

T₁

input device ; output device ; CPU (ALU + CU)
memory ; storage ; GPU ; power

T₂

$$\frac{1024 \text{ Bytes}}{4 \text{ Byte/word}} = 256 \text{ words}$$

T₃

$$\frac{2^{30}}{2^{10}} = 2^{20}$$

T₄

11010101

T₅ False

T₆ program counter (PC)

T₇ F

T₈ 0X4001100C

T₉ A

T₁₀ FFFFFFFF

T₁₁ N: 0
Z: 0
C: 1
V: 0

T12

r3: 0x00000026

r4: 0x00000016

r5: 0x0000000e

r6: 0x00000012

r15: 0x00000120

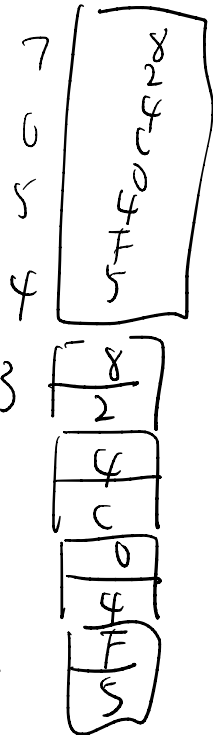
T13 r4: 0x8004

r7: 0x824c04f5

r8: 0x824c04f5

yes

2
0x8001
0x8000



T14

R0: 1

R1: 3

R2: 4

R3: 5

R14: 0x08000000C

R15: 0x08000001C

T15

$$\text{int } y = 5 \% x - 2$$

$$= 5 \% 6 - 2$$

$$= 5 - 2$$

$$= 3$$

T16 R1: 0x4 R2: 0x3
R13: 0x08000010

T17 first: 2 second: 8 last: 3

T18 B

T19 True

T20 0_0010001-1-1

first transferred —> last transferred

T₂₁ 4 47

$$T_{22} \quad 50 \times 10^{-3} = \frac{(ARR + 1)}{72 \times 10^3}$$

$$ARR + 1 = 3600$$

$$ARR = 3599$$

$$T_{23} \quad T = \frac{65536 \times (1 + 7144)}{72 \times 10^6}$$

$$= 6.5536 \text{ s}$$

T₂₄ B

T₂₅ False

T₂₆ True

T₂₇ 65535

T₂₈ 12.5%

T₂₉

1) No

3) 300

2) 999

4) 15%

T₃₀ 799999

T₃₁ False

T₃₂ 9; MSB first

T₃₃ false

T₃₄ address: 1001000 (0x48)
transmitter

T₃₅. B

T₃₆ D

T₃₇ C

T₃₈ C

T₃₉ 400MB/s

T₄₀ 4 → 7 → 3 → 1 → 2 → 6 → 5

T₄₁ fetch, decode and execute

T₄₂ C

T₄₃ B

T44 C

T45

a) 140V

b) 200V

T46 12

T47

12	3×2^{24}	ϵ	ϵ
16	ϵ	2^{30}	2^{42}
32	ϵ	2^{31}	2^{43}

T48 RSB $r_2, r_1, r_1, LSL \# 4$

T44 (unsigned integer)

mov r2, r1, LSR #3

T50

$$\begin{array}{ccccccc}
 & 0 & 0 & 1 & 1 & & \\
 X & 1 & 0 & 1 & 1 & & \\
 \hline
 & -1 & 1 & 0 & -1 & & \\
 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\
 1 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 0 \\
 \hline
 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 1
 \end{array}$$