HP Flexible Disk Formats

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Nomenclature

- 0.5 MB media is typically 250…360 KB formatted (SS/DD)
- 1.0 MB media is typically 600…720 KB formatted (DS/DD)
- 2.0 MB media is typically 1.20…1.44 MB formatted (HD)

Product	0.5-Mbyte Media	1.0-Mbyte Media	2.0-Mbyte Media
HP 9122D/S	E	D	N
HP 9122C	E/2	D/2	D
HP 9123D	E/2	D	N
HP 9133D/H/L	E	D	N
HP 9153C	E/2	D/2	D

D = Recommended for daily use.
D/2 = Recommended for daily use; data transferred at one-half the normal rate.
E = Recommended for data exchange only.
E/2 = Recommended for data exchange only; data transferred at one-half the normal rate.
N = Never use; product unable to identify 2-Mbyte media.

Table 1: Flexible Disk Media Usage as Recommended by HP.

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity
HP	256	30	67	1	2010	514'560

Table 2: Format Data, HP 9885M, 9885S, 8-inch SS/DD media. For 9800 Series, 21MX and similar machines.

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity
HP	256	30	77	2	4620	1'182'720
IBM	128	26	77	1	2002	256'256

Table 3: Format Data, HP 9895A, 8-inch SS/DD media. For 9800 Series and similar machines.

Format	Bytes/Sector	Sectors	Tracks/Side	Sides	Sectors	Capacity
INITIALIZE	256	16	70 (−4 = 66) [*]	1	1120 (1056)	286'720 (270'336)

[*] The HP format uses 4 spare tracks so that 66 remain. The values given for Sectors and Capacity are for the complete disk, values in parentheses subtract these spare tracks and represent the true available capacity.

Table 4: Format Data, HP 85, with 9121S, 9121D, 9133A disk drive, 3½-inch DD media.

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity	Typical
0,1	256	16	77 (−2 = 75) [*]	2	2464 (2400)	630'784 (614'400)	9000/200
2	512	9	77 (−2 = 75) [*]	2	1386 (1350)	709'632 (691'200)	HP 150
3	1024	5	77 (−2 = 75) [*]	2	770 (750)	788'480 (768'000)	
4 [**]	256	16	70 (−4 = 66) [*]	1	1120 (1056)	286'720 (270'336)	
16	512	9	80	2	1440	737'280	

[*] The HP format uses 2 per side (resp. 4 spare tracks for single sided disks) so that 66 resp. 75 remain. The values given for Sectors and Capacity are for the complete disk, values in parentheses subtract these spare tracks and represent the true available capacity.
[**] Option 4 can be used to format single-sided 0.5-Mbyte media as well as double-sided 1-Mbyte media.
If a 1-Mbyte disk is formatted with Option 4 only one side of the disk will be formatted. Option 4 is also produced by the INITIALIZE command of the HP-85.

Table 5: Format Data: HP 9122C, 9122D/S, 9123D, 9133D/H/L, 9153A/B/C, 3½-inch DD media,

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity
0,1,4	256	32	77 (−2 = 75) [*]	2	4928 (4800)	1'261'568 (1'228'800)

2	512	18	77 (−2 = 75)[*]	2	2000 (2700)	1'419'264 (1'382'400)
3	1024	10	77 (−2 = 75)[*]	2	1540 (1500)	1'576'960 (1'536'000)
16	512	18	80	2	2880	1'474'560

[*] HP format uses 2 spare tracks per side resp. 4 for single sided disks. The values given for Sectors and Capacity are for the complete disk, values in parentheses subtract these spare tracks and represent the true available capacity.

Table 6: Format Data, HP 9122C and 9153C, 3½-inch 2 MB (HD) media.

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity
	256	16	35 (−2 = 33)[*]	2	1120 (1056)	286'720 (270'336)

[*] HP format uses 2 spare tracks per side so that 33 remain. The values given for Sectors and Capacity are for the complete disk, values in parentheses subtract these spare tracks and represent the true available capacity. Sector IDs are from 0 to 15.

