

General Information

USB			
USB Standards	1.0	Y	
	1.1	Y	
	2.0	Y	
	3.0	N	
File systems	FAT 16 (standard)	N	
	FAT 32	Y	
	exFAT	N	
	NTFS	N	
	HPFS	N	
	ext2, ext3, ext4	N	
USB speed classifications	Low_Speed, 1,5 Mbit/s (187,5 KB/s)	Y	
	Full_Speed, 12 Mbit/s (1.5 MB/s)	Y	
	High_Speed, 480 Mbit (60MB/s)	Y	
	Super_Speed, 5 Gbit/s (625 MB/s)	N	
USB power management	Operating-Power Mode, power unit can supply constancy for any connected device	Y	400mA



SD			
SD standards	SD standard	Y	
	SDHC	Y	up to 32GB
	SDXC	N	
File systems	FAT 16 (standard)	N	
	FAT 32	Y	
	exFAT	N	
	NTFS	N	
	HPFS	N	
	ext2, ext3, ext4	N	
SD card speed classifications	Class 2, 16 Mbit/s (2MB/s)	Y	
	Class 4, 32 Mbit/s (4MB/S)	Y	
	Class 6, 48 Mbit/s (6MB/s)	Y	
	Class 10, 80 Mbit/s (10MB/s)	N	



General Information

Apple portable player			
iPod Nano	1G	Y	AC/LF
	2G	Y	AC/LF
	3G	Y	AC/V/LF
	4G	Y	AC/V/LF
iPod	5G (Video)	Y	AC/V/LF
	6G (Classic)	Y	AC/V/LF
iPod Touch	1G	Y	AC/VC/LF
	2G	Y	AC/VC/LF
	3G	Y	AC/VC/LF
iPhone	1G	Y	AC/VC/LF
	3G	Y	AC/VC/LF
	3GS	Y	AC/VC/LF
	4G	Y	
iPad	16GB WiFi	N	
	32GB WiFi	N	
	64GB WiFi	N	
	16GB WiFi + 3G	N	
	32GB WiFi + 3G	N	
	64GB WiFi + 3G	N	






AC	Audi control via touchscreen
VC	Video control via touchscre
V	Video without touchscreen control
LF	(Battery) Loading function
NL	No loading function





Disc loader			
Disc type	CD	Y	
	CD-R	Y	
	CD-R/RW	Y	
	DVD	Y	
	DVD+R	Y	
	DVD-R	Y	
	DVD+R/RW	Y	
	DVD-R/RW	Y	
	DVD-RAM	N	
	DVD-DL	Y	
	Mini-CD	N	
	HD-DVD	N	
	Blu-ray Disc	N	



File allocation limitations

File allocation limitations			
Source	USB 2.0 	SD 	CD/DVD 
Max. number of total files on Device	20000	20000	1500
Max. number files per folder	255	255	255
Max. number of folders	512	512	512
Max. number of stacked folder layers	8	8	8
Max. supported single file size AUDIO	2GB	2GB	1GB
Max. supported single file size VIDEO	4GB	4GB	4GB
guaranteed supported size of Massstorage Device	8GB	8GB	4.5GB
Max. charaters for filename	255	255	255
Max. character for foldername	255	255	255

Supported AUDIO formats

Compatibility with digital audio files				
Source	USB 	SD 	CD/DVD 	iPod 
MP3 (MPEG-1 Audio Layer 3)	Y	Y	Y	by iPod
WAV (Waveform Audio File Format)	Y	Y	N	by iPod
WMA (Windows Media Audio)	Y	Y	Y	by iPod
AAC (Advanced Audio Coding)	Y	Y	N	by iPod
OGG (Vobis)	Y	Y	N	by iPod
A/52 & AC3 ATSC (Dolby Digital - Advanced Television System Committee)	N	N	Y	by iPod
FLAC (Free Lossless Audio Codec)	N	N	N	by iPod
ALAC (Apple Loss Audio Codec)	N	N	N	by iPod
MAC (Monkey's Audio Codec)	N	N	N	by iPod
ATRAC /ATRAC 3 (Adaptive Transform)	N	N	N	by iPod
AIFF (AUDIO Interchange File Format)	N	N	N	by iPod
RA (Real Audio)	N	N	N	by iPod

Extended compatibility USB & SD							
MP3		Bit Rate	32/320	kbps (MIN/MAX)			
		Variable Bit Rate	Y				
		Sampling Frequency	32/48	kHz (MIN/MAX)			
		Joint Stereo	Y				
		DRM files	N				
	ID3 Tag Version		<2.3	V2.3	V2.4		
	Text encoding		UTF 8	N/A	N	Y	
			UTF 16 LE	N/A	Y	Y	
			UTF 16 BE	N/A	Y	Y	
			ASCII	N/A	N/A	N/A	
			ASCII ISO 8859	N/A	N/A	N/A	
			CD Text (ISO 8859-1)	N/A	N/A	N/A	

Supported AUDIO formats

WMA		Bit Rate	64/192	kbps (MIN/MAX)	
		Variable Bit Rate	Y		
		Sampling Frequency	32/48	kHz (MIN/MAX)	
		Multi Channel	N		
		Professional	N		
		Lossless	Y		
		Voices	N		
		DRM files	N		
	ID3 Tag Version		<2.3	V2.3	V2.4
	Text encoding	UTF 8	N/A	N	Y
		UTF 16 LE	N/A	Y	Y
		UTF 16 BE	N/A	Y	Y
		ASCII	N/A	N/A	N/A
ASCII ISO 8859		N/A	N/A	N/A	
CD Text (ISO 8859-1)		N/A	N/A	N/A	

