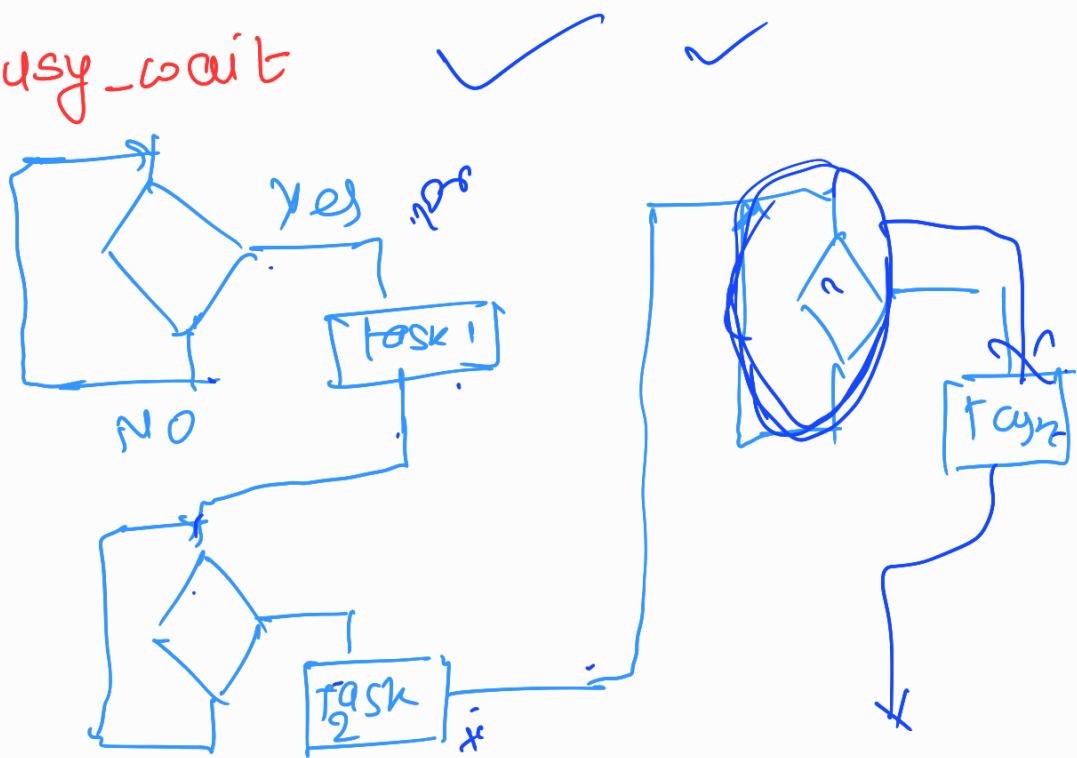


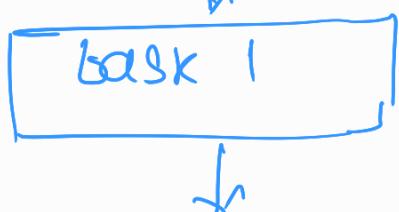
Interrupt : Hardware triggered Software action

Busy-wait



Interrupt:

