Lecture Lec5.ppt in class worksheet

Question 1. You wish to pass three numbers into a function, according to AAPCS how would you pass the numbers?

依次传入 R0-R2

Question 2. You wish to pass five numbers into a function, according to AAPCS how would you pass the numbers?

依次传入 R0-3,最后一个压入堆栈

Question 3. What do each of the following assembly directives do? Answer each line separately, not as one complete program.

```
AA    SPACE  10
BB    RN  2
CC    DCB 1,2,3
DD    DCB "Jon\n\r",0
EE    DCW 1,2,3
FF    DCD 1,2,3
GG    EQU 10
    Uint8_t AA [10]
    将寄存器 R2 重命名为 BB
    Char CC[3]={1,2,3}
    Char* DD = "Jon\n\r\0";
    Short EE[3]={1,2,3}
    int FF[3]={1,2,3}
    #define GG 20
```

Question 4. Create an array in RAM that can hold ten 32-bit unsigned numbers called **Buf**. Write an assembly and a C function that sets the value of each element to its index. This function has no formal input or output parameters, but does modify the **Buf** array.

C:

```
unsigned int arr[10];
void Func(void){
        for (int i = 0; i < 10; i++)
        {
                arr[i]=i;
        }
}
```

Assemble:

```
ARR SPACE 40
FUNC
        MOVE R0,#0
        B LOOP
LOOP
        MOV R2,R0,LSL#2;            R2=R0*4
        LDR R1,=ARR;        load arr address
        ADD R1,R1,R2;
        STR R0,[R1] ; save index to specified position
        ADD R0,R0,#1
        CMP R0,#10
        BHS EXIT
```

EXIT

Question 5. How many bits wide is the SysTick timer?

24 bits

Question 6. Does SysTick count up or down?

Count down

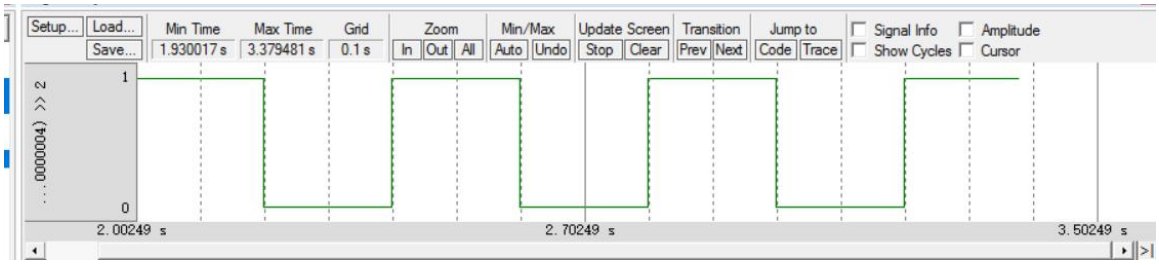
Question 7. Write a C function that uses SysTick to wait 100 µs. Assume the bus clock is running at 16 MHz.

```
void sysTick_Wait100us(){
    volatile uint32_t elapsedTime;
    uint32_t startTime = NVIC_ST_CURRENT_R;
    Do{
        elapsedTime = (startTime-
    NVIC_ST_CURRENT_R)&0X00FFFFFF;

    }while(elapsedTime <= 1600);
}
```

Question 8 在实验课上的工程文件基础上，分别实现 PF2 脉冲宽度 5ms,200ms，截取逻辑分析仪波形图

200ms



5ms: