

## Assignment II\_\_\_\_T2

**Following two practical assignments need to be completed as a submission part of T II.**

**Each consists of 10 marks.**

### **1. Part A:**

**Download and install open-source cache simulator or demonstrator.**

T1: Associativity demonstration and results – Set Associativity Caches

T2: Block replacement policy FIFO

T3: Block replacement policy LRU

T4: Associativity demonstration and results – Direct Map Caches

### **2. Part B:**

**T1 and T2:** Identifying and understanding the dependancies by taking set of instructions without data forwarding

#### **Set1 of instructions:**

L.D F6,32(R2)  
L.D F2,44(R3)  
MUL.D F0,F2,F4  
SUB.D F8,F2,F6  
DIV.D F10,F0,F6  
ADD.D F6,F8,F2

#### **Set2 of insrtuctions:**

I1 : ADD R1, R2, R3  
I2 : MUL R7, R1, R3  
I3 : SUB R4, R1, R5  
I4 : ADD R3, R2, R4  
I5 : MUL R7, R8, R9

**T3 and T4:** Identifying and understanding the dependancies by taking set of instructions with data forwarding

#### **Set1 of instructions:**

L.D F6,32(R2)  
L.D F2,44(R3)  
MUL.D F0,F2,F4  
SUB.D F8,F2,F6  
DIV.D F10,F0,F6  
ADD.D F6,F8,F2

#### **Set2 of insrtuctions:**

I1 : ADD R1, R2, R3  
I2 : MUL R7, R1, R3  
I3 : SUB R4, R1, R5  
I4 : ADD R3, R2, R4  
I5 : MUL R7, R8, R9

## References:

<https://www.ecs.umass.edu/ece/koren/architecture/>

The above link consist of various aspects of Computer Organization and Architecture. We're just dealing with '**Cache Demonstrator**' and '**Pipelining (w & w/o forwarding)**'.

All the students are insisted to make use of these two particulars for the given assignment. Apart from this resource, you may proceed with your own way of installing any open-source simulator/demonstrator/tool that gives an idea and solutions about the given problem statements.

Rest of the instructions/discussion will be given/done in lecture.