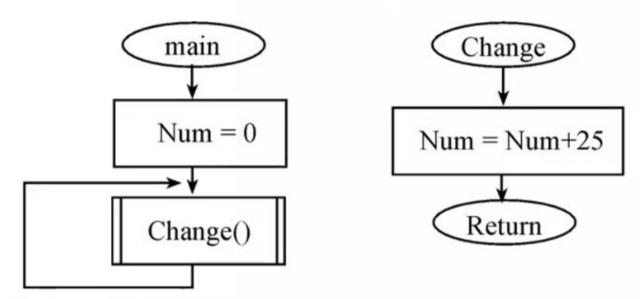
Functions



```
Change LDR
             R1,=Num
                                                unsigned long Num;
                       ; 5) R1 = &Num
       LDR
             R0,[R1]
                                                void Change (void) {
                       ; 6) R0 = Num
       ADD
             R0,R0,#25; 7) R0 = Num+25
                                                  Num = Num + 25;
       STR
             R0,[R1]
                       ; 8) Num = Num+25
       BX
                                                void main(void) {
             LR
                       ; 9) return
             R1,=Num
                                                  Num = 0;
main
       LDR
                       ; 1) R1 = &Num
       VOM
             RO,#0
                       ; 2) R0 = 0
                                                  while(1){
             R0,[R1]
                       ; 3) Num = 0
       STR
                                                    Change();
loop
       BL
             Change
                       ; 4) function call
                       ; 10) repeat
       B
             loop
```

Array Example

```
aa
bb
```

AREA DATA SPACE 40 SPACE 40

main

MOV R4,#0 ; i=0 MOV R3,#5

forloop2

CMP R4,#5 ; is i<5

BGE for Done 2

LDR R0,=aa ;aa[i] = aa+4*i

ASL R2,R4,#2; R2=i*4

STR R4,[R0,R2]

