

‘Even or Odd’ Test Using MIPS Shift Instructions

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CO – 10/19/2022

Remainder – Even or Odd?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
|---|---|---|---|---|---|---|---|

$$\begin{aligned} X &= 0 \times 2^7 + 1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 \\ &= 0 + 64 + 0 + 0 + 8 + 0 + 0 + 1 = 73 \end{aligned}$$

$$73/2=36 \quad 73\%2=1$$

srl Y, X, 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|---|---|---|

$$\begin{aligned} Y &= 0 \times 2^7 + 0 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 \\ &= 0 + 0 + 32 + 0 + 0 + 4 + 0 + 0 = 36 \end{aligned}$$

sll Z, Y, 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|

$$\begin{aligned} Z &= 0 \times 2^7 + 1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 \\ &= 0 + 64 + 0 + 0 + 8 + 0 + 0 + 0 = 72 \end{aligned}$$

$$X - Z = 1$$