



DIGITAL MEDIA PLAYERS

Digital media players have evolved to provide a wide range of applications and uses. They come in a range of shapes and sizes, use different types of memory, and support a variety of file formats. In addition, digital media players interface differently with computers as well as the user. Consideration of these variables is the key in selecting the best digital media player. In this case, one size does not fit all. This guide is intended to provide you, the consumer, with information that will assist you in making the best choice.



Key Terms

- **Digital Media Player** – a portable consumer electronic device that is capable of storing and playing digital media. The data is typically stored on a hard drive, microdrive, or flash memory.
- **Data** – information that may take the form of audio, music, images, video, photos, and other types of computer files that are stored electronically in order to be recalled by a digital media player or computer
- **Flash Memory** – a memory chip that stores data and is solid-state (no moving parts) which makes it much less likely to fail. It is generally very small (postage stamp) making it lightweight and requires very little power.
- **Hard Drive** – a type of data storage consisting of a collection of spinning platters and a roving head that reads data that is magnetically imprinted on the platters. They hold large amounts of data useful in storing large quantities of music, video, audio, photos, files, and other data.
- **Audio Format** – the file format in which music or audio is available for use on the digital media player. They include the following types: MP3 is the most common and universal; WMA (Windows Media Audio) is native to Microsoft Windows computers; and AAC (Advanced Audio Coding) is a popular iTunes/iPod format.
- **Video Format** – the file format in which video is available for use on the digital media player. The most common video formats include: WMV (Windows Media Video) is native to Windows computers; AVI (Audio Video Interleave) can be played by Windows and Mac platforms; MPG (Movie Picture Experts Group) is compatible with both Windows and Mac platforms.
- **USB** – (Universal Serial Bus) a common interface between digital media players and computers in order to transfer data, power a device or in some cases used to charge a portable device.
- **Synchronize (Sync)** – a term used to describe the process of matching computer files with your media player files to include files (audio, music, video, photos) and playlists. This is generally accomplished using a software program installed on a computer that communicates with the media player and manages the file transfer process.
- **Storage Capacity** – refers to the quantity of data a device can store in its memory. It is measure in a variety of units. The most common measure include: megabyte (1000 bytes), gigabyte (1000 megabytes); and terabyte (1000 gigabytes)
- **Software** – computer programs that are installed on the computer used to interface with and manage data on the digital media player.
- **Playback time** – the amount of time a digital media player can operate on one fully charged set of batteries. Batteries may be disposable or rechargeable.

Choosing the Best Digital Media Player

There are basically two types of players: flash and hard drive. They differ in the amount of data (music, video, photos, etc.) you can store on them, their price range, their size, their durability, battery life and much more. Use the following Quick Guide when selecting the best player for your needs. However, once you begin to narrow your search, don't overlook some of the important considerations listed below. They will all play a valuable role in helping you select the best player for you while helping you find value and utility in your selection.



Quick Guide	 Flash	 Hard drive
Storage capacity	Range: 2 GB (40 CDs) to 64 GB (1280 CDs)	Range: 16 GB (320 CDs) to 250 GB (5000 CDs)
Price Range	As low as \$25 As high as \$350	As low as \$40 As high as \$500
Size	These range from the size of a cracker to a deck of cards. They are light and portable. This may make it easy to lose though.	These are the biggest and while easier to keep track of, they can be heavy and bulky when on the run compared to flash players.
Video	These will have smaller monochromatic screens which are easy to read. However, fewer of these have good video capabilities. You may not be able to view photos on many of these models.	Due to the size and storage capacity, many of these players offer large color screens that play videos. Photos are also an important part of these models and are easily viewed. This is not true of all players.
Travel	Not really ideal for travel unless you like listening to the same songs over and over, especially if you don't have access to a computer to change music out.	Great for travel. They can hold an extensive collection of tunes and videos to keep you entertained. If you are going to be away from your computer for an extended time, this is the ideal type for you.
Workout/Exercise	These players are ideal. They are light and hold enough music for a good workout. The music won't skip and you can clip to tuck this device just about anywhere on your body.	Not the best for workouts. They are heavier and bulkier. They may tend to skip and are overkill for your workout.
Lifestyle	Good for walks, workouts, and short commutes to school or work. Not the choice if you want a lot of variety and flexibility.	Music and video aficionados fair better with these as they complement their need for variety. Not the best choice for a quick fix.
Battery	Most have built-in rechargeable batteries. Some require AAA or AA batteries. Battery life can range from 24-36 hrs.	Primarily built-in rechargeable batteries that will last long (20-30 hrs of music) on a single charge. Longer playback time can be expected with these larger models.
User Interface	Some do not have a display making it difficult to find the song you want. Others may show a display of the current song playing. Shuffle play is an option.	Have the option to choose a CD, song, or playlist. Most allow you to create playlists

