

Binary → Decimal

MSB
most Significant Bit

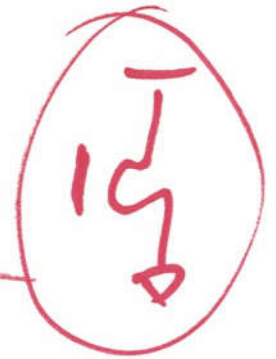
$$1011111_{(2)}$$

LSB
Least Significant Bit

$$\begin{aligned} &= 1 \times 2^6 + 0 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 \\ &\quad + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0 \\ &= 64 + 0 + 16 + 8 + 4 + 2 + 1 \\ &= 95_{(10)} \end{aligned}$$

8 bits → 1 Byte 256 MB

$$\begin{aligned} &256 \times 2^{20} \times 8 \text{ bit} \\ &\downarrow \\ &1024 \times 1024 \\ &= \text{MEGA} \end{aligned}$$



$$\begin{array}{r}
 1/2 \overline{) 0.25} \quad (10) \\
 1/2 \overline{) 00.5} \quad 0. \\
 1/2 \overline{) 01.0} \quad 1. \\
 1/2 \overline{) 0.} \quad 0. \\
 \quad \quad \quad 0
 \end{array}$$

⋮

$$\begin{array}{l}
 0 \times 2^{-1} + 1 \times 2^{-2} \\
 = \underline{\underline{0.25}}
 \end{array}$$


~~$$\begin{array}{r}
 1/2 \overline{) 0.0} \quad (10) \\
 \quad \quad \quad 0.02
 \end{array}$$~~

$$\begin{array}{r}
 \therefore 1/2 \overline{) 0.0} \quad (2) \\
 1/2 \overline{) 00.1} \\
 \quad \quad \quad 01.0 \\
 \quad \quad \quad \vdots
 \end{array}$$

⋮

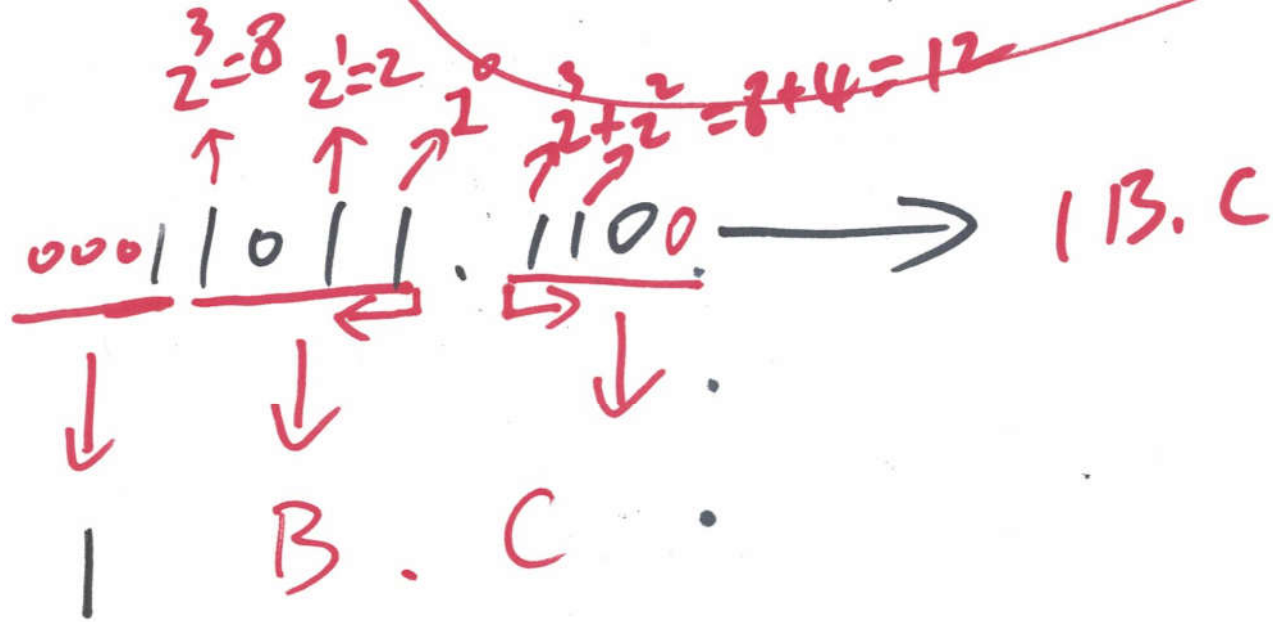
$$\begin{array}{l}
 23.5 \times 10 \\
 = 235
 \end{array}$$

