Memory

Collection of hardware elements in a computer into which we store information

Byte-Addressable Memory - each byte has a separate address

CPU -> Memory - during a *write* cycle
Memory -> CPU - during a *read* cycle

Read Only Memory (ROM)

- programmed into device, only allows reads during operation
- *Nonvolatile* - contents remain even if power is removed
- Can quickly read from ROM. Not the case for writing
- Much denser than RAM (Can fit more ROM than RAM on a microcontroller)

Random Access Memory (RAM)

- stores temporary information, allows read/write during operation
- *Volatile* - lost when power removed

Create the bits that make up a register with flip-flops

Value	SI Decimal	SI Decimal	-----	Value	IEC Binary	IEC Binary
1000^1	k	kilo-		1024^1	Ki	kibi-
1000^2	M	mega-		1024^2	Mi	mebi-
1000^3	G	giga-		1024^3	Gi	gibi-
1000^4	T	tera-		1024^4	Ti	tebi-
1000^5	P	peta-		1024^5	Pi	pebi-
1000^6	E	exa-		1024^6	Ei	exbi-
1000^7	Z	zetta-		1024^7	Zi	zebi-
1000^8	Y	yotta-		1024^8	Yi	yobi-

Endianness

Big Endian - MSB is stored at lower address
Little Endian - LSB is stored at lower address

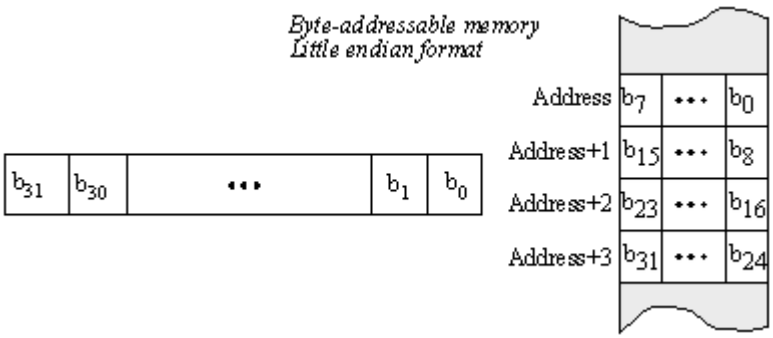
Address	Data
0x2000.0850	0x12
0x2000.0851	0x34
0x2000.0852	0x56
0x2000.0853	0x78

Big Endian

Address	Data
0x2000.0850	0x78
0x2000.0851	0x56
0x2000.0852	0x34
0x2000.0853	0x12

Little Endian

32 bit Number



Little Endian