ECEN 5623

Homework set 2

Due 2019/02/28

These problems should be done individually, not with your project partner.

From the text, do problems 2.5, 3.5, and 4.2:

2.5 Implement a Linux process that is executed at the default priority for a user-level application and waits on a binary semaphore to be given by another application. Run this process and verify its state using the ps command to list its process descriptor. Now, run a separate process to give the semaphore causing the first process to continue execution and exit. Verify completion.

3.5 If EDF can be shown to meet deadlines and potentially has 100% CPU resource utilization, then why is it not typically the hard real-time policy of choice? That is, what are drawbacks to using EDF compared to RM/DM? In an overload situation, how will EDF fail?

4.2 If a system must complete frame processing so that 100,000 frames are completed per second and the instruction count per frame processed is 2,120 instructions on a 1 GHz processor core, what is the CPI required for this system? What is the overlap between instructions and IO time if the intermediate IO time is 4.5 microseconds?