VIDEOTAPE FORMATS

There are two types of videotape formats: analog and digital. Many of the digital specifications listed here cannot be applied to analog formats -- it's a case of comoparing apples and oranges. Here's a brief summary of the significance of the more obscure specifications listed in this appendix:

Scanning system: different head systems mean that the data is recorded in a different pattern on the tape.
Data rate: For digital formats, the higher the data rate, the higher the image quality.
Color sampling: The "uncompressed" ratio of 4:2:2 is considered ideal.
Color depth: The more bits, the more information, and the better the color representation.
Interlace or progressive scan: Interlaced means two fields; progressive means no fields.
Tape speed: The faster the tape speed, the more space there is to record data, and the better the quality of the recording.
Tape width: Wider tapes are more physically stable.

What follows is a list of most of the existing videotape formats on the market.

VHS

Introduced: 1976
Developer: JVC
Format Type: Analog composite
Scanning system: Not applicable
Data rate: Not applicable
Color sampling: N/A - analog composite
Color depth: N/A
Compression: N/A
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: N/A
Timecode tracks: None
Longest tape length: 8 hours (EP)
Tape speed: SP - 1.3 inches per second (ips); LP - .66 ips; EP - .44 ips
Tape width: 1/2"
Video tracks: One
Audio tracks: Two longitudinal; two AFM

S-VHS

Introduced: 1987
Developer: JVC
Format Type: Analog S-video
Scanning system: Two-head helical
Data rate: N/A
Color sampling: N/A - anlog s-video
Color depth: N/A
Compression: N/A
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: N/A
Timecode tracks: None
Longest tape length: 120 minutes
Tape speed: 1.3 ips
Tape width: 1/2"
Video tracks: One
Audio tracks: 2 longitudinal; two AFM
Digital Audio tracks: Two @ 48 kHz; four @ 32 kHz

HI-8

Introduced: 1989
Developer: Several
Format Type: Analog composite
Scanning system: Two-head helical
Data rate: N/A
Color sampling: N/A - analog composite
Color depth: N/A
Compression: N/A
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: N/A
Timecode tracks: Recorded on video tracks
Longest tape length: 120 minutes
Tape speed: .57 in/second
Tape width: 8mm
Video tracks: One
Audio tracks: Two AFM
Digital Audio tracks: Two @ 48 kHz; four @ 32kHz

DIGITAL 8

Introduced: 1999
Developer: Sony and others
Format Type: Digital
Scanning system: 2-head helical
Data rate: 25 Mb/sec
Color sampling: 4:1:1
Compression: DV-based
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: Nonsquare
Timecode tracks: None
Longest tape length: 120 minutes
Tape width: 8mm
Video tracks: One
Audio tracks: Two AFM
Digital Audio tracks: Two 32 kHz

DV

Introduced: 1996
Developer: EIAJ
Format Type: Digital component
Scanning system: Multihead helical
Data rate: 25 Mb/sec
Color sampling: 4:1:!
Color depth: 8 bits
Compression: DCT-based
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: Nonsquare
Timecode tracks: Yes
Longest tape length: 210 minutes
Tape speed: 18.831 mm/sec
Tape width: 6.35mm (1/4")
Video tracks: One
Digital Audio tracks: Two @ 16 bits/48 kHz; 4 @ 12 bit/32kHz

DVCAM

Introduced: 1996
Developer: Sony
Format Type: Digital component
Scanning system: Two-head helical

Data rate: 25 Mb/sec
Color sampling: 4:1:1
Color depth: 8 bits
Compression: DCT/DV intraframe
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: Nonsquare
Timecode tracks: Longitudinal and VITC
Longest tape length: 210 minutes
Tape speed: 33.85 mm/sec
Tape width: 6.35 mm (1/4")
Video tracks: One
Audio tracks: One longitudinal cue track
Digital Audio tracks: 2 @ 16 bit/48kHz; 4 @ 12 bit/32 kHz

DVCPRO

Introduced: 1995
Developer: Panasonic
Format Type: Digital component
Scanning system: Multihead helical
Data rate: 25 Mb/sec
Color sampling: 4:1:1
Color depth: 8 bits
Compression: DCT/DV Intraframe
Interlace or progressive scan: Interlaced
Square or nonsquare pixels: Nonsquare
Timecode tracks: Longitudinal and VITC
Longest tape length: 210 Minutes
Tape speed: 33.85 mm/sec
Tape width: 6.35 mm (1/4")
Video tracks: One
Audio tracks: One longitudinal cue track
Digital Audio tracks: 2 @ 16 bit/48 kHz; 4 @ 12 bit/32 kHz


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