Memorandum:

From: Alvin Koontz

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To: Dr. Yoder

Subject: Homework 7 results

Table 1, summarizes the results I got from my programs. I was really surprised by how poorly the kernel option worked in comparison to the other programs. I can imagine this is because the kernel option uses interrupts where the other programs sit in a while loop consistently checking. The PRU performed the best by a long shot, I had to up the frequency to 1MHz for the scope to determine there is a difference between the signals, and the error was orders of magnitude smaller than the other methods. This make sense since it is independent of other programs and is running code just for this and doesn’t have to share the processor with other programs. This also meant that the PRU didn’t appear on the top, since it isn’t using the CPU. This makes it seem like the PRU is the best option for doing programs like this due to its low load, and high accuracy.

Table 1:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Program | CPU % | Frequency | Average | Min | Max |
| Python | 92.1 | 1KHz | 95us | 20us | 466us |
| Mmap | 97.5 | 1KHz | 4us | 2us | 486us |
| Pru | 0 | 1MHz | 33ns | 28ns | 38ns |
| Kernel | 43.1 | 1KHz | 316us | 280us | 582us |