

DEVICE DRIVERS AND INTERRUPTS SERVICE MECHANISM

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

ISR executed in two parts

- One part, a short execution time service routine
- Run the critical part of the ISR
- Passes a signal or message to the OS for running the remaining second part later

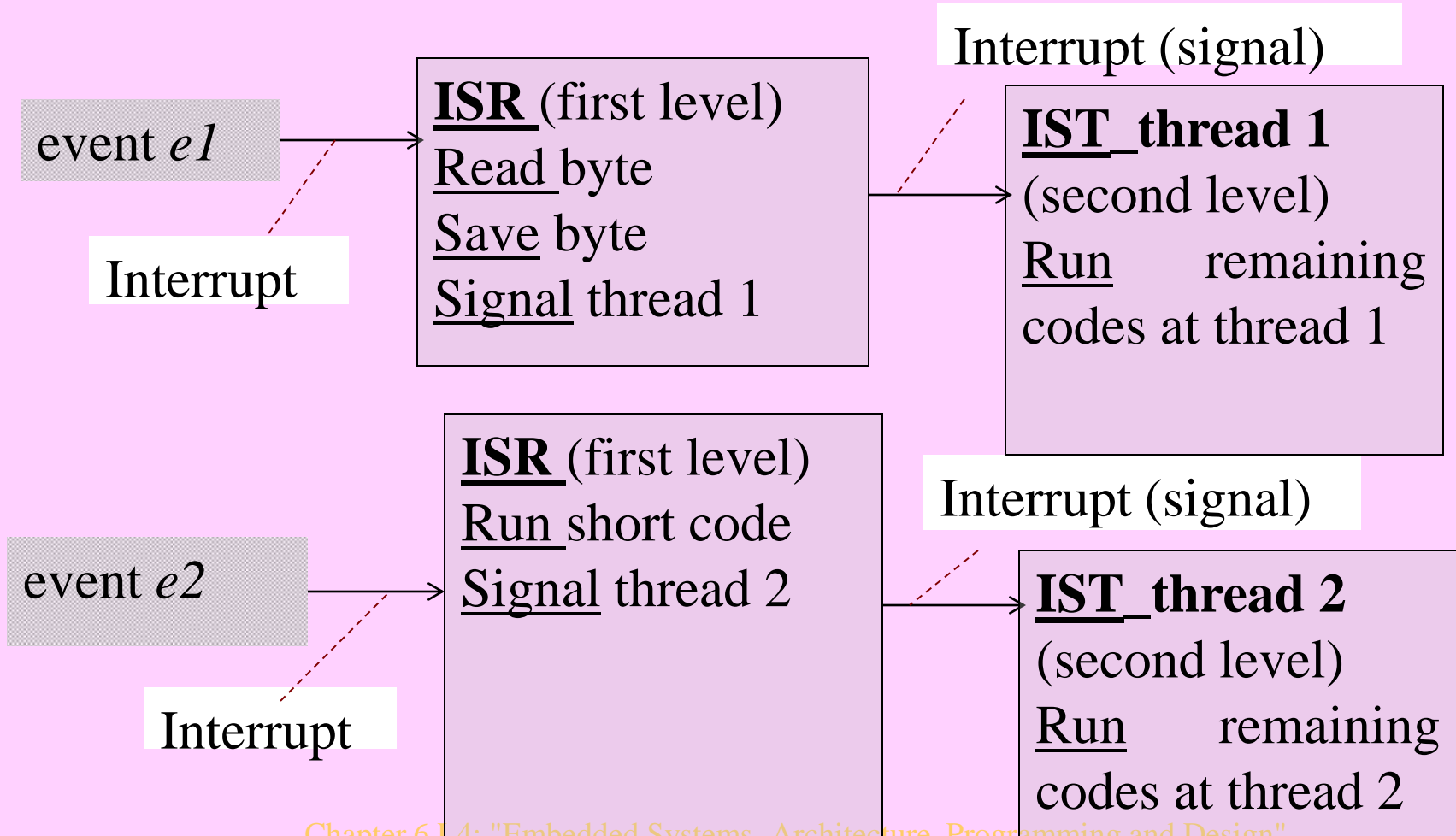
First level ISR (FLISR).

