

# DEVICE DRIVERS AND INTERRUPTS SERVICE MECHANISM

## Lesson-4: Interrupt Service Threads as Second Level Interrupt Handlers

## ISR executed in two parts

- One part is short execution time service routine
- Runs the critical part of the ISR and passes a signal or message to the OS for running the remaining second part later.

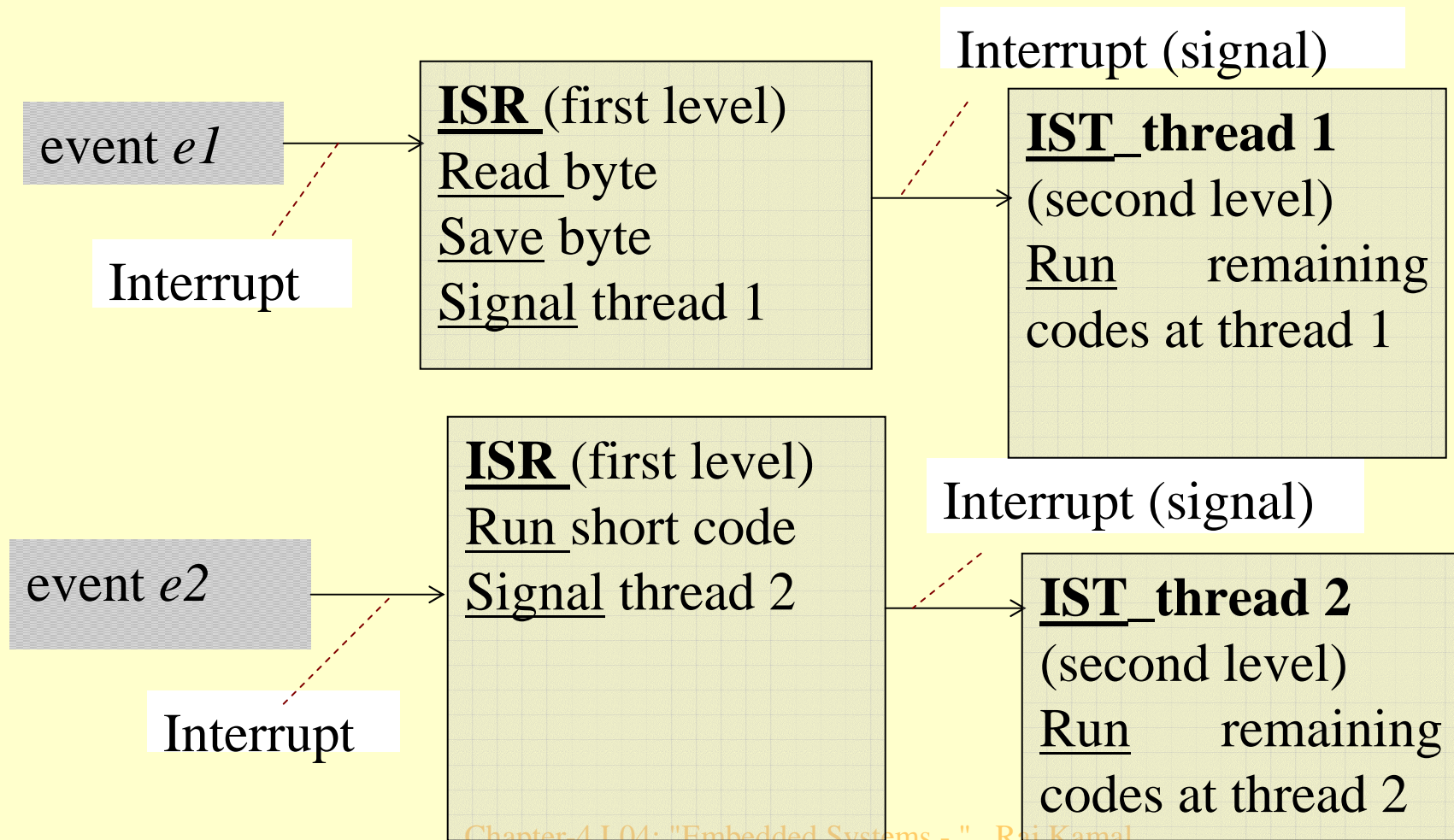
## First level ISR (FLISR).

- First part does the device dependent handling only. For example, it does not perform data decryption of data received from the network. It simply does the transfer of data to the memory buffer for the device data
- Second part waits during execution of the interrupts of lesser priority.