LDR R6,=bb

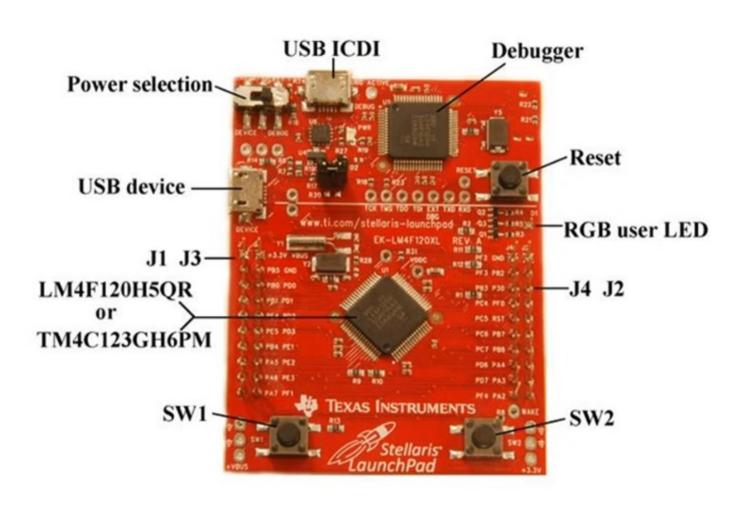
STR R3,[R6,R2]; bb+i*4

ADD R4,R4,#1

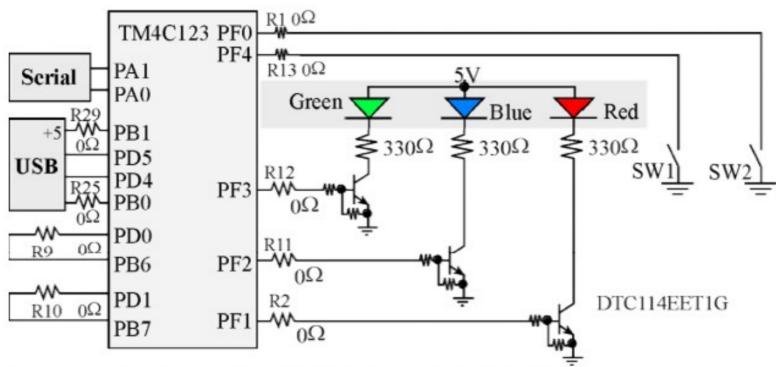
B forloop2

forDone2

Tiva C Board

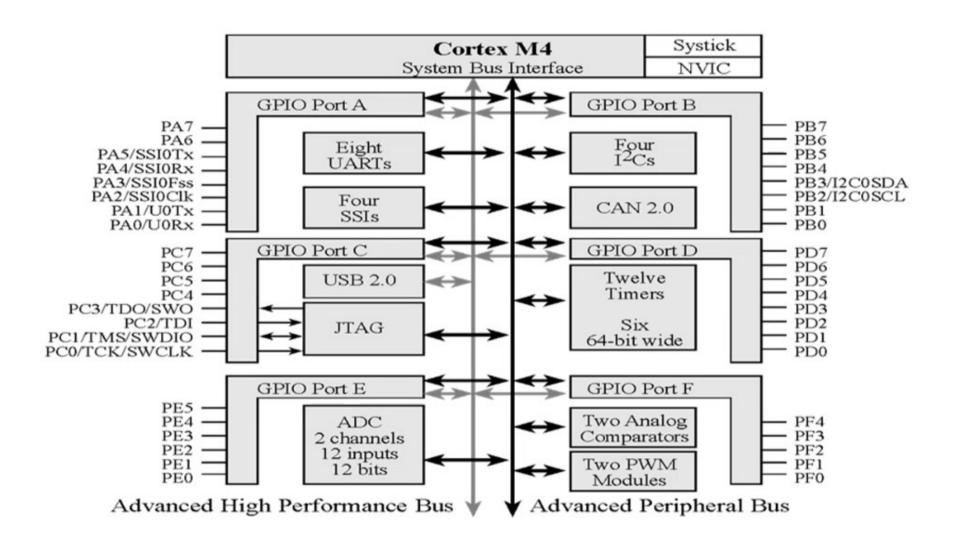


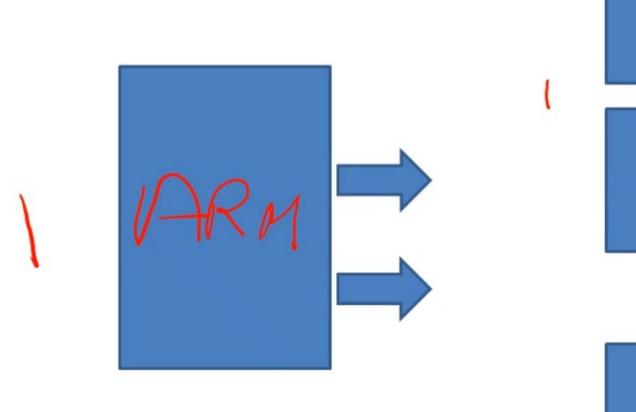
LaunchPad Switches and LEDs

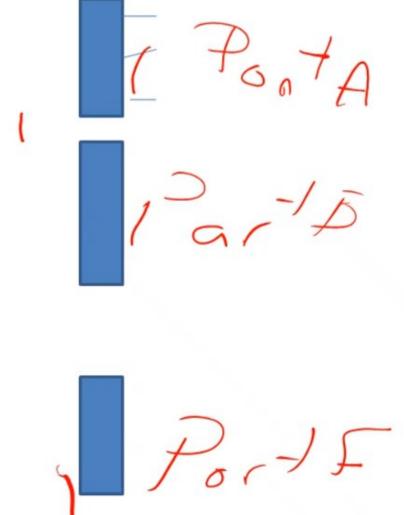


- □ The switches on the LaunchPad
 - ♦ Negative logic
 - ♦ Require internal pull-up (set bits in PUR)
- □ The PF3-1 LEDs are positive logic

Texas Instruments TM4C123

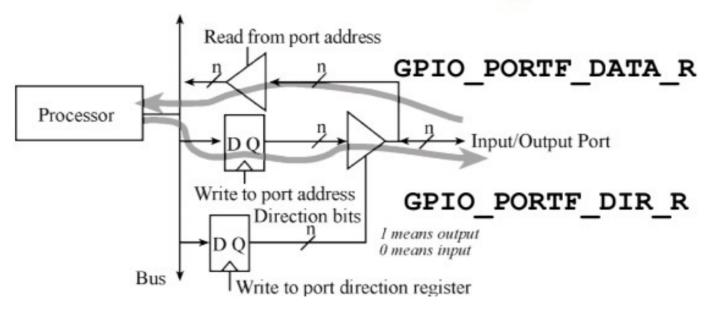






4 / B 4

I/O Ports and Control Registers



The input/output direction of a bidirectional port is specified by its direction register.

GPIO PORTF DIR R, specify if corresponding pin is input or output:

- 0 means input
- 1 means output

I/O Programming

Address	7	6	5	4	3	2	1	0	Name
\$400F.E108			GPIOF	GPIOE	GPIOD	GPIOC	GPIOB	GPIOA	SYSCTL_RCGC2_R
\$4000.43FC	DATA	GPIO_PORTA_DATA_R							
\$4000.4400	DIR	GPIO PORTA DIR R							
\$4000.4420	SEL	GPIO PORTA AFSEL R							
\$4000.4510	PUE	GPIO PORTA PUR R							
\$4000.451C	DEN	GPIO PORTA DEN R							
\$4000.4524	1	1	1	1	1	1	1	1	GPIO PORTA CR R
\$4000.4528	0	0	0	0	0	0	0	0	GPIO PORTA AMSEL R
\$4000.53FC	DATA	GPIO PORTB DATA R							
\$4000.5400	DIR	GPIO PORTB DIR R							
\$4000.5420	SEL	GPIO PORTB AFSEL R							
\$4000.5510	PUE	GPIO PORTB PUR R							
\$4000.551C	DEN	GPIO_PORTB_DEN_R							
\$4000.5524	1	1	1	1	1	1	1	1	GPIO PORTB CR R
\$4000.5528	0	0	AMSEL	AMSEL	0	0	0	0	GPIO PORTB AMSEL R
\$4000.63FC	DATA	DATA	DATA	DATA	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_DATA_R
\$4000.6400	DIR	DIR	DIR	DIR	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_DIR_R
\$4000.6420	SEL	SEL	SEL	SEL	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_AFSEL_R
\$4000.6510	PUE	PUE	PUE	PUE	JTAG	JTAG	JTAG	JTAG	GPIO PORTC PUR R
\$4000.651C	DEN	DEN	DEN	DEN	JTAG	JTAG	JTAG	JTAG	GPIO PORTC DEN R
\$4000.6524	1	1	1	1	JTAG	JTAG	JTAG	JTAG	GPIO PORTC CR R
\$4000.6528	AMSEL	AMSEL	AMSEL	AMSEL	JTAG	JTAG	JTAG	JTAG	GPIO PORTC AMSEL R
\$4000.73FC	DATA	GPIO PORTD DATA R							
\$4000 7400	מזת	מזת	מזת	מזת	סזת	מזת	מזת	מזח	CDIO DODTO DID D

Set Port Direction & Port Type

```
LDR R1,= GPIO_PORTF_DIR_R
```

MOV R0,#0x0E

STR R0,[R1]

LDR R1,=GPIO_PORTF_DEN_R

MOV R0,#0xFF STR R0,[R1]