Table 7: Format Data, HP 82901M, 82902M, 9130A, and 9135A, 5¼-inch DD media

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity
1[*]	256	16	35 (−2 = 33)[***]	2	1120 (1056)	286720 (270'336)
2[*,**]	512	9	40	2	720	368'640
3[*]	1024	5	37	2	370	378'880
4[*,**]	512	8	40	1	320	163'840
5[*,**]	512	9	40	1	360	184'320
6[*,**]	512	8	40	2	640	327'680

[*] Formatting 5¼ inch media only.
[**] IBM compatible format.
[***] HP format uses 2 spare tracks per side so that 33 remain. The values given for Sectors and Capacity are for the complete disk, values in parentheses subtract these spare tracks and represent the true available capacity.

Table 8: Format Data, HP 9125S and 9127A, 5¼-inch DD media

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity	Media Byte
1[*,**]	256	16	80	1	1280	327'680	
2[*,**]	512	9	80	1	720	368'640	
3[*,**]	1024		80	1			
4[*,**]	256	16	80	2	2560	655'360	
5[*,**]	512	9	80	2	1440	737'280	F9
6[*,**]	1024		80	2			

[*] Formatting 3½ inch media only.
[**] IBM compatible format.

Table 9: Format Data, HP 9144, HP-150, MS-DOS, IBM-PC compatibility, 3½-inch DD media.

Format	Bytes/Sector	Sectors/Track	Tracks/Side	Sides	Sectors	Capacity	Available
FORMAT /W	256	16	77	1	1232	315'392	264'192
FORMAT /X	256	16	77	2	2464	630'784	618'496
FORMAT /Y[*]	512	9	80	2	1440	737'280	700'416
FORMAT /Z	1024	5	77	2	770	788'480	780'288

[*] This format can be read by "modern" (2015) HD floppy drives (normally used with 1.44 MB disks) and is therefore suitable for data exchange. Works e.g., with external USB floppy drives. Of course, the disk must be DS/DD, 720 KB, not HD 1.44 MB. It is recommended to format such DS/DD disks on low capacity 720 KB drives (not on HD drives).

Table 10: Format Data, HP 110 with 9114B disk drive, 3½-inch DD media.

Notes:

- Number of Sectors / Disk = Sectors/Track * Tracks/Surface * Surfaces/Disk
- Capacity denotes nominal, unformatted disk capacity in Bytes.
- Depending on the file system, volume and directory entries or file allocation tables reduce the capacity available for actual data.
- Tracks/Side is also called Cylinders

HP Model	Drive Manufacturer	Drive Model	Heads	RPM	Mode	Tracks/Surface	Command Set
9121D, S	SONY	OA-D30V-1 OA-D31V-1 OA-D31V-14	1	600	MFM	70	AMIGO
9122D, S	SONY	OA-D32W-10 OA-D32W-11	2	600	MFM	80	SS/80
9122C	SONY(?)		2	300	MFM	80	SS/80
9133A, B	SONY	OA-D31V-??	1	600	MFM	70	SS/80
9133V, XV	SONY	OA-D31V-??	1	600	MFM	70	AMIGO
9133D, H, L	SONY	OA-D32W-10 OA-D32W-11	2	600	MFM	80	SS/80
9114A, B	SONY	OA-D32W-10 OA-D32W-11	2	600	MFM	80	SS/80
9153A	SONY	OA-D32W-10 OA-D32W-11	2	600	MFM	80	SS/80
9153A	SONY		2	300	MFM	80	SS/80
82901M/S	Tandon	TM-100-2A	2	300	MFM	35	AMIGO
82902M/S	Tandon	TM-100-2A	2	300	MFM	35	AMIGO
9885M/S			1	360	MFM	67	SS/80
9895A			2	360	MFM	77	AMIGO
13272	Tandon	TM-100-2A(?)	1	300	MFM	35	SS/80
64110A	Tandon	TM-100-2A(?)	1	300	MFM	35	SS/80
64100B	Tandon	TM-100-2A(?)	1	300	MFM	35	SS/80
9130A/K	Tandon	TM-100-2A	2	300	MFM	35	
9135A	Tandon	TM-100-2A	2	300	MFM	35	SS/80
9126	Tandon	TM-100-2A(?)	1	300	MFM	35	
9836	Tandon	TM-100-2A (?)	1	300	MFM	35	

Table 11: Floppy Disk Drive Hardware.