$$\begin{array}{r} 0.35 \\ \underline{0.4} \end{array}$$

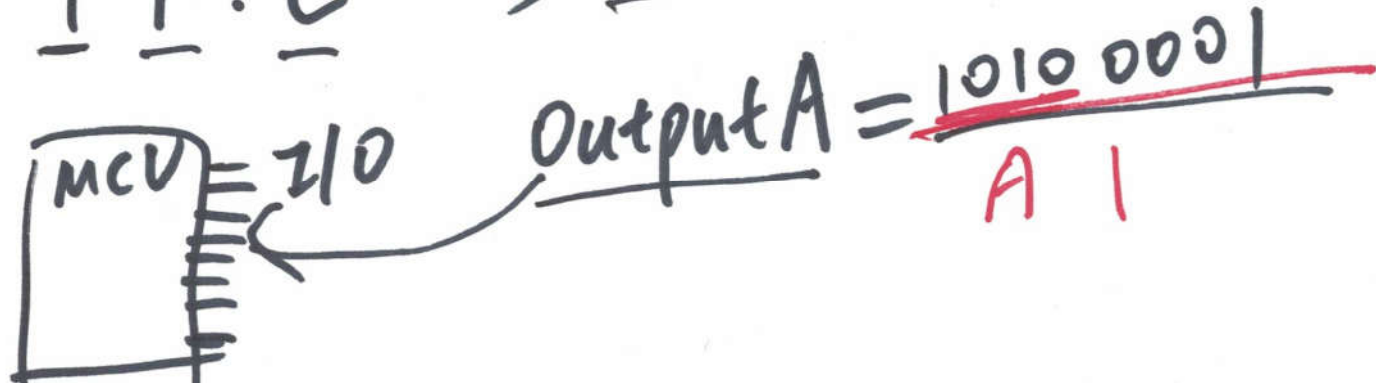
| | | |
|-----------------------|-----|---|
| $1/2 \overline{0.33}$ | 0 | $= 0.010101\text{...}$  |
| $1/2 \overline{0.66}$ | 0 | |
| $1/2 \overline{0.32}$ | 1 | |
| $1/2 \overline{0.64}$ | 0 | |
| $1/2 \overline{0.28}$ | 1 | |
| $1/2 \overline{0.56}$ | 0 | |
| $\overline{0.12}$ | 1 | |
| ... | ... | |

(4)

Binary \leftrightarrow Decimal \leftrightarrow HEX



I F E \rightarrow 0001111 1110



5

HEX \rightarrow Decimal

$$2A.D_{(16)} \rightarrow (\quad)_{(10)}$$

$$= 2 \times 16^1 + 10 \times 16^0 + 13 \times 16^{-1}$$

=

Decimal \rightarrow HEX

127.23

$$16 \overline{) 127}$$

$$16 \overline{) 7}$$

0

~~15~~F

7



~~715~~

7F

⑥

$$\begin{array}{r}
 1/16 \overline{) 0.23} \\
 1/16 \overline{) 03.68} \quad 3 \\
 1/16 \overline{) 018.88} \quad 10 \\
 1/16 \overline{) 014.08} \quad 14 \\
 1/16 \overline{) 008.28} \quad 1 \\
 \underline{4.48} \quad \textcircled{4}
 \end{array}$$

~~$0.3AE$~~
 $0.3AE$

$$35.3_{(6)}$$

$$3 \times 6^1 + 5 \times 6^0 + 3 \times 6^{-1}$$

Q