

## Music Technology Time Line

<u>1931</u> & <u>1950</u>	<b>Tape Recorder</b> are developed 1 <sup>st</sup> electronic music for magnetic tape is composed	<u>1982</u>	<b>Compact Disk</b>
<u>1951</u>	First digital computer to play music.	<u>1983</u>	<b>Digital FM synthesizer</b> Yamaha <i>DX7</i> 1st commercial unit <b>musical instrument digital interface</b> MIDI standard version 1 MIDI (Musical Instrument Digital Interface); Yamaha DX7, digital FM synthesis
<u>1952</u>	Peter J. Baxandall publishes his (much-copied) tone control circuit. Emory Cook presses experimental dual-band left-right "binaural" disks.	<u>1984</u>	The Apple Corporation markets the Macintosh computer.
<u>1953</u>		<u>1985</u>	Dolby introduces the "SR" Spectral Recording system.
<u>1954</u>	<b>EMT introduces plate reverb.</b> In this electro-mechanical device, an audio signal is sent to a transducer (rather like a loudspeaker without the paper cone) attached to a large metal plate, which is suspended on elastic mounts. Transducers on the plate pick up the modified sound and convert it back into an electronic signal.	<u>1986</u>	The first digital consoles appear. R-DAT recorders are introduced in Japan. Dr. Gunther Theile describes a novel stereo "sphere microphone."
<u>1955</u>	<b>Multi-track tape recorder</b> Les Paul Ampex 8-track, very early model	<u>1987</u>	Digidesign markets "Sound Tools," a Macintosh-based digital workstation using DAT as its source and storage medium.
<u>1956</u>	Stereo tape recordings appear	<u>1988</u>	
<u>1957</u>		<u>1989</u>	<b>Digidesign Sound Tools</b>
<u>1958</u>	<b>Integrated circuit</b> Texas Instruments	<u>1990</u>	Dolby proposes a 5-channel surround-sound scheme for home theater systems.
<u>1959</u>	<b>Drum machine</b> Wurlitzer <i>Side Man</i> 1st commercial unit	<u>1991</u>	<b>Internet world wide web</b> <b>Digidesign Pro Tools</b>
<u>1960</u>		<u>1992</u>	The Philips DCC and Sony's MiniDisc, using digital audio data-reduction, are offered to consumers as record/play

			hardware and software. The Nagra D is introduced as a self-contained battery-operated field recorder using Nagra's own 4-channel 24-bit open-reel format.
<u>1961</u>		<u>1993</u>	<b>Audio file-sharing online</b> IUMA, Internet Underground Music Archive, Usenet
<u>1962</u>	<b>Audio cassette tape</b> <i>Philips Compact Cassette</i>	<u>1994</u>	Yamaha unveils the ProMix 01, the first "affordable" digital multitrack console.
<u>1963</u>	The Mk1 Mellotron is produced - the first keyboard instrument to use the sound of real instruments. This is achieved by recording real instruments (string section, flutes, choirs etc) playing individual notes onto tape. The taped notes are cut into 8-second lengths, and mounted on a rack inside the Mellotron - one taped note under each key. When a key is pressed, the tape engages with the playback mechanism, and the sound plays back. The Mellotron can be heard on the Beatles 'Strawberry Fields Forever' (flutes); Led Zeppelin 'Stairway to Heaven' (flutes again); or more recently, the strings at the beginning of 'Turn out the Light' by Nelly Furtado.	<u>1995</u>	<b>DVD optical disc</b> Philips, Sony, Toshiba, Time Warner <b>MP3 audio file format standard 1995</b> <b>MP3 file player software</b> <i>WinPlay3</i> personal computer
<u>1964</u>	<b>Phillips</b> produces the <i>compact cassette</i> . Until now, all tapes have been of the reel-to-reel type, which is not very robust or portable.	<u>1996</u>	Record labels begin to add multimedia files to new releases, calling them "enhanced CDs." Experimental digital recordings are made at 24 bits and 96 kHz.
<u>1965</u>	<b>Dolby Type A noise reduction system is introduced</b> , to remove the inherent noise generated by all tapes on playback. Type A is a professional studio format, and works by splitting the audio into 5 separate frequency bands, and applying noise reduction to each band individually. Robert Moog shows elements of his early synthesizers. These would form the basis of	<u>1997</u>	VD videodiscs and players are introduced. An audio version with 6-channel surround sound is expected to eventually supplant the CD as the chosen playback medium in the home.

	the Moog Modular synthesizer, and eventually the classic MiniMoog. (Robert Moog died in July 2005.)		
<u>1966</u>	<b>Tape noise reduction</b> Dolby A	<u>1998</u>	<b>Personal MP3 player</b> Diamond <i>Rio</i> 1st commercial example (iPod followed 2001)
<u>1967</u>		<u>1999</u>	<b>P2P file-sharing</b> Napster client with a central music index
<u>1968</u>		<u>2000</u>	<b>Music file copy-protection software</b> SDMI, Secure Digital Music Initiative delivers
<u>1969</u>	<b>Dolby-B noise reduction introduced.</b> This is a cut down (and much less expensive) version of Type A, intended for use on domestic cassette recorders.	<u>2001</u>	October 23, Apple introduces the iPod.
<u>1970</u>	Lexicon introduce the first digital delay line. A delay is the effect used for producing echo effects, although it was originally used for canceling the delay introduced heard in large PA systems, where front and rear speakers are some distance apart.	<u>2002</u>	
<u>1971</u>	The microprocessor CPU is invented. Until now, all electronic equipment has used discrete components to do particular jobs. Microprocessors can be programmed to perform any number of tasks. This results in lower manufacturing costs - as equipment no longer needs specialized components.	<u>2003</u>	
<u>1972</u>		<u>2004</u>	
<u>1973</u>		<u>2005</u>	
<u>1974</u>		<u>2006</u>	<b>Blu-ray video disc players</b>
<u>1975</u>	<b>Video cassette recorder</b> Sony <i>Betamax</i> VCR <b>EMT</b> produces the first digital reverb.	<u>2007</u>	
<u>1976</u>	<b>Video cassette recorder</b>	<u>2008</u>	

	JVC <i>VHS</i> VCR		
<u>1977</u>	<b>First commercial digital audio recording system</b> , Sony <i>PCM-1</i> ; Synclavier sampling instrument	<u>2009</u>	
<u>1978</u>	<b>Sampling keyboard synthesiser system</b> New England Digital <i>Synclavier</i>	<u>2010</u>	
<u>1979</u>	<b>Cassette multi-track recorder/mixer</b> Tascam <i>144 Portastudio</i> <b>computer musical instrument</b> Fairlight <i>CMI</i> <b>digital audio tape recorder</b> Sony <i>PCM-1600</i> , others in use from 1976 <b>personal audio cassette player</b> Sony <i>Walkman</i> cassette tape player	<u>2011</u>	In the last decade, a number of software-based virtual studio environments have emerged, with products such as propeller head's reason and Ableton Live finding popular appeal.
<u>1980</u>	<b>Digital audio disc</b> Sony Philips <i>CD</i>	<u>2012</u>	Artists can now also individuate their production practise by creating personalized software synthesizers, effects modules, and various composition environments.
<u>1981</u>			