# CS 311: Computer Architecture Lab

## LAB 6 REPORT

### BASE ASSUMPTIONS:

Main Memory Latency: 40

For CacheLd = 1kB

|                        | Evenorodd | Descending | Fibonacci | Prime   | Palindrome |
|------------------------|-----------|------------|-----------|---------|------------|
| Static<br>Instructions | 9         | 21         | 21        | 16      | 16         |
| Dynamic Instructions   | 6         | 277        | 78        | 29      | 49         |
| Assignment 5<br>Cycles | 244       | 14604      | 3764      | 1364    | 2244       |
| Throughput (IPC)       | 0.02459   | 0.01897    | 0.02072   | 0.02126 | 0.02184    |
| CacheLi Size           |           |            |           |         |            |
| 8B                     | 260       | 15057      | 3858      | 1398    | 2300       |
| Throughput (IPC)       | 0.02308   | 0.01840    | 0.02022   | 0.02074 | 0.02130    |
| 32B                    | 265       | 11737      | 2846      | 598     | 712        |
| Throughput (IPC)       | 0.02264   | 0.02360    | 0.02741   | 0.04849 | 0.06882    |
| 128B                   | 275       | 4192       | 1554      | 660     | 788        |
| Throughput (IPC)       | 0.02182   | 0.06608    | 0.05019   | 0.04394 | 0.06218    |
| 1kB                    | 295       | 5244       | 1874      | 796     | 1012       |
| Throughput (IPC)       | 0.02034   | 0.05282    | 0.04162   | 0.03643 | 0.04842    |

For CacheLi = 1kB

|                        | Evenorodd | Descending | Fibonacci | Prime   | Palindrome |
|------------------------|-----------|------------|-----------|---------|------------|
| Static<br>Instructions | 9         | 21         | 21        | 16      | 16         |
| Dynamic Instructions   | 6         | 277        | 78        | 29      | 49         |
| Assignment 5<br>Cycles | 244       | 14604      | 3764      | 1364    | 2244       |
| Throughput (IPC)       | 0.02459   | 0.01897    | 0.02072   | 0.02126 | 0.02184    |
| CacheLd Size           |           |            |           |         |            |
| 8B                     | 292       | 5815       | 1825      | 796     | 1012       |
| Throughput (IPC)       | 0.02055   | 0.04764    | 0.04274   | 0.03643 | 0.04842    |
| 32B                    | 292       | 4567       | 1832      | 796     | 1012       |
| Throughput (IPC)       | 0.02055   | 0.06065    | 0.04258   | 0.03643 | 0.04842    |
| 128B                   | 292       | 5037       | 1846      | 796     | 1012       |
| Throughput (IPC)       | 0.02055   | 0.05499    | 0.04225   | 0.03643 | 0.04842    |
| 1kB                    | 295       | 5244       | 1874      | 796     | 1012       |
| Throughput (IPC)       | 0.02034   | 0.05282    | 0.04162   | 0.03643 | 0.04842    |

#### **OBSERVATIONS**

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