



Tape Formats, Bit Depths, Data Rates & Storage Requirements

A very common question that surfaces on the Creative Cow forums is one that deals with formats, data rates and storage requirements. So thanks to our friends at Creative Media Partners (www.creativemediapartners.net) in Burbank, California, who have compiled the information below, we'd like to offer it for use by our members....

Name	Compression	Data Rate Mbps	Bits per Sample	Sampling Ratio
D1 - SD (Sony)	Not Compressed	270	8	4:2:2
D2 - SD (Sony/Ampex)	Not Compressed	143	8	4:2:2:4
D3 - SD (Panasonic)	Not Compressed	143	8	4:0:0
D5 - HD (Panasonic)	Compressed: 5:1	270	10	4:2:2
D6 - HD (Thomson)	Not Compressed	1500	8 — 10 for Y channel	4:2:2
D7 - SD (DVC Pro — Panasonic, Philips, Ikegami)	Intraframe: 5:1	25	8	4:1:1
D9 - SD (Digital S JVC)	Intraframe: 3.3:1	50	8	4:2:2
D9 - HD (Digital S JVC)	Intraframe: 6.6:1	100	8	4:2:2
D10 - SD	Intraframe: 3.3:1	50	8	4:2:2
HDCAM SR (Sony)	Compressed: 2.7:1; 4:1	440	10	4:2:2; 4:4:4
HDCAM (Sony)	Compressed: 4:4:1	135	8	4:2:2
DVC PRO HD	Intraframe: 6.7:1	100	8	4:2:2
Digital Betacam - SD (Sony)	Compressed: 2:1	90	10	4:2:2
MPEG IMX - SD (Sony)	Intraframe: 3.3:1	50	8	4:2:2
DVC Pro 50 (Panasonic)	Intraframe: 3.3:1	50	8	4:2:2
Betacam SX (Sony)	Interframe: 5:1	18	8	4:2:2
DV/HDV	Intraframe: 5:1	25	8	4:1:1 NTSC, 4:2:0 PAL
Digital 8 (Sony, Hitachi)	Intraframe: 5:1	25	8	4:1:1 NTSC, 4:2:0 PAL
DVCAM (Sony)	Intraframe: 5:1	25	8	4:1:1 NTSC, 4:2:0 PAL

Resolution	Frames Per Second	Bits Per Sample	Sample Rate	Storage Per Minute	Storage Per Hour
4K (4096x3112) Film	24	10	4:4:4	102.57 GB	6.15 TB
2K (2048x1536) Film	24	10	4:4:4	17 GB	1.02 TB
1920x1080i HD	29.97	10	4:4:4	14 GB	840 GB
1920x1080i HD	29.97	10	4:2:2	9.3 GB	560 GB
1280x720p HD	59.94	10	4:2:2	8.3 GB	498 GB
1920x1080p HD	23.976	10	4:2:2	7.4 GB	448 GB
1920x1080i HD	23.97	8	4:2:2	7.3 GB	439 GB
1280x720p HD	59.94	8	4:2:2	6.3 GB	376 GB
1920x1080i DNxHD 220 (Avid)	29.97	10 or 8	4:2:2	1.6 GB	100 GB
1280x720p DNxHD 220 (Avid)	59.94	10 or 8	4:2:2	1.6 GB	100 GB
1920x1080p DNxHD 220 (Avid)	23.976	10 or 8	4:2:2	1.3 GB	79 GB
1920x1080i DNxHD 145 (Avid)	29.97	8	4:2:2	.93 GB	56 GB
720x486 SD 1:1	29.97	10	4:2:2	1.5 GB	91 GB
720x486 SD 1:1	29.97	8	4:2:2	1.2 GB	72 GB
Sony IMX MPEG2	29.97	8	4:2:0	375 MB	22.5 GB
HDV	29.97	8	4:1:1	187 MB	11.25 GB
DV 50	29.97	8	4:2:2	375 MB	22.5 GB
DV 25	29.97	8	4:1:1	187.6 MB	11.25 GB
48.1 Khz Audio	8 tracks	16		46.1 MB	2.8 GB
96 Khz Audio	8 tracks	24		138 MB	