**GPIO Speed Report**

When using interrupts to detect changes in GP1\_3, the time delay is about 1ms. When using mmap to copy GP1\_3 to GP1\_4, there is no time delay visible on the scope screen. When running the kernel driver, the time delay is a little shorter than using interrupts, which is about 0.5ms. So using mmap will provide the shortest time delay.

As for the percent CPU usage, using interrupts results in a 2 percent usage, using mmap causes a 100% CPU usage, and using kernel causes a 2.6 percent usage. So using interrupts and using kernel have similar CPU usage, but mmap method uses up all the CPU space.

Overall, mmap has the highest accuracy but requires the most CPU usage at the same time. Interrupts and kernel has similar accuracy and CPU usage, with kernel being a little more precise.

|  |  |  |
| --- | --- | --- |
|  | **Time Delay** | **CPU Usage** |
| **Interrupt** | 1ms | 2.0% |
| **mmap** | 0ms | 100% |
| **Kernel** | 0.5ms | 2.6% |

**Table 1 GPIO Speed Comparison**