

Intro to Digital

A Dictionary of Digital Words

AES-EBU

A format for transferring digital audio from one device to another. This format usually uses an XLR cable.

AIFF

Macintosh AIFF is an audio file format that was developed by Apple. It is a linear file format.

Aliasing

A digital audio artifact that is caused when the sample rate is too low. Aliasing sounds like a loss of high frequencies, combined with a metallic sheen.

Artifact

An unwanted extra noise caused by the technology. In digital audio, aliasing and quantization noises are common artifacts.

AVI

A digital video software standard developed by Microsoft. Can be read on both Windows and Macintosh systems.

Audio Driver

A bit of software that lets your computer work with sound, like recording and playing back. Common drivers are ASIO and CoreAudio.

Bit Depth (see **Resolution**)

Bps/Kbps

Bits per second/kilobits per second. For example, an MP3 file will often have a bitrate of 128 kbps. You may hear the word *throughput*; "an MP3 file has a throughput rate of 128 kbps".

Broadband Noise

A description of the noise used in dithering. Broadband means that the noise has a wide range of frequencies in it. This range is called the *bandwidth* of the noise.

CD

Compact Disc. The standard for storing audio for playback.

CD-R

Compact Disc Recordable. The standard for user-writable CDs.

CD-RW

CD-RW is a ReWriteable version of the CD-R standard.

Codec

An acronym for "compression/decompression", a codec is an algorithm or specialized computer process that first encodes and then decodes large media files. Files encoded with a specific codec require the same codec for decoding. Some codecs you may encounter in computer video production are Divx, MPEG-1, MPEG-2, Xivd, and MP3 for audio.

Compression (data)

Making a file smaller by removing 'unnecessary' elements, or redundant elements. MP3 is a well known form of audio data compression.

CPU

Central Processing Unit. A common term for a computer, but actually means the place in the computer where most of the number crunching happens.

DAT

Digital Audio Tape. A digital recording system that uses tape instead of a hard drive. Because tape is linear (you have to rewind or fast forward to get to other parts of the music), DAT is less popular than hard drive systems.

Downsampling

The process of reducing the sample rate and/or bitdepth of a sampled audio file. The benefit is that the file becomes smaller.

DSP

Digital Signal Processing. A general name for all the digital processes you might use on a soundfile in a computer, or through a digital effects device. Normalizing, gain changes, special effects, EQ, etc, are all DSP processes.

DVD

Digital Video Disc. The standard for storing video for playback.

DVD-R

Digital Video Disc Recordable. The standard for user-writable DVDs.

Hard Drive

The spinning disc that stores computer data. A hard drive is rewritable. It uses a directory to keep track of all the files.

Lossless Compression

Compression technique that lets you restore the original audio data. FLAC is a well known lossless compression format.

Lossy Compression

Compression technique that permanently eliminates some of the audio data. MP3 is a well-known lossy compression format.

MP3

MP3 is a popular compression format used for music on computers and portable devices. It makes very small, decent sounding audio files.

Optical

A method of transferring digital audio from one device to another. This format uses a cable that carries light pulses instead of electricity.

Plug-Ins

These are audio processing mini-applications which are inserted into host programs like Logic, Cubase, and ProTools. They come in many different formats, such as VST, AU, RTAS, and DirectX.

Quantization

The quantization process refers to the breaking up of the analog signal into a series of numbers (samples) at certain resolutions (bit depth). The resulting waveform has a staircase texture if you look closely.

Quantization error

This is the distortion that is caused by the limited number of bits in a digital audio system. 16-bits is good, but not perfect. 24-bits is better. It produces LESS quantization error.

QuickTime

A digital video software standard developed by Apple Computer. Can be read on both Windows and Macintosh systems.

RAM

Random Access Memory. The memory space of the computer where the work is done when you use the computer.

ROM

Read Only Memory. Memory chips in a computer that do not change. The information they store is permanent.

Red Book Standard

Red Book is the standard for audio CDs. All audio CDs conform to this standard. The sample rate is 44,100, the bit depth is 16-bit, and there are other requirements too.

Resolution

The bit depth of a sample or a digital audio system. A commercial audio CD has a bitrate, or resolution, of 16-bit. This is sufficient to provide good quality sound. But higher resolutions are becoming popular, such as 24-bit. (see **Bitrate**)

Sample Rate

The number of times a digital sample is taken, measured in samples per second, or Hertz. The more often samples are taken, the better the quality of a digital audio signal.

SPDIF

A format for transferring digital audio from one device to another. This format usually uses an RCA cable.

VBR

Variable Bit Rate. An option in MP3 files that makes more efficient use of the MP3 codec.

WAV

Windows WAVE is an audio file format that was developed by Microsoft. It is a linear file format.

WMA

Windows Media Audio. A proprietary media format developed by Microsoft.