

## **ASSIGNMENT 4B**

### **Digital Design and Computer Organization**

**UE21CS251A**

**3<sup>rd</sup> Semester, Academic Year 2021-22**

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## Machine language to MIPS assembly language:

[0x00400000]	0x20080000	addi \$t0, \$0, 0
[0x00400004]	0x20090001	addi \$t1, \$0, 1
[0x00400008]	0x0089502A	for: slt \$t2, \$a0, \$t1
[0x0040000C]	0x15400003	bne \$t2, \$0, done
[0x00400010]	0x01094020	add \$t0, \$t0, \$t1
[0x00400014]	0x21290002	addi \$t1, \$t1, 2
[0x00400018]	0x08100002	j for
[0x0040001C]	0x01001020	done: add \$v0, \$t0, \$0

The last line [0x00400020] 0x03E00008 is a R-type jump instruction to register 11111 (31) or \$ra which signifies return statement.

C program:

Assuming t = \$t0, i = \$t1, n = \$a0, res = \$v0

```
int t = 0;
for (i = 1; i <= n; i = i + 2)
    t = t + i;
res = t;
```

The program will sum up all the odd integers from 1 to \$a0 and stores the final sum in \$v0.