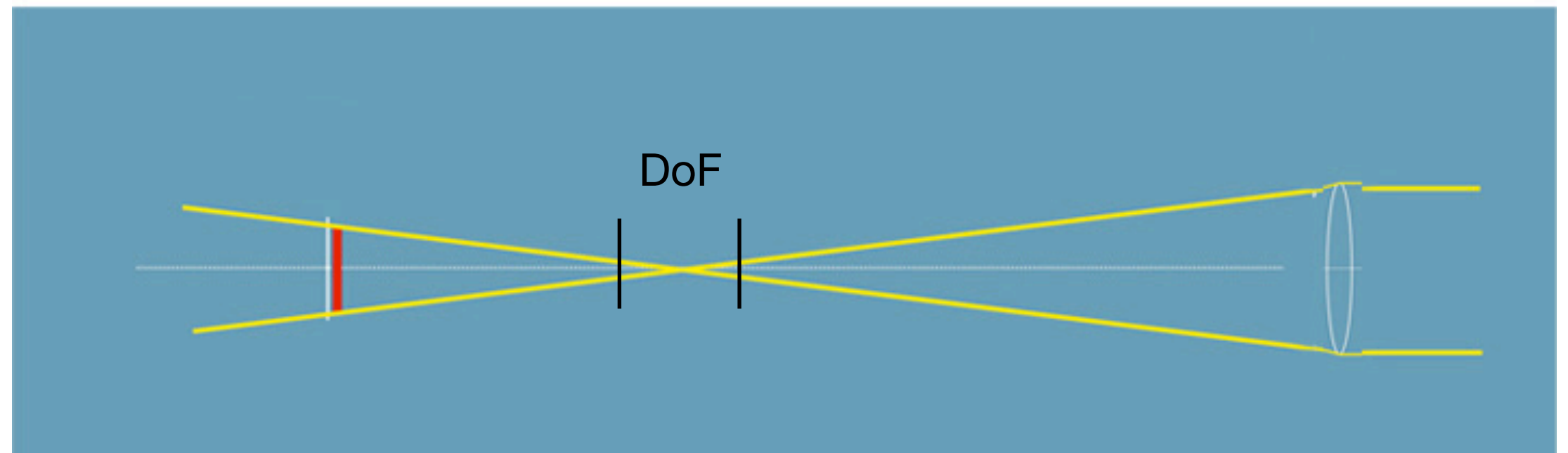
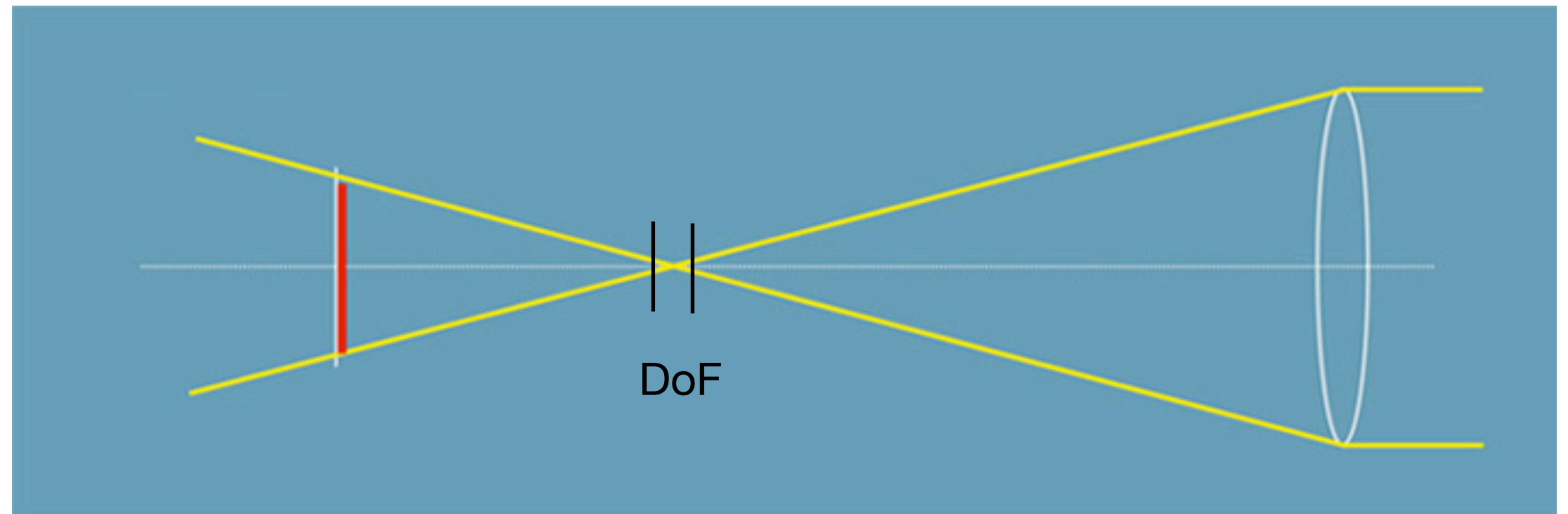
Sensor



The relationship between sensor size and Depth-of-Field

Focus occurs where the where the convergence is narrowest.

Larger sensors and more open apertures create broader angles of convergence and so shallower depth-of-field.



EX1 = 3x 1/2" CMOS sensors
1920x1080 effective photosites on each sensor

Frame Rate



1920x1080 =
30p, 25p, 24p, 60i, 50i,
(overcrank slo-mo max=30p)

1280x720 =
60p, 50p, 30p, 25p, 24p
(overcrank slo-mo max=60p)

30p is almost always 29.97fps to match the American NTSC format.

