

Choosing a Portable MP3 Player: Part 1

MP3 players are everywhere! It seems that the number of makes and models in this market is growing daily, with features and capabilities intended to appeal to just about anyone shopping for one of these devices.

MP3 players have been around much longer than the Apple iPod (<http://www.geeks.com/products.asp?cat=MP3#iPodMP3Players>), but there is no arguing that this one device opened the market to a much larger customer base. In addition to Apple's own success, the iPod paved the way for dozens of other manufacturers to offer their own twist on this technology.

This series of Tech Tips will attempt to simplify things by taking a look at eight basic features of a typical MP3 player that may be important to a potential buyer, including: storage technologies, capacities, file formats, displays, batteries, extra capabilities, computer interfaces, and size. Part 1 of this series will handle the first four topics, and the second set of four topics will be covered in Part 2.

Storage Technologies

In general, portable MP3 players will utilize one of two formats to store the files on the device, either flash memory or a hard drive. Flash memory similar to that used in digital cameras is also found embedded in many lower capacity MP3 players. Due to the basic capacity limitation of flash memory, hard drive based units are required by those who need to store thousands of files on one device (or fewer files of higher quality).

It may be feasible to find flash memory based players with capacities that range from 128MB to 1GB (or maybe a bit higher), and the MSI MegaStick 511 (<http://www.geeks.com/details.asp?invtid=5511-290&cat=MP3>) is an example of a 1GB flash memory based device. Hard drive-based units can provide much more space, and your typical Apple iPod (<http://www.geeks.com/products.asp?Cat=MP3#iPodMP3Players>) and Creative Zen (<http://www.geeks.com/products.asp?Cat=MP3#ZENMP3Players>) will use a hard drive in order to achieve their capacities of up to 40GB.

One of the key advantages of flash memory-based players is that they are "solid state", an old electronics term which used to mean "contains no tubes", but now basically means that a device contains no moving parts. No moving parts means fewer hardware breakdowns, longer battery life (playing time), and it means that the devices can be bounced around with no skips or damage to the device. If you're looking for a durable MP3 player to go jogging with or take to the gym, you probably want a flash-based player.

There are other formats that may be used for portable MP3 players, and the Classic CM343R (<http://www.geeks.com/details.asp?invtid=CM343R&cat=MP3>) is an example of a device that plays MP3s from recordable CD media.

Capacities

The capacity of these players was already touched on in the previous section, but there is more to consider. Determining the capacity desired can have an impact on price and physical size, but the main thing to consider is how many files need to be stored on it.

Several variables determine the quantity of music any given player may hold, namely file type and compression encoding bit rate. MP3 files, for example, may be encoded at bit rates ranging from low quality (64kbps) to high, up to 320kbps. Lower bit rates use less disk (or memory) storage space, but offer sound quality comparable only to a telephone call or AM radio. Higher bit rates, up to and exceeding that of CD quality sound, may be used, but of course take more space. As with all things, there is a trade-off between quantity and quality – think of it terms of the number of hours of TV you can record to a VHS tape in SP, EP, and SLP modes.

For the sake of discussion, we will use a decent bit rate of 128 kbps, which will turn 5 minute long songs into files of approximately 5 MB in size. Some simple math shows that a 128 MB device, such as this Egoman unit (<http://www.geeks.com/details.asp?invtid=MD230F-N&cat=MP3>), will only hold about 25 such songs, while a 40GB iPod can hold about 8000. A device intended to be used only for jogging may do just fine with 128 MB of storage, while a device used in the car, at the office, and elsewhere may benefit greatly from more storage space... unless you like listening to the same handful of songs over and over again.

Some players offer a base of onboard memory, plus the flexibility of adding more memory through the use of an expansion slot. These slots will accept flash memory, usually SD (<http://www.geeks.com/products.asp?cat=RAM#SecureDigitalMemoryCard>) or MMC (<http://www.geeks.com/products.asp?cat=RAM#MultiMediaCardMemory>), and it can be a cost effective way to add 512 MB to a 128 MB device, such as this one from Ultra Products (http://www.ultraproducts.com/product_info.php?cPath=37&products_id=48).

File Formats

Calling these devices MP3 players may be a bit unfair, as most will actually read a few different file formats. MP3 is definitely the most popular, but other common formats include WMA (Windows Media Audio) and WAV (Microsoft's Waveform Audio).

Less common formats are also supported by some devices, such as AIFF (Audio Interchange File Format) and AAC (Advanced Audio Coding). In addition to MP3, the iPod supports these two formats and a few others that most other players do not support, which makes sharing these files with any other device just about impossible without conversion software.

Software is available for creating MP3 files from audio CDs, as well as for converting digital audio files from one format to another. Titles are available for purchase from many companies, including the likes of Nero (<http://www.nero.com/>) and Roxio (<http://www.roxio.com/>), and other titles can be found as downloads, either free or as free trials.

Displays

Most MP3 players include some sort of display to help the user interact with the device. The size of the display will have an impact on the overall size of the unit, but larger displays can obviously contain more information, and may be easier on the eyes.

Basic information regarding the status of the device and its files are generally shown on the display, and settings for things such as the volume and equalizer can be manipulated with ease.

The LCD display on the iPod is one of its great features, due to its large size (2" diagonally), and its LED backlighting for comfortable viewing in any lighting condition. The iPod is a larger device, however, and it can afford to have a larger display to convey information on menus, song artists/titles, volume, date/time, equalizer, battery status, and so on.

Smaller devices obviously have smaller displays, but they still need to convey some basic information. Using small fonts and symbols, allows devices like this one from Perception Digital (<http://www.geeks.com/details.asp?invtid=PD099-256FM&cat=MP3>) to display a good deal of information at any one time. What is lost is the ability to view menus and playlists, as seen on the iPod, and you may need better vision to see the smaller characters.

Displays are a convenience item though, and some players have eliminated the display in the name of simplicity (and hopefully savings). The iPod Shuffle (<http://www.apple.com/ipodshuffle/>) doesn't include a display at all, and their slogan "enjoy uncertainty" expresses the fact that you'll just have to go with the flow as your interaction with the device is quite limited.

Final Words

For such small devices, there are many variables to consider when shopping for an MP3 player. The first part in this series covered four key items, and in the second part we will cover four more, including; battery, extra capabilities, computer interface, and size.