Sound and Compression

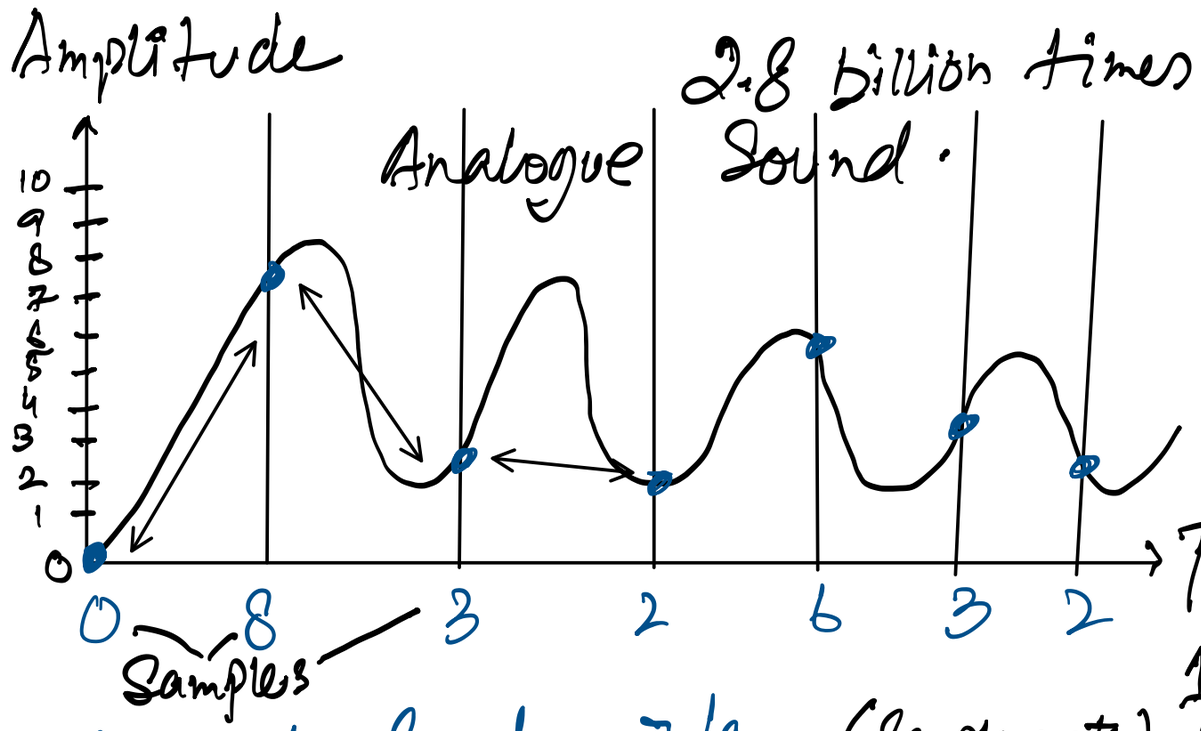
Wednesday, 22 September 2021 2:41 PM

Sound:

Natural → Analogue → Continuous → ∿∿∿
ADC
Binary → Digital → Discrete → 0100101011
Digitisation.

2.8 Ghz
Billion cycles

- Computer speed
- Computer word size



Computer Speed = 7/sec (Sample rate)
Word size = 4 bits. (Sample resolution/bit depth)

0000 1000 0111 0010 0110 0011 1010
Digitised Sound.

CD Quality

1982
Sony

CD was invented.
Computer Speed: 44100 /sec.
44k
Word speed: 16 bits
2 Bytes.

- To improve sound recording quality we have to improve Sample rate and Sample resolution

- Digital sounds are broken down into number of samples per second. Each sound sample is saved as binary data.

- Sample rate: Number of captured samples per second.
- Sample: Single recording of sound amplitude.
- Bit depth: Number of bits saved per sample.

Sound File Size:

File Size = Sample rate x Bit depth x Time
Samples per sec In bits In seconds.

Sample rate: 8kHz (Telephone Quality)
Bit depth: 16 bits
Time: 1 min.

File Size = 8000 x 16 x 60
128000 x 60
7680000 bits

7680000/8 =
960000 Bytes/1024 =
937.5 KiB