

GitHub Link: <https://github.com/bryanngdev/CS392-HW4>

Timing Results for Part 1

| Matrix Width, Block Size, | Time Taken(s), | Time Taken(μ s) |
|---------------------------|----------------|----------------------|
| 2048, 2, | 0, | 52824 |
| 2048, 4, | 0 | ,42492 |
| 2048, 8, | 0, | 26315 |
| 2048, 16, | 0, | 25852 |
| 2048, 32, | 0, | 22074 |
| 2048, 64, | 0, | 23772 |
| 2048, 128, | 0, | 24262 |
| 2048, 256, | 0, | 25587 |
| 2048, 512, | 0, | 24913 |
| 2048, 1024, | 0, | 51867 |
| 2048, 2048, | 0, | 62779 |
| 4096, 2, | 0, | 234461 |
| 4096, 4, | 0, | 199646 |
| 4096, 8, | 0, | 137103 |
| 4096, 16, | 0, | 104516 |
| 4096, 32, | 0, | 107906 |
| 4096, 64, | 0, | 106659 |
| 4096, 128, | 1, | -892011 |
| 4096, 256, | 0, | 103067 |