



**KHALIFA**  
UNIVERSITY

**Khalifa University of Science, Technology and Research**

**Electronic Engineering Department**

**Microprocessor Systems Laboratory ELCE333**

**Experiment No. 6**

**Pre-Lab Report**

## **HCS12 INTERRUPTS**

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**Aim:**

- To introduce the students to the concept of interrupt and their usage in embedded system.

**Objectives:**

- Understand interrupts and their use in embedded system.
- Write a program that handles external interrupts.
- Develop simple programs for an embedded system.
- Use the CodeWarrior IDE for the development of HCS12 microcontroller C programs.
- To compile, download and debug/test a C program using CodeWarrior C compiler and Dragon12 Plus Trainer board.

## **Pre-Lab Questions:**

**1. What is the address of the IRQ and the PTH interrupt in the HCS12 interrupt vector table?**

*From the mc9s12dg256.h file:*

*#define Virq                      0xFFFF2U*

*#define Vporth                    0xFFCCU*

*IRQ: 0xFFFF2                  PTH: 0xFFCC*

**2. Upon Reset, IRQ and XIRQ hardware interrupts are \_\_\_\_\_ (edge, level) triggered.**

*Upon reset they are configured for low level triggered interrupt.*

**3. True or False. An interrupt is assigned to each bit of PTH, instead of a single interrupt to the entire PTH.**

*True, each of the 8 bits in PTH is considered as an interrupt source and to enable such interrupt capability of any of PTH bits the corresponding bit has to be set in the PTH Interrupt Enable Register (PIEH).*

**4. True or False. Upon Reset, the PTH interrupt is masked**

*True*

**5. In HCS12, indicate how you enable the peripheral interrupts globally.**

*In order to globally enable interrupts the assembly command clear global interrupt flag has to be called “\_\_asm CLI;”.*

**6. Which register is used to make PTH interrupt level- or edge- triggered?**

*Since PTH is edge triggered, we can set its polarity using the port polarity select register for port H called PPSH is used to make it either falling edge or rising edge triggered.*

*Falling edge: PPSH=0X00*

*Rising edge: PPSH = 0X*