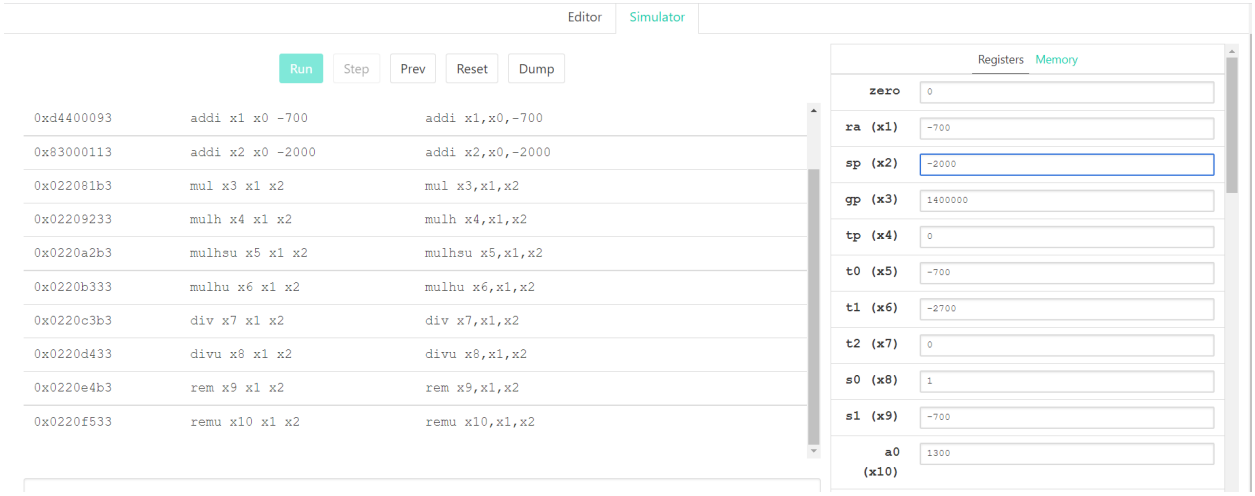
The Program:

0x00000033	add x0 x0 x0	add x0, x0, x0
0x00002083	lw x1 0(x0)	lw x1,0(x0)
0x00402103	lw x2 4(x0)	lw x2,4(x0)
0x022081b3	mul x3 x1 x2	mul x3,x1,x2
0x02209233	mulh x4 x1 x2	mulh x4,x1,x2
0x0220a2b3	mulhsu x5 x1 x2	mulhsu x5,x1,x2
0x0220b333	mulhu x6 x1 x2	mulhu x6,x1,x2
0x0220c3b3	div x7 x1 x2	div x7,x1,x2
0x0220d433	divu x8 x1 x2	divu x8,x1,x2
0x0220e4b3	rem x9 x1 x2	rem x9,x1,x2
0x0220f533	remu x10 x1 x2	remu x10,x1,x2

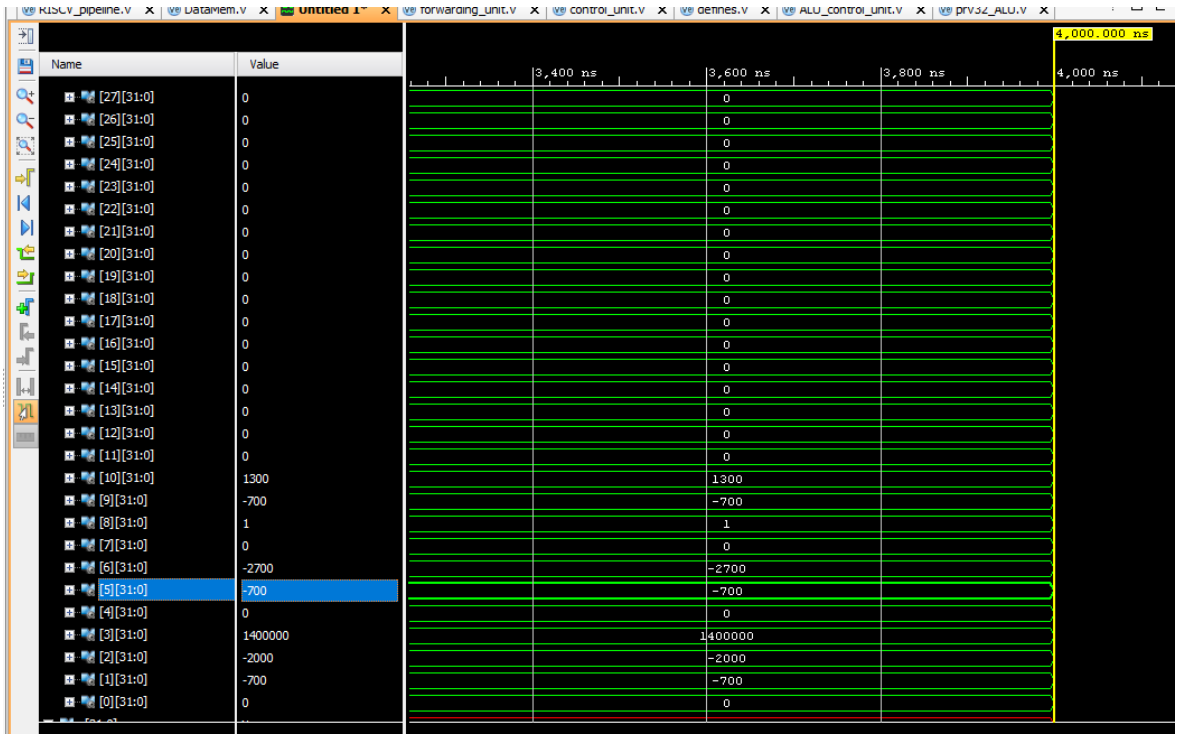
Memory:

mem[3:0]	-700
mem[7:4]	-2000

Register File from Venus Simulator:



Register File Testing Results:



Initialization Code:

```
initial begin
 {mem[3],mem[2],mem[1],mem[0]}=32'b0000000_00000_00000_000_00000_0110011 ; //add
x0, x0, x0
     //added to be skipped since PC starts with 4 after reset
 {mem[7],mem[6],mem[5],mem[4]}=32'h00002083 ; //lw x1,0(x0) mem[0]=-700
 {mem[11],mem[10],mem[9],mem[8]}=32'h00402103 ; // lw x2,4(x0) mem[4]=-2000
 {mem[15],mem[14],mem[13],mem[12]}=32'h022081b3 ; // mul x3,x1,x2
 {mem[19],mem[18],mem[17],mem[16]}=32'h02209233 ; // mulh x4,x1,x2
 {mem[23],mem[22],mem[21],mem[20]}=32'h0220a2b3 ; // mulhsu x5,x1,x2
 {mem[27],mem[26],mem[25],mem[24]}=32'h0220b333 ; // mulhu x6,x1,x2
 {mem[31],mem[30],mem[29],mem[28]}=32'h0220c3b3 ; // div x7,x1,x2
 {mem[35],mem[34],mem[33],mem[32]}=32'h0220d433 ; // divu x8,x1,x2
 {mem[39],mem[38],mem[37],mem[36]}=32'h0220e4b3 ; // rem x9,x1,x2
 {mem[43],mem[42],mem[41],mem[40]}=32'h0220f533 ; // remu x10,x1,x2

 //DataMem
{mem[3+200],mem[2+200],mem[1+200],mem[0+200]}=32'b11111111_11111111_11111101_01
000100;
{mem[7+200],mem[6+200],mem[5+200],mem[4+200]}=32'b11111111111111111111100000110
000 ;

 end
```