- First part ISR does the device dependent handling only
- For example, it does not perform data decryption of data received from the network
- Simply does the transfer of data to the memory buffer for the device data
- Second part waits during execution of the interrupts of higher priorities

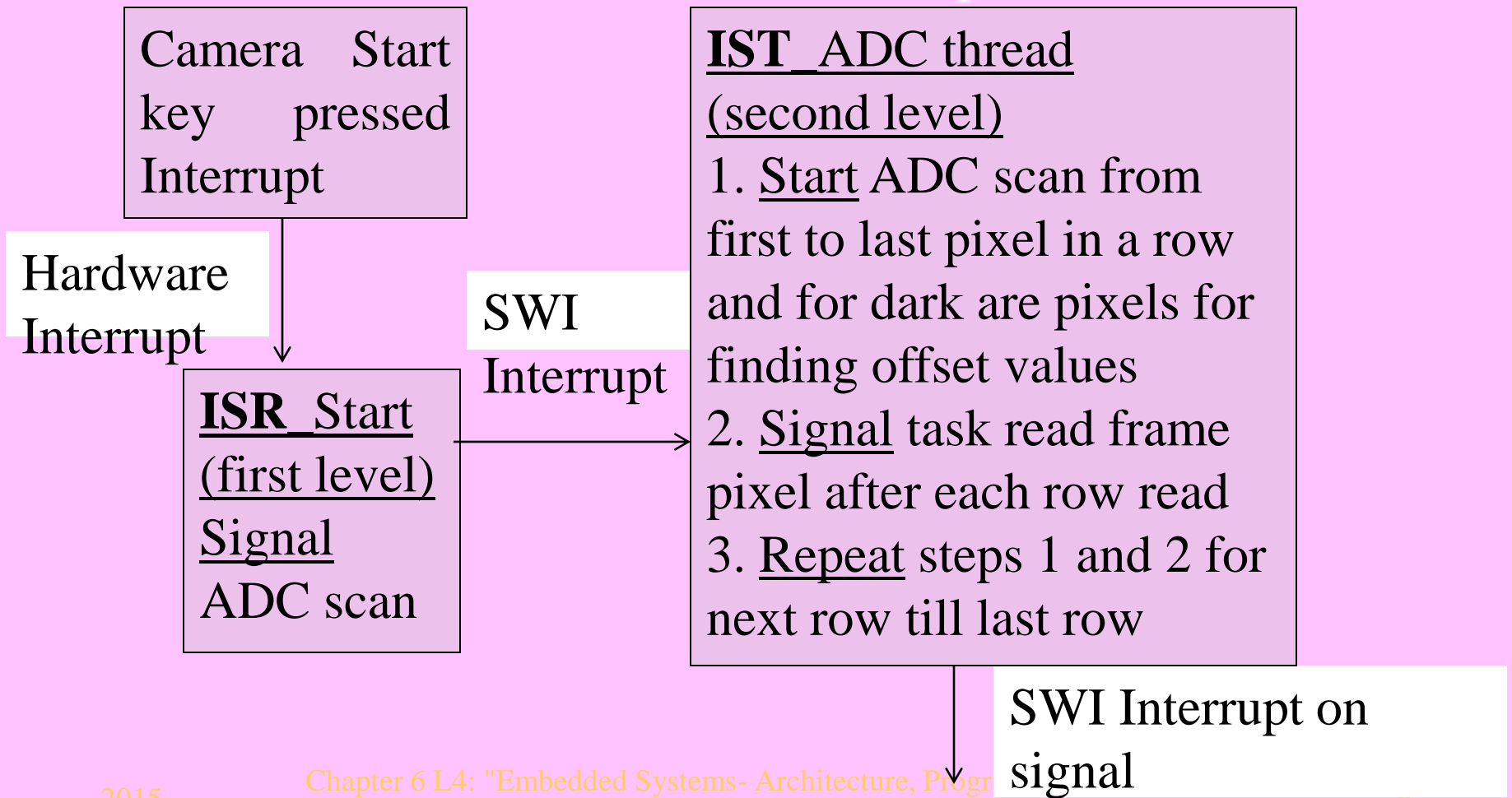
Second level ISR (SLISR) [Interrupt service thread (IST)]

- 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 generated ISR, 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 done in two parts
- Hardware device dependent codes executed in first fast level part ISR
- Short execution time FLISR
- Second part, software-interrupt from first part to second level ISR, also called interrupt service thread

End of Lesson 4 of Chapter 6
on
Interrupt Service Threads as Second
Level Interrupt Handlers