

Console Interface (eg. exponential: \$t5 stores $5^2 = 25_{10} = 19_{16}$) –

Register file contents after 13 clock cycles:

zero: 00000000 at: 00000000 v0: 00000000 v1: 00000000 a0: 00000000
a1: 00000000 a2: 00000000 a3: 00000000 t0: 00000000 t1: 00000005
t2: 00000000 t3: 00000001 t4: 00000000 t5: 00000019 t6: 00000000
t7: 00000000 s0: 00000000 s1: 00000000 s2: 00000000 s3: 00000000
s4: 00000000 s5: 00000000 s6: 00000000 s7: 00000000 t8: 00000000
t9: 00000000 k0: 00000000 k1: 00000000 gp: 00000000 sp: 00000000
fp: 00000000 ra: 00000000

Register file contents after 14 clock cycles:

zero: 00000000 at: 00000000 v0: 00000000 v1: 00000000 a0: 00000000
a1: 00000000 a2: 00000000 a3: 00000000 t0: 00000000 t1: 00000005
t2: 00000000 t3: 00000001 t4: 00000000 t5: 00000019 t6: 00000000
t7: 00000000 s0: 00000000 s1: 00000000 s2: 00000000 s3: 00000000
s4: 00000000 s5: 00000000 s6: 00000000 s7: 00000000 t8: 00000000
t9: 00000000 k0: 00000000 k1: 00000000 gp: 00000000 sp: 00000000
fp: 00000000 ra: 00000000

Register file contents after 15 clock cycles:

zero: 00000000 at: 00000000 v0: 00000000 v1: 00000000 a0: 00000000
a1: 00000000 a2: 00000000 a3: 00000000 t0: 00000000 t1: 00000005
t2: 00000000 t3: 00000001 t4: 00000001 t5: 00000019 t6: 00000000
t7: 00000000 s0: 00000000 s1: 00000000 s2: 00000000 s3: 00000000
s4: 00000000 s5: 00000000 s6: 00000000 s7: 00000000 t8: 00000000
t9: 00000000 k0: 00000000 k1: 00000000 gp: 00000000 sp: 00000000
fp: 00000000 ra: 00000000

Register file contents after 16 clock cycles:

zero: 00000000 at: 00000000 v0: 00000000 v1: 00000000 a0: 00000000
a1: 00000000 a2: 00000000 a3: 00000000 t0: 00000000 t1: 00000005
t2: 00000000 t3: 00000001 t4: 00000001 t5: 00000019 t6: 00000000
t7: 00000000 s0: 00000000 s1: 00000000 s2: 00000000 s3: 00000000
s4: 00000000 s5: 00000000 s6: 00000000 s7: 00000000 t8: 00000000
t9: 00000000 k0: 00000000 k1: 00000000 gp: 00000000 sp: 00000000
fp: 00000000 ra: 00000000

Total clock cycles: 16

Number of instructions executed for each type are given below:-

add: 0, addi: 6, beq: 0, bne: 3, j: 2

lw: 0, mul: 2, slt: 3, sub: 0, sw: 0

Program executed successfully!