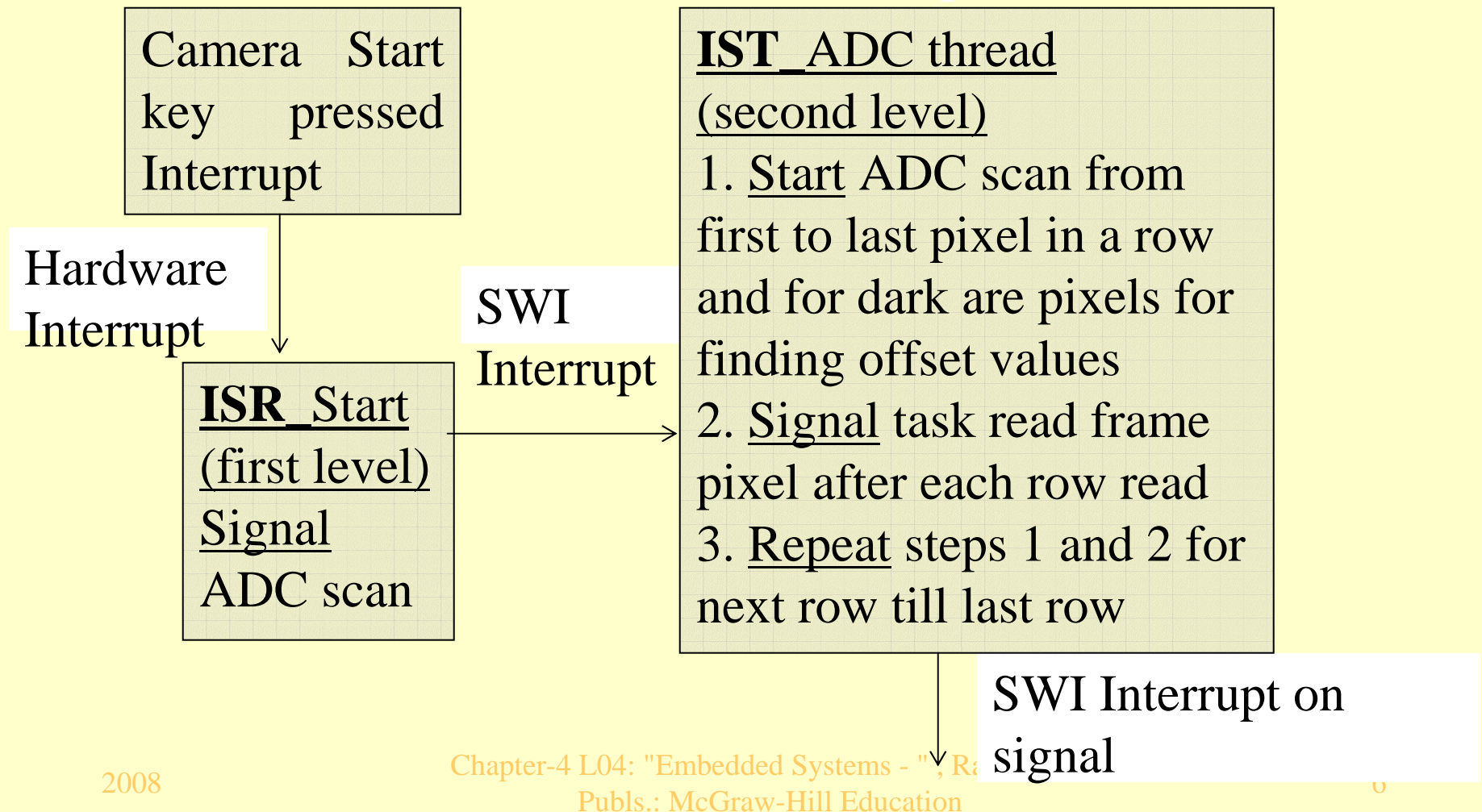
## Second level ISR (SLISR) [Interrupt service thread (IST)]

- Second part is long service routine
- The OS schedules the IST as per its priority.
- Does the device independent handling.
- IST is also the software interrupt, when it is triggered by an SWI (software interrupt instruction) [Signal] in FLISR

First level ISR and second level IST approach to handle the device hardware interrupts followed by software interrupt



# First level ISR and second level IST approach to handle the device hardware interrupts followed by software interrupt



# Summary

## We learnt

- Interrupt service can be done in two parts: the hardware device dependent codes executed in first fast level part ISR, which has short execution time and software-interrupt from first part to second level ISR, also called interrupt service thread



# End of Lesson 4 of Chapter 4