

Synchronization & Communication

- Resource synchronization
- Activity synchronization

Synchronous Activity Synchronization

- Task-to-Task synchronization using binary semaphore

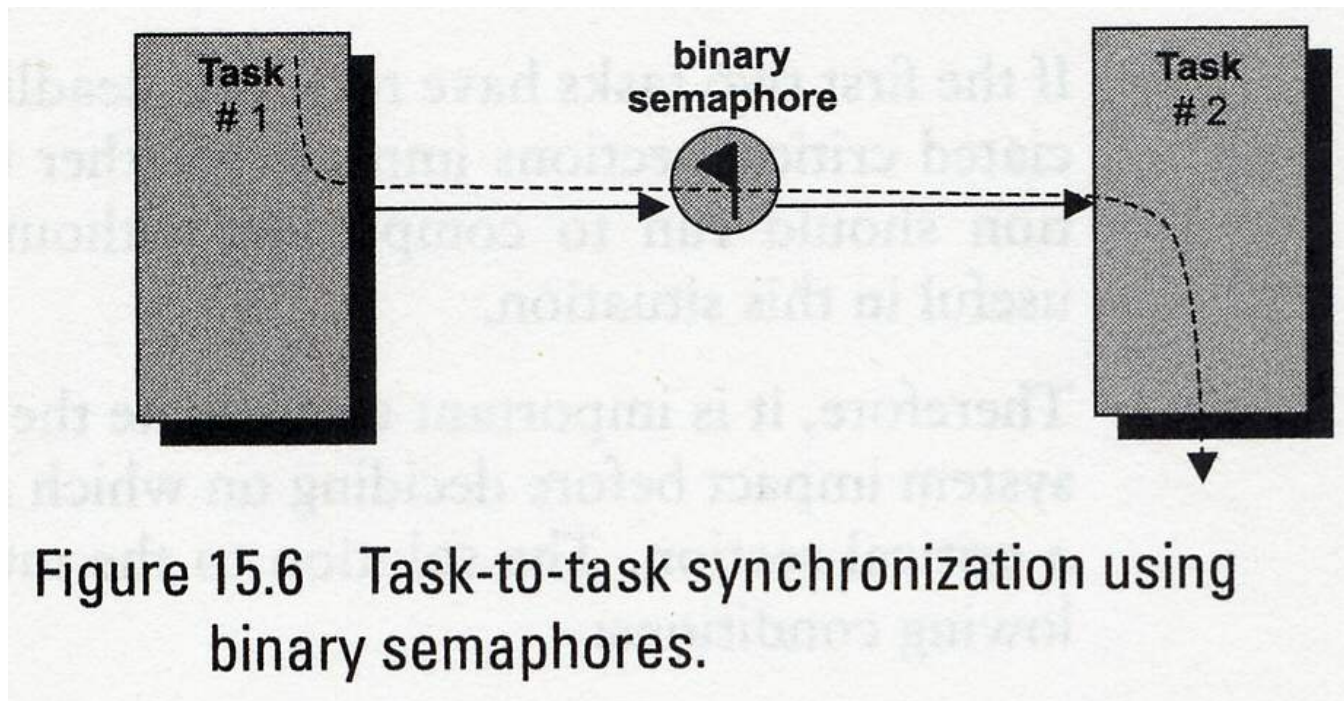
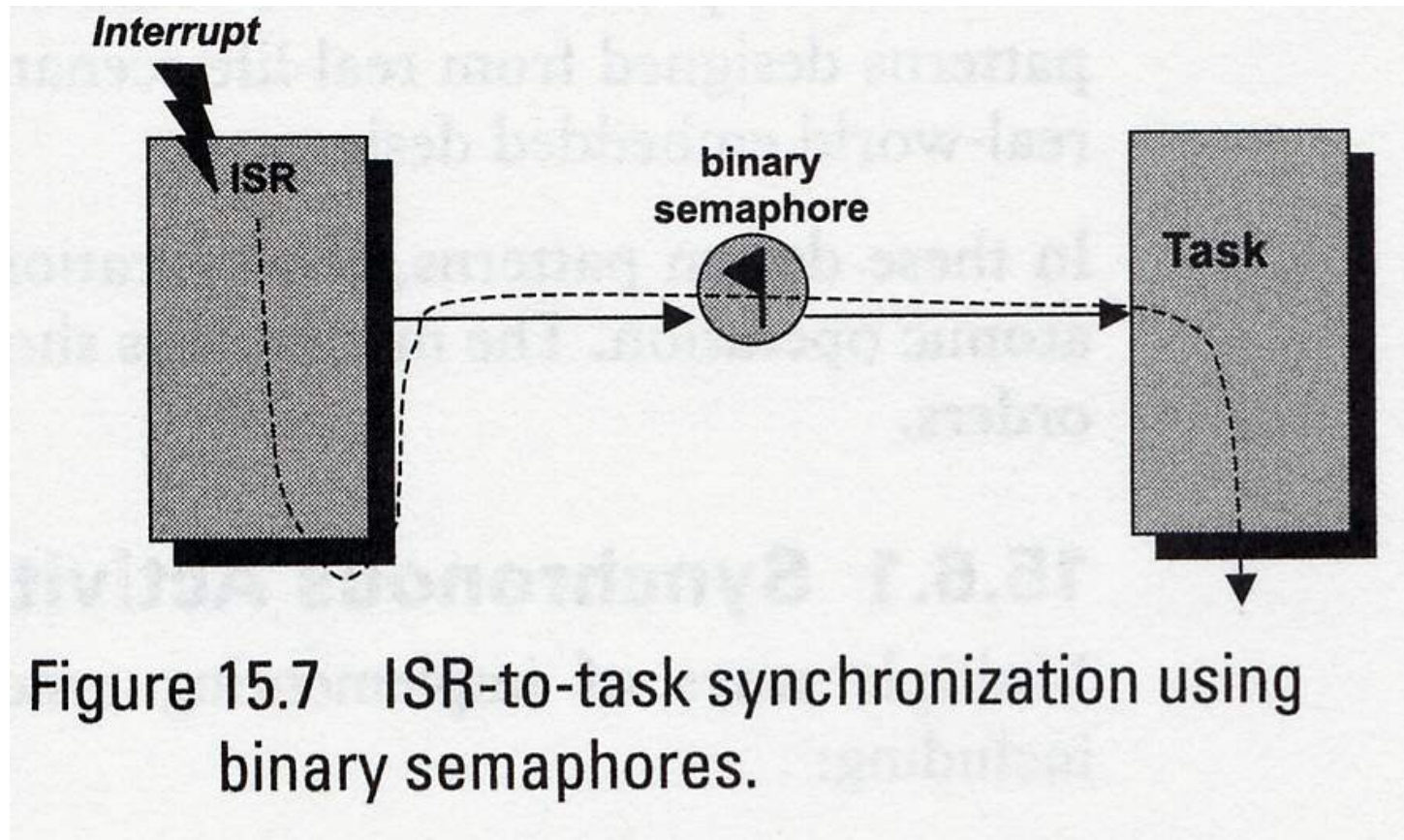


Figure 15.6 Task-to-task synchronization using binary semaphores.

Task-to-Task Synchronization using Binary Semaphore

- Initial value of binary semaphore=0
- Task 2 wait for task 1 to reach an execution point, at which time task 1 signals to task 2 by giving the semaphore
- The value of the binary semaphore is reset to 0 after the synchronization

ISR-to-Task Synchronization using Binary Semaphore



ISR-to-Task Synchronization using Binary Semaphore

- Initial value of binary semaphore=0
- The task wait for ISR to signal when the event occurs and ISR runs, it signals to the task by giving the semaphore
- The value of binary semaphore is reset to 0 after the task resumes the execution

ISR-to-Task Synchronization using Counting Semaphore

- To accumulate event occurrence
- The value of the counting semaphore increments by one each time the ISR gives the semaphore
- Its value is decremented by one each time the task gets the semaphore
- The task runs as long as the counting semaphore is non-zero