More things to Consider

While the Quick Guide does provide some valuable tools to consider when selecting a digital media player, do not overlook these important considerations when making your choice. These can dramatically affect the value and utility your player gives you. Use the guide above as well as these variables to help your make your decision.

- Computer – You will need a computer to tether your device and transfer data. While the newest computer is not necessary, you should be certain that your computer and your media player are compatible. You will likely need access to a USB port, preferably USB 2.0, to manage your data transfer. Keep in mind that there are proprietary devices, Windows-only or Mac-only.
- Software – Most players come bundled with software that will need to be installed on the computer. The software may be limited to a driver, files the computer needs to communicate with the device. However, some software includes “bonus” programs that add functionality to the interaction between your player and your computer. If you have a favorite media player like Windows Media Player, iTunes, Napster, Winamp, QuickTime, RealMedia, Musismatch, or any other program and you want to continue using that software, make sure your media player is compatible with the file formats and can sync your computer with your player.



- Storage – The two types of storage, flash and hard drive, offer different features. Flash tends to have smaller storage capacity than hard drives. However, they are better suited for active people when size and convenience are important. Always consider getting the largest storage capacity that you can afford. It is also important to note that the relative cost between flash and hard drive storage is not equal. Flash storage is generally more expensive per GB than hard drive storage. One feature related to capacity you should be aware of is that some flash-type players offer an “expansion slot” that allows the use to insert a micro-SD card to expand the players existing memory. However, you should focus on what you need and not rely on your ability to expand. This may be more of a feature than a true benefit.
- Music, Videos & Photos – There is a variety of file formats for both audio and video, some more universal while others are more proprietary. Be certain that your device coincides with the audio format and video format of files your computer and player can play.

Audio Formats

- MP3 is the most common and universal
- WMA (Windows Media Audio) is native to Microsoft Windows computers
- AAC (Advanced Audio Coding) is a popular iTunes/iPod format.

Video Formats

- WMV (Windows Media Video) is native to Windows computers
- AVI (Audio Video Interleave) can be played by Windows and Mac platforms
- MPG (Movie Picture Experts Group) is a popular iTunes/iPod format.

- Size – The physical size of your player is an important criterion in your selection. They come in all shapes, sizes and weight. You can find some flash players as small and light as a key (10 grams) to one as large and heavy as a small book. Here are some examples of both extremes.



H=1.8"; W=0.7"; D=0.3"
Weight=0.38 ounces



H=5.0"; W=7.0"; D=0.8"
Weight=22.0 ounces

You should consider size based on how you plan to use your player. Remember that it's easier to lose a smaller player but harder to “get up and go” with a larger one.

