Storage Units

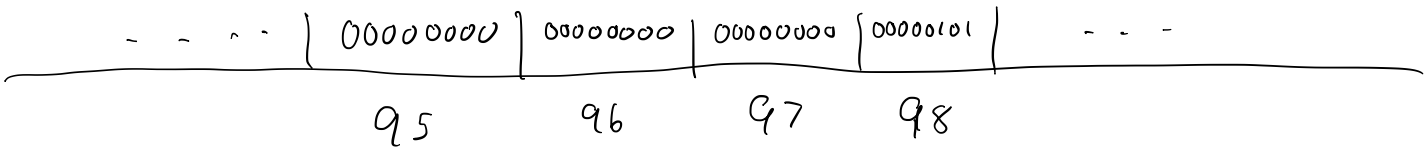
- KB (kilobyte) is usually 1024 bytes
- MB (megabyte) is 1024 kilobytes
- KiB (kibibyte), MiB (mibibyte), etc. never caught on

Memory

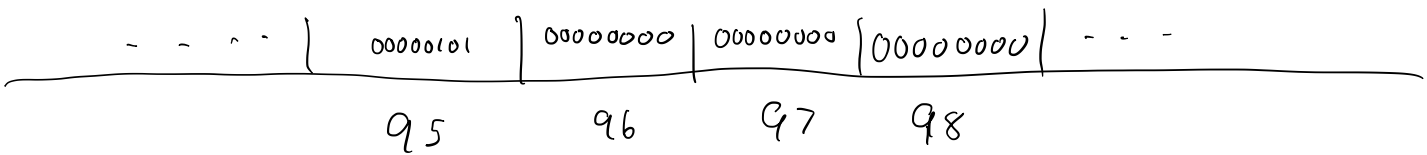
- Used to store programs and data
- Addressing
  - Memory is organized in cells
  - Each cell has an address
  - The standard cell size has become 8 bits (1 byte)

Multi-byte types

32-bit int storing 5



could also be stored like this



Byte ordering

- Words and multi-byte types are made of multiple bytes
- Bits within bytes are organized with the most significant bit on the left
- Bytes within words can either be organized with the most significant byte at the lowest address (little endian) or at the highest address (big endian)
- The address of a word is the address of the lowest byte address, regardless of endianness

Cache memory

- Accessing main memory is relatively slow, as it is not located on the CPU
- Recently accessed memory, and memory that is likely to be accessed soon, is stored in the CPU cache
- Accessing cache is on the order of 1 ns (nano second)
- Accessing main memory is on the order of 100 ns