# **Embedded Systems Lab**

Experiment 10: GP Series in ARM

Date: 5th April 2022

Platform: ARMSim 2.1

**Objective:** Write ARM assembly code to generate a GP consisting of 6 terms. The first term is to be stored in register R1, the common ratio in register R2, and the GP itself is to be stored in registers R3 to R8.

# Algorithm:

- 1. Store the first term and the common ratio in registers R1 and R2 respectively using the MOV instruction
- 2. Copy the first term to register R3 using MOV instruction
- 3. Generate the rest of the terms of the GP by using the MUL instruction

#### Code:

```
@ Arm assembly code to generate a GP sequence with first term 2 and common ratio 3, and store it in registers R3 to R8 (ie, total 6 terms)

MOV R1, #2  @ First term is stored in reg R1

MOV R2, #3  @ Common ratio is stored in reg R2

@ Generating six terms using first term and c.d.

@ The first term is stored in register R3, second in R4, ..., sixth in R8

MOV R3, R1

MUL R4, R3, R2

MUL R5, R4, R2

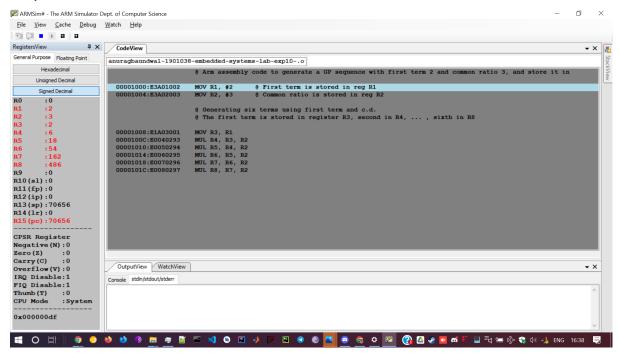
MUL R6, R5, R2

MUL R7, R6, R2

MUL R8, R7, R2
```

```
| Interpolation | 1901035 embedded systems | Interpolation | 190105 embedded systems | 190105 embedded systems
```

## **Output:**



### **Result and Conclusions:**

It is observed that registers R3 to R8 contain the terms 2, 6, 18, 54, 162, and 486 of the GP. Hence, the code is working as expected and the experiment was performed successfully.

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