- Application – One of the most important considerations in selecting a player is application. Knowing exactly how you plan to use your player, where, how long, and for what is critical. Consider whether you need long playback time, longer battery life, and storage capacity. Casual use may lead you towards a player that has a little of everything. The “file hoarder” may lead you to seek out a player with great storage capacity. Using it for workouts may demand a small, lighter player that is easy to clip to a belt, waistline, or arm strap. Consider whether you want it for music, audio books, file storage, video, photos and more. The need to view videos and photos will also have an impact on the type and size of display for your player. Outlining your needs in advance will steer you in the right direction when you start sorting through the many different styles and models. Of course, your greatest limiting factor will be your budget. Even if the sky is the limit, that won't make your choice much easier.
- Power – Battery life is an important factor in selecting your player. Not all players are created equal. Most come with built-in rechargeable (Lithium ion) batteries, while there remain some that run on disposable AA or AAA cells. Keep mind that replacing built-in rechargeable batteries is costly. Either way, remember that flash players use less power (no moving parts) than their hard drive counterparts. As a result, they tend to have longer battery life and playback time. Video can drain batteries significantly faster than music, so keep that in mind. Charging cords included with the device, or cost to purchase one, is one factor you should consider when making comparisons. Battery life and playback time is important if you plan on using it for long periods of time and don't have easy access to a computer, while traveling for example. It becomes less important if you are using it for shorter periods of time



and have frequent access to your computer.

- User Interface – How you interact with your player can make all the difference. There are three basic ways you interact with your player: the controls; the menus and operating functions; and the screen or displays. Keep these in mind when looking for the best player for you.

The controls on your player are the single-most important user interface to consider. Push-button, joy stick, touch-pad, and touch-screen models are the general ways which the user interacts and controls the player. You should consider how you plan on using the player, and how easy or difficult it might be for you to manipulate the controls. You should feel comfortable with the player controls before you purchase one, so try them out. Someone with large fingers or hands may find it difficult to control buttons/pads/screens that are very close together. One important feature is to look for a “lock” button that allows you to set your player, lock it, and tuck it away without accidentally hitting a button while in your pocket, purse, or backpack.

The menus, choices and options of the player allow you to browse, play, organize, and view your files from the player itself. Some “bare bones” models like the iPod Shuffle® and the Archos Clipper® do not have a display screen. Without a screen you are limited to moving forward or back with no true sense of which songs are next and many simple play songs in a random order. This limits your ability to be selective of your tunes and you clearly cannot view images or video without a screen. If you need to know what you are listening to, look for the player with capabilities to view song titles, artists, albums, create playlists, and organize music, images, or videos.

The type of display is important only if you want to have a greater level of control over your selections or if you plan on viewing images or videos. The simple LCD screen with menus should be visible in varied levels of light (sunlight or darkness) and be easy to read. These are generally monochromatic but some models include multi-colored menus. Be certain the screen is not just cool, but functional. If you are choosing a player that has photo and video capabilities, look for a player with a larger screen. Anything less than a 2” diagonal screen is going to make it very difficult to view any real details of images or videos. The quality of the video is also important but much more difficult to compare, so screen size will be the best variable to consider.

- Accessories & Extra Features – Depending on where and when you purchase your player, be aware that they are marketed differently by retailers online and off. Most players will come with a very basic set of binaural (stereo) earbuds. Most will block background noise and offer acceptable listening quality. A high quality set of earbuds or headphones may improve the quality of the sound. However, should your audio files be of poor quality, then that will be more obvious with expensive high-quality earphones. In addition, some retailers may offer other incentives with players. Focus on what you want first, and then compare what retailers’ offer for the same player. This may include additional software, free downloads, carrying case, or cover.

Some additional features that many players might offer include:

- Automatic Volume Limiters – software that limits to level of volume on your player to stop drowning out of all other noise, reduce noise being heard by others, and minimize hearing damage
- FM Receiver – allows the player to receive and play FM radio broadcasts through the player
- Voice Recording – players include an internal microphone and capability to record audio
- Video/Image Capture – players can take, store, and display videos and photos with a built-in camera
- Bluetooth – peer-to-peer sharing of files without wires or computers
- WiFi – able to connect to wireless internet hot spots to access and download files from the internet



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