Interrupt 1



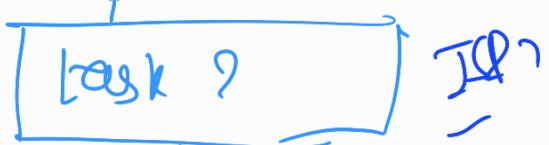
return from
interrupt

✓



B

Interrupt 2



return from
interrupt

✓

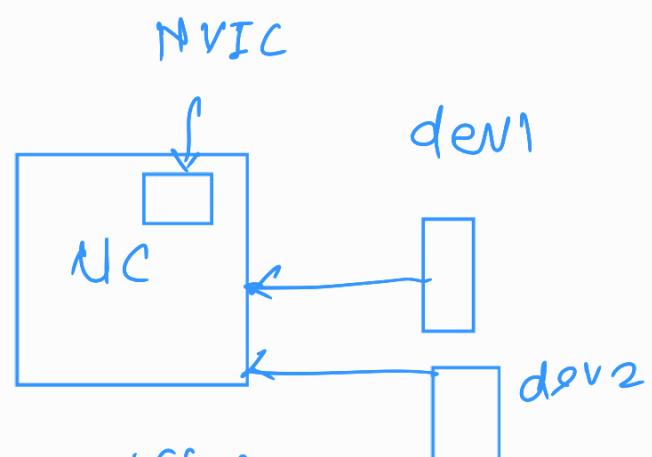
JL

conditions needs to satisfy to occur interrup:-

1) arm the device :

~~enable~~
Peripheral level
~~enable~~

1 ✓



ii) Enable at NVIC (device specific) :

NVIC

iii) I (global = 0) : PRIMASK global = 0 enable = 0
No trigger

iv) Priority : ~

v) trigger : An asynchronous event what caused interrupt to occur.

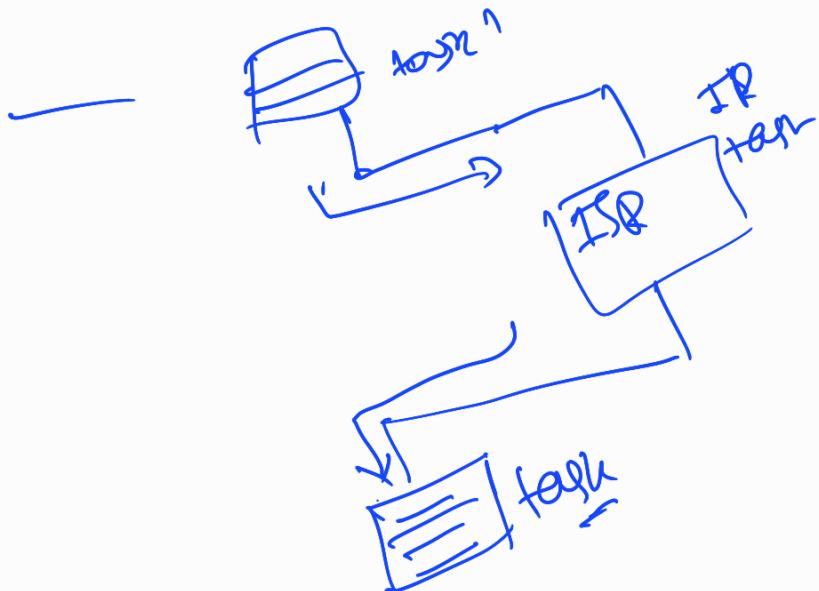
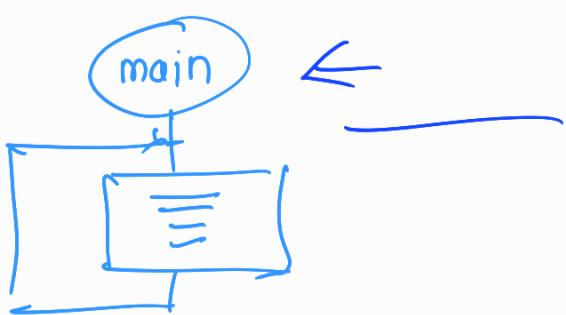


trigger

RIS \Rightarrow Raw int status : this is where triggers flags are

Context Switch :-

switching from main program in interrupt service routine.



