**Project 1**

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**Introduction**

If slow, might want to change to cli boot 😊

**Program Modifications**

**Response Time**

*Response Time Summary*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Response Time** | | | | | |
|  | **Min Speed (600 MHz)** | | | **Max Speed (1.2 GHz)** | | |
| **Detector Version** | **Minimum** | **Distribution Peak (Mode)** | **Maximum** | **Minimum** | **Distribution Peak (Mode)** | **Maximum** |
| **1** | 103.78 us | 307.7 us | 1.7669 ms | 50.153 us | 151.69 us | 881.32 us |
| **2** | 25.74 us | 137.52 us | 1.2553 ms | 13.082 us | 64.441 us | 552.36 us |
| **3** | 286.71 us | 327.49 us | 431.72 us | 171.9 us | 208.16 us | 289.73 us |
| **4** | 282.54 us | 324.83 us | 433.6 us | 183.31 us | 210.5 us | 295.47 us |
| **5** | 98.822 us | 168.31 us | 384.32 us | 61.541 us | 97.795 us | 157.84 us |
| **6** | 657.25 us | 849.85 us | 1.0802 ms | 457.04 us | 589.97 us | 713.84 us |
| **7** | 178.7 ns | 571.45 ns | 2.9733 us | 80.514 ns | 435.5 ns | 2.9733 us |
| **8** | 6.4109 us | 11.486 us | 17.196 us | 3.9789 us | 7.0453 us | 15.293 us |
| **9** | 8.1057 us | 22.305 us | 40.432 us | 5.5378 us | 13.846 us | 24.269 us |
| **10** |  |  |  |  |  |  |

*Response Time Plots*

**CPU Utilization**

*CPU Utilization Data*

|  |  |  |
| --- | --- | --- |
|  | **CPU Utilization (%)** | |
| **Detector Version** | **Min Speed (600 MHz)** | **Max Speed (1.2 GHz)** |
| **1** | 97.7 | 97 |
| **2** | 97.6 | 97.1 |
| **3** | 4.8 | 3.9 |
| **4** | 4.8 | 3.9 |
| **5** | 101.9 | 102 |
| **6** | 8.7 | 7.8 |
| **7** | 100 | 100 |
| **8** | 100 | 100 |
| **9** | 100 | 100 |
| **10** |  |  |

**CPU Utilization vs. Response Time**

**Conclusion?**

**Appendix:**

*cpp\_sysfs\_bw\_poll\_echo*

*Graphical user interface

Description automatically generated with medium confidenceGraphical user interface

Description automatically generated*

*cpp\_sysfs\_stream\_bw\_poll\_echo*

*Graphical user interface

Description automatically generated with medium confidenceGraphical user interface

Description automatically generated*

*cpp\_sysfs\_epoll\_echo*

*Graphical user interface

Description automatically generatedGraphical user interface

Description automatically generated*

*cpp\_sysfs\_epoll\_tcb\_echo*

*Graphical user interface

Description automatically generated with low confidenceA picture containing graphical user interface

Description automatically generated*

*Python/direct\_gpiozero.py*

*Graphical user interface, diagram

Description automatically generatedGraphical user interface

Description automatically generated with medium confidence*

*Python/callback\_gpiozero.py*

*Diagram

Description automatically generatedDiagram

Description automatically generated*

*C\_devmem\_echo*

*Graphical user interface

Description automatically generatedGraphical user interface, chart

Description automatically generated*

*C\_gpiod\_echo*

*Graphical user interface

Description automatically generatedGraphical user interface

Description automatically generated*

*C\_gpiod\_event*

*Graphical user interface

Description automatically generatedGraphical user interface

Description automatically generated*