24p (matching traditional film 24fps) is popular in NTSC countries to avoid the overly smooth/video look of 29.97fps.

In PAL countries 25p and 24p are visually identical so 24p is rarely used.

50p/60p is common for high-end broadcasting and creates ultra-sharp images with little motion-blur.

720p50 is a common HD broadcast standard in Europe and the BBC's recommended shooting mode for the EX1.

Fast Frame-Rates and Over-crank



What is the difference between Shooting 50p and Over-cranking 50fps...?

What is the aesthetic difference between 50p and 25p...?

How is light, shutter and exposure effected by 50p and over-crank?

Fast Frame-Rates and Over-crank



<p>What is the difference between Shooting 50p and Over-cranking 50fps...?</p>	<p>50p is a base shooting mode taking frames at twice the frequency of 25p.</p> <p>Over-cranking is slo-motion shooting by increasing the frame rate in bursts Over the base shooting mode.</p>
<p>What is the aesthetic difference between 50p and 25p...?</p>	<p>50p has twice the frequency than 25p and so has significantly less motion-blur and sharper images,</p>
<p>How is light, shutter and exposure effected by 50p and over-crank?</p>	<p>Faster frame-rates by either shooting mode or over-crank expose each frame for a shorter increment of time. As such they require greater light levels to maintain exposure.</p>

Colour



XDCAMEX is 4:2:0 but that doesn't tell the whole story...

The effectiveness of the Colour Sub-Sampling is relative to the number of photo-sites on the sensor and the resolution of the image.

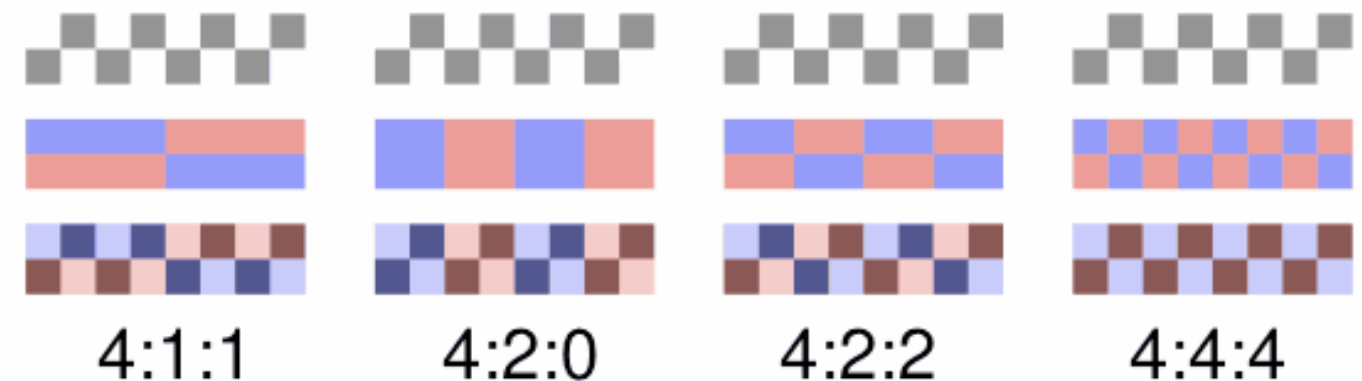
The EX1 has:

1920x1080 effective photosites to produce a native resolution of 1920x1080.

No up-sampling or pixel shifting. 1-1 pixels from the sensor.

Other comparable cameras that have higher (4:2:2) colour sampling (such as Panasonic HVX) have far fewer photosites - 960x540 and so actually lower colour re-production.

What the EX1 lacks in colour sampling it more than makes up by its native resolution



Format and Recording Media



SxS Memory Cards

Express Card 3/4 slot connection
- *found on many laptops*

USB connection direct from camera

Fast 1/4 time transfer
- *full 8gb card of 25mins takes 7mins to transfer to computer*

Uses *.MP4 file format on card



Workflow



**Final Cut Pro CANNOT read XDCAMEX MP4 files natively
They must be Re-Wrapped to QuickTime MOV**

Workflow ingest steps:

- 1) Copy BPAV folders to hard-drive
(do not change or rename any files in the BPAV folder or the BPAV folder itself)
- 2) Use Sony XDCAM Transfer software to browse, annotate and copy clips
(this process will re-wrap the MP4 files into MOV)
- 3) Archive source BPAV folders as back-up
- 4) Start new FCP project using appropriate XDCAMEX sequence preset
- 5) Import MOV wrapped XDCAMEX files

Pros + Cons



PROS:

Full-Raster HD (no anamorphic stretch)

Higher data rate/Lower compression than HDV

1/2" image sensors (better low-light, greater detail)

Native 1920x1080 photosites on sensor

(no up-sampling)

Over cranking - slo-mo shooting

Tapeless workflow with fast transfers

Best lens ever put on a fixed-lens camera

Cards hot-swappable for continuous shooting

Shoots all flavours of HD

(1080, 720, 24, 25, 30, 50, 60fps)

Superb LCD viewfinder

(extremely sharp and so bright it can be used in daylight)

CONS:

Short record times (25mins per card)

No tape shiftable master backup

Need to manage files on-set

Very complex camera menu system

Resources



XDCAMEX Software Downloads:

<http://pro.sony.com/bbsc/ssr/micro-xdcamexsite/resource.downloads>

EXI Shooting Tips

<http://www.sony.ca/xdcamex/tips.htm>

Excellent and detailed article about the EXI

<http://www.dvuser.co.uk/content.php?CID=171>