PC → ldr R0, [R0] ✓
str R0, [R0] ✓

i) finish the instruction ✓

ii) Suspend

R0, R1, R2, R3

R12, R14, LR, R15

PC, PSR

iii) LR = 0xFFFF FFFF

Registers

Sp →

R0
:
R12
LR
PC
PSR
TOP

iv) IPSR = interrupt number,

v) PC = load ISR (Vector)

Interrupt service routine :-

Do :-

trigger = ①

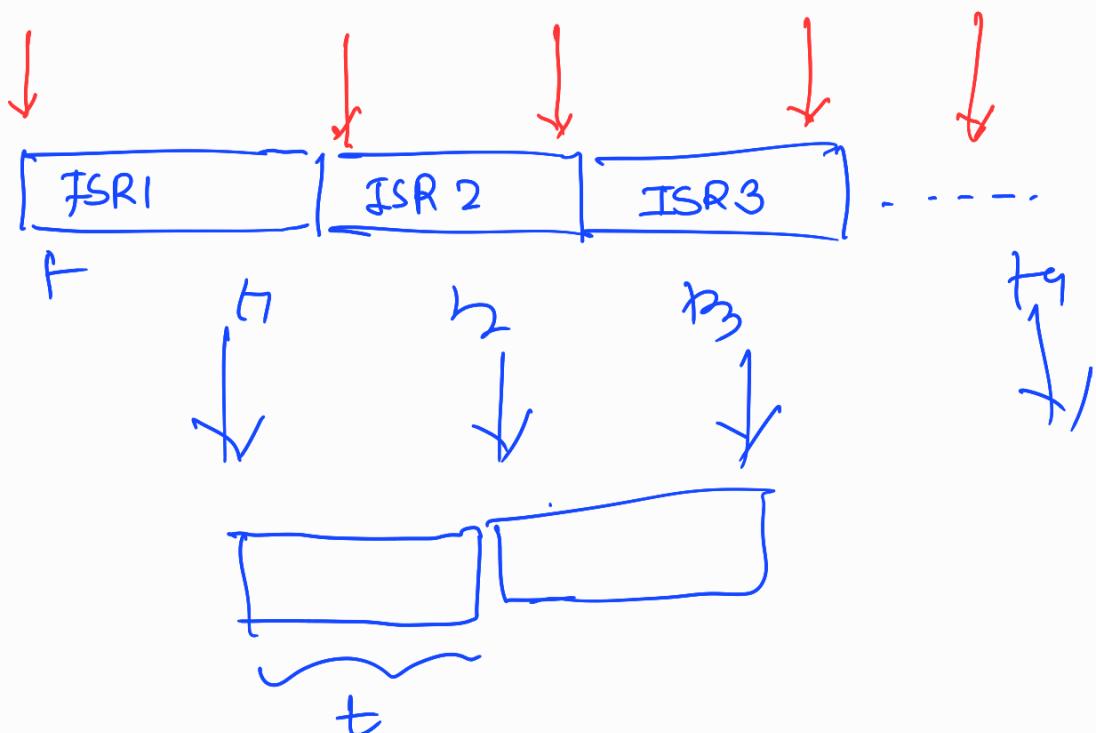
i) Acknowledge : clear trigger ; software clear it
(system crash if you don't do it)

