

Homework 4

1. In general terms, what is the most important difference between a simple jump or branch and a subroutine call?
2. What is the difference between the BL and BLX instructions (which is also the difference between the B and BX)?

3. Consider the Thumb2 assembly code below.

(a) What are the hexadecimal values loaded into the PC and LR by the BL instruction at address 0x1004?

(b) What are the hexadecimal values loaded into the PC and LR by the BL instruction at address 0x1010?

(c) What are the hexadecimal values loaded into the PC and LR by the BLX instruction at address 0x101C?

```
0 x1000 movw r0, #0 x2221
0 x1004 BL mysubroutine
0 x1008 EOR r2 , r1
0 x100C EOR r2 , r1
0 x1010 BL mysubroutine
0 x1014 EOR r2 , r1
0 x1018 EOR r2 , r1
0 x101C BLX r0
0 x1020 EOR r2 , r1
forever :
0 x1024 B forever
mysubroutine :
0 x1028 EOR r2 , r1
15 0x102C BX LR
```

4. What do we mean when we say that the ARM Cortex-M stack is descending?

5. If you have not already, finish lab 1, part 4.