Homework 3 Part 2

1. What are the two requirements for successful completion of an application running in a Real-Time environment?
2. Describe two processor innovations which, although they create a more efficient general-purpose computing platform, would impact the correct evolution of applications in a real-time environment. Describe how these innovations operate and what aspects of the innovations interfere with real-time applications. For each of the innovations, how might they be adapted for use with a real-time system?
3. During investigation into embedded versus real-time systems, we have been discussing typical timing examples for processes using the parameters t_a, arrival time, t_s, start time, t_f, finish time, and t_d, deadline time. Given this process timeline, what tools can we deploy to measure process execution time and process latency? Please include a timing diagram for a typical process, include the timing parameters discussed above, indicate process execution time and startup latency time on the diagram and discuss the tools used to measure each section.
4. Describe two of the four Linux kernel functions outlined in class. Figures could be helpful when describing these functions.
5. Describe the boot sequence of the Raspberry Pi in detail. What hardware modules are activated at each boot step? What software is used to boot the RPi? Where does each software process run? Identify the name and location of files used to boot the RPi. One of these files, start.elf, is an example of the ELF file format; What is the ELF format?