ii) Short routine : so that all the interrupt get serviced
ISR

Not to do :-

i) No delay loop

ii) How often we trigger interrupt



Vector address	Number	IRQ	ISR name in Startup.s	NVIC	Priority bits
0x00000038	14	-2	PendSV_Handler	NVIC_SYS_PRI3_R	23 - 21
0x0000003C	15	-1	SysTick_Handler	NVIC_SYS_PRI3_R	31 - 29
0x00000040	16	0	GPIOPortA_Handler	NVIC_PRI0_R	7 - 5
0x00000044	17	1	GPIOPortB_Handler	NVIC_PRI0_R	15 - 13
0x00000048	18	2	GPIOPortC_Handler	NVIC_PRI0_R	23 - 21
0x0000004C	19	3	GPIOPortD_Handler	NVIC_PRI0_R	31 - 29
0x00000050	20	4	GPIOPortE_Handler	NVIC_PRI1_R	7 - 5
0x00000054	21	5	UART0_Handler	NVIC_PRI1_R	15 - 13
0x00000058	22	6	UART1_Handler	NVIC_PRI1_R	23 - 21
0x0000005C	23	7	SSI0_Handler	NVIC_PRI1_R	31 - 29
0x00000060	24	8	I2C0_Handler	NVIC_PRI2_R	7 - 5
0x00000064	25	9	PWM0Fault_Handler	NVIC_PRI2_R	15 - 13
0x00000068	26	10	PWM0_Handler	NVIC_PRI2_R	23 - 21
0x0000006C	27	11	PWM1_Handler	NVIC_PRI2_R	31 - 29
0x00000070	28	12	PWM2_Handler	NVIC_PRI3_R	7 - 5
0x00000074	29	13	Quadrature0_Handler	NVIC_PRI3_R	15 - 13
0x00000078	30	14	ADC0_Handler	NVIC_PRI3_R	23 - 21
0x0000007C	31	15	ADC1_Handler	NVIC_PRI3_R	31 - 29
0x00000080	32	16	ADC2_Handler	NVIC_PRI4_R	7 - 5
0x00000084	33	17	ADC3_Handler	NVIC_PRI4_R	15 - 13
0x00000088	34	18	WDT_Handler	NVIC_PRI4_R	23 - 21
0x0000008C	35	19	Timer0A_Handler	NVIC_PRI4_R	31 - 29
0x00000090	36	20	Timer0B_Handler	NVIC_PRI5_R	7 - 5
0x00000094	37	21	Timer1A_Handler	NVIC_PRI5_R	15 - 13
0x00000098	38	22	Timer1B_Handler	NVIC_PRI5_R	23 - 21
0x0000009C	39	23	Timer2A_Handler	NVIC_PRI5_R	31 - 29
0x000000A0	40	24	Timer2B_Handler	NVIC_PRI6_R	7 - 5
0x000000A4	41	25	Comp0_Handler	NVIC_PRI6_R	15 - 13
0x000000A8	42	26	Comp1_Handler	NVIC_PRI6_R	23 - 21
0x000000AC	43	27	Comp2_Handler	NVIC_PRI6_R	31 - 29
0x000000B0	44	28	SysCtl_Handler	NVIC_PRI7_R	7 - 5
0x000000B4	45	29	FlashCtl_Handler	NVIC_PRI7_R	15 - 13
0x000000B8	46	30	GPIOPortF_Handler	NVIC_PRI7_R	23 - 21
0x000000BC	47	31	GPIOPortG_Handler	NVIC_PRI7_R	31 - 29
0x000000C0	48	32	GPIOPortH_Handler	NVIC_PRI8_R	7 - 5
0x000000C4	49	33	UART2_Handler	NVIC_PRI8_R	15 - 13
0x000000C8	50	34	SSI1_Handler	NVIC_PRI8_R	23 - 21
0x000000CC	51	35	Timer3A_Handler	NVIC_PRI8_R	31 - 29
0x000000D0	52	36	Timer3B_Handler	NVIC_PRI9_R	7 - 5
0x000000D4	53	37	I2C1_Handler	NVIC_PRI9_R	15 - 13
0x000000D8	54	38	Quadrature1_Handler	NVIC_PRI9_R	23 - 21
0x000000DC	55	39	CAN0_Handler	NVIC_PRI9_R	31 - 29
0x000000E0	56	40	CAN1_Handler	NVIC_PRI10_R	7 - 5
0x000000E4	57	41	CAN2_Handler	NVIC_PRI10_R	15 - 13
0x000000E8	58	42	Ethernet_Handler	NVIC_PRI10_R	23 - 21
0x000000EC	59	43	Hibernate_Handler	NVIC_PRI10_R	31 - 29
0x000000F0	60	44	USB0_Handler	NVIC_PRI11_R	7 - 5
0x000000F4	61	45	PWM3_Handler	NVIC_PRI11_R	15 - 13
0x000000F8	62	46	uDMA_Handler	NVIC_PRI11_R	23 - 21
0x000000FC	63	47	uDMA_Error	NVIC_PRI11_R	31 - 29