DEVICES AND COMMUNICATION BUSES FOR DEVICES NETWORK–

Lesson-14: Software Timer

Software timer

- A software, which executes and increases or decreases a count-variable (count value) on an interrupt from on a system timer output or from on a real-time clock interrupt.
- The software timer also generate interrupt on overflow of count-value or on finishing value of the count variable.

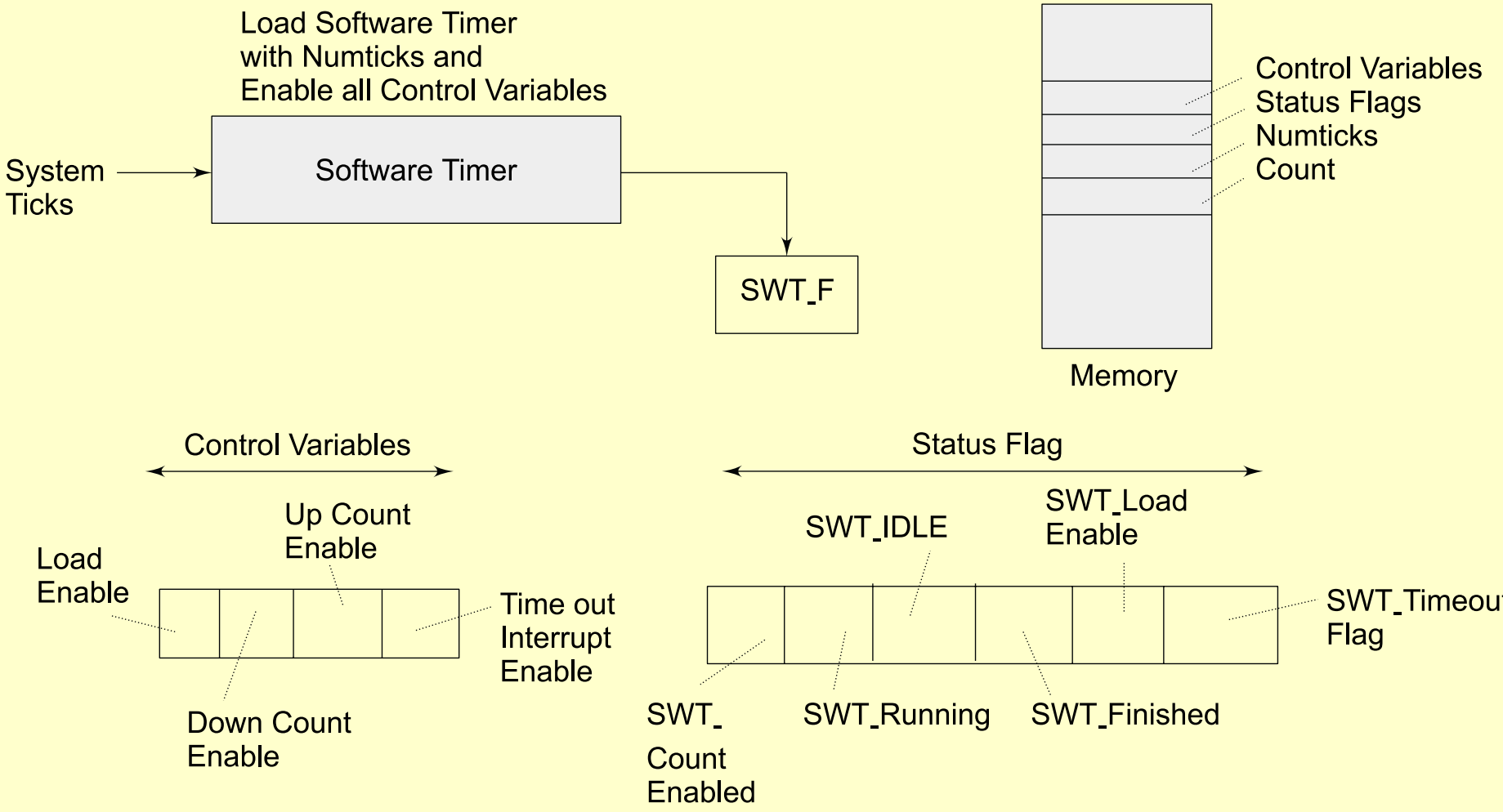
System clock

- In a system an hardware-timing device is programmed to tick at constant intervals.
- At each tick there is an interrupt
- A chain of interrupts thus occur at periodic intervals.
- The interval is as per a preset *count value*
- The interrupts are called system clock interrupts, when used to control the schedules and timings of the system

Software timer (SWT)

- SWT is a timer based on the system clock interrupts
- The interrupt functions as a clock input to an SWT.
- This input is common to all the SWTs that are in the list of activated SWTs.
- Any number of SWTs can be made active in a list.
- Each SWT will set a status flag on its timeout (*count-value* reaching 0).

Software Timer



SWT

- Actions are analogous to that of a hardware timer. While there is physical limit (1, 2 or 3 or 4) for the number of hardware timers in a system, SWTs can be limited by the number of interrupt vectors provided by the user.
- Certain processors (microcontrollers) also defines the interrupt vector addresses of 2 or 4 SWTs

Summary

We learnt

- Software timer
- Timer gets input on system timer interrupts
- Software timers enable the system to have more number of timing devices from one hardware timer

End of Lesson 14 of Chapter 3