

```

1  #include <iostream>
2  using namespace std;
3
4  int main(void) {
5      int arr[10] = {0,1,2,3,4,5,6,7,8,9};
6      for(int i = 0; i < 9; i++)
7          arr[i+1] = arr[i] + arr[i+1];
8  }

```

Figure 1: Prefix Sum in C++

Edit		Execute	
riscv1.asm		prefix_sum_array.txt*	
1	addi s0 x0 10		
2	add t0 x0 x0		
3	slli t1 t0 2		
4	sw t0 0(t1)		
5	addi t0 t0 1		
6	bne t0 s0 -8		
7	addi t6 x0 122		
8	addi s0 x0 9		
9	add t0 x0 x0		
10	slli t1 t0 2		
11	lw t2 0(t1)		
12	lw t3 4(t1)		
13	add t2 t2 t3		
14	sw t2 4(t1)		
15	addi t0 t0 1		
16	bne t0 s0 -14		
17	addi t2 x0 122		

Figure 2: Prefix Sum in RISC-V

0	1	3	6	10	15	21	28	36	45
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Figure 3: Expected Results

0	0	0	0	0
4	1	0	0	0
8	3	0	0	0
12	6	0	0	0
16	10	0	0	0
20	15	0	0	0
24	21	0	0	0
28	28	0	0	0
32	36	0	0	0
36	45	0	0	0

Figure 4: Actual Results

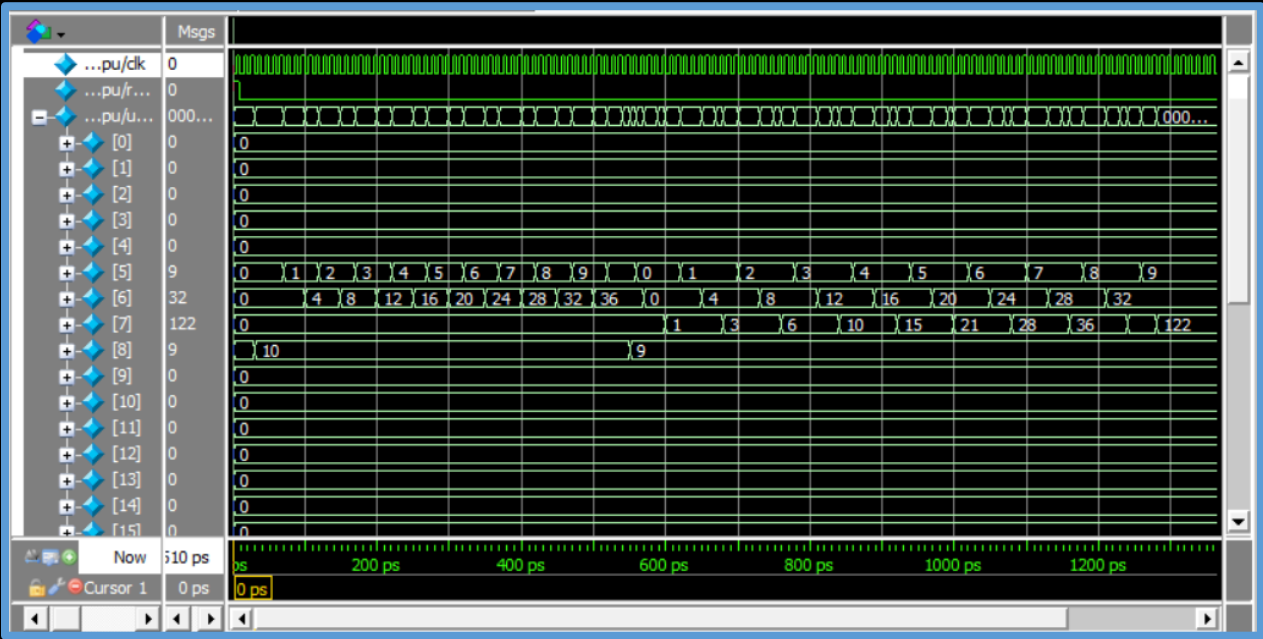


Figure 5: Register File

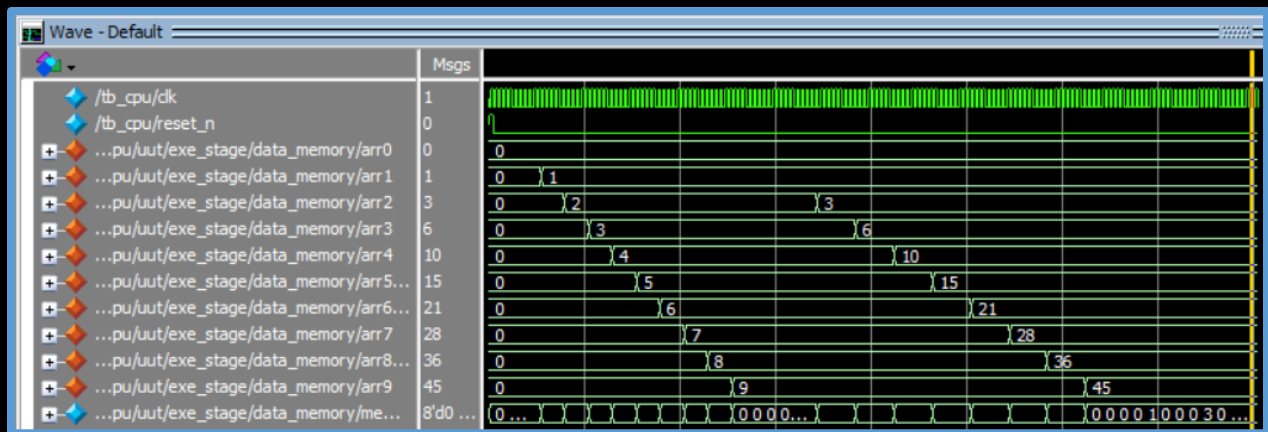


Figure 6: Data Memory

0	13	28	00	40
4	33	00	00	28
8	93	08	40	31
12	23	01	8a	01
16	13	04	40	29
20	e3	e0	51	f9
24	13	e8	01	f8
28	13	24	00	40
32	33	00	00	28
36	93	08	40	31
40	03	01	80	39
44	03	11	80	e1
48	33	00	f8	39
52	23	11	8e	01
56	13	04	40	29
60	e3	c8	51	f9
64	13	e8	01	38

Figure 7: Instruction Memory