AAC		Variable Bitrate	16/320	kbps (MIN/MAX)	
		Sampling Frequency	32/48		
		.m4a	Y	kHz (MIN/MAX)	
		.m4p	N		
		DRM files	N		
		2 Channel (Stereo)	Y		
		Multi Channel	N		
		Album art	Y		
	ID3 Tag Version		<2.3	V2.3	V2.4
	Text encoding	UTF 8	N/A	N	Y
		UTF 16 LE	N/A	Y	Y
		UTF 16 BE	N/A	Y	Y
		ASCII	N/A	N/A	N/A
ASCII ISO 8859		N/A	N/A	N/A	
CD Text (ISO 8859-1)		N/A	N/A	N/A	

Supported AUDIO formats





Extended compatibility--Disc					
MP3		Bit Rate	32/320	kbps (MIN/MAX)	
		Variable Bit Rate	Y		
		Sampling Frequency	32/44.1/48	kHz (MIN/MAX)	
		Joint Stereo	Y		
		DRM files	N		
		ID3 Tag Version	<2.3	V2.3	V2.4
	Text encoding	UTF 8	N/A	N	Y
		UTF 16 LE	N/A	Y	Y
		UTF 16 BE	N/A	Y	Y
		ASCII	N/A	N/A	N/A
		ASCII ISO 8859	N/A	N/A	N/A
		CD Text (ISO 8859-1)	N/A	N/A	N/A

WMA		Bit Rate	64/192	kbps (MIN/MAX)	
		Variable Bit Rate	Y		
		Sampling Frequency	32/44.1/48	kHz (MIN/MAX)	
		Multi Channel	N		
		Professional	N		
		Lossless	N		
		Voices	N		
		DRM files	N		
		ID3 Tag Version	<2.3	V2.3	V2.4
	Text encoding	UTF 8	N/A	N	Y
		UTF 16 LE	N/A	Y	Y
		UTF 16 BE	N/A	Y	Y
ASCII		N/A	N/A	N/A	
ASCII ISO 8859		N/A	N/A	N/A	
CD Text (ISO 8859-1)		N/A	N/A	N/A	

Supported AUDIO formats

AAC		Variable Bitrate	N	kbps (MIN/MAX)		
		Sampling Frequency	N			
		.m4a	N	kHz (MIN/MAX)		
		.m4p	N			
		DRM files	N			
		2 Channel (Stereo)	N			
		Multi Channel	N			
		Album art	N			
	ID3 Tag Version		<2.3	V2.3	V2.4	
	Text encoding	UTF 8	N	N	N	
		UTF 16 LE	N	N	N	
		UTF 16 BE	N	N	N	
		ASCII	N	N	N	
		ASCII ISO 8859	N	N	N	
CD Text (ISO 8859-1)		N	N	N		

Supported VIDEO/ pic formats

Compatibility with digital video and picture files						
Source	USB 	SD 	CD/DVD 	iPod 	limitations	
.cda	N	N	Y	by iPod		
.amc	N	N	N	by iPod		
.asf	Y	Y	N	by iPod		X
.avi	Y	Y	Y	by iPod		X
.bin	N	N	N	by iPod		
.dat	N	N	N	by iPod		
.dif	N	N	N	by iPod		
.div	Y	Y	Y	by iPod		X
.divx	Y	Y	Y	by iPod		X
.dmv	N	N	N	by iPod		
.dvx	N	N	N	by iPod		
.gvi	N	N	N	by iPod		
.m2v	N	N	N	by iPod		
.m4a	Y	Y	N	by iPod		
.m4b	N	N	N	by iPod		
.m4p	N	N	N	by iPod		
.m4v	Y	Y	N	by iPod		
.mka	N	N	N	by iPod		
.mkv	N	N	N	by iPod		
.mk3d	N	N	N	by iPod		
.mov	N	N	N	by iPod		
.mp4	Y	Y	N	by iPod		X
.mp4v	Y	Y	N	by iPod		X
.mpg	Y	Y	Y	by iPod		X
.mpeg	Y	Y	Y	by iPod		X
.mpeg1	Y	Y	Y	by iPod		X
.mpeg2	Y	Y	Y	by iPod		X
.mpeg4	Y	Y	N	by iPod		X
.ogv	N	N	N	by iPod		
.qt	N	N	N	by iPod		
.vob	N	N	N	by iPod		
.wav	Y	Y	N	by iPod		X
.xvid	N	N	Y	by iPod		
.png	Y	Y	N	by iPod		
.img	N	N	N	by iPod		
.gif	Y	Y	N	by iPod		
.raw	N	N	N	by iPod		
.png	Y	Y	N	by iPod		
.nef	N	N	N	by iPod		
.jpeg	Y	Y	Y	by iPod		
.jpg	Y	Y	Y	by iPod		
.bmp	Y	Y	N	by iPod		

Supported VIDEO/ pic formats

AVI	Encoded in PAL	low resolution	Y	352 x 288 (x25F)
		high resolution	Y	720 x 576 (x25F)
		other resolution	N	
	Encoded in NTSC	low resolution	Y	352 x 240 (x30F)
		high resolution	Y	720 x 480 (x30F)
		other resolution	N	

Limitation Disclaimer:

These file extensions are typical container files. Since container do not describe how data or metadata are encoded, the system might not be able to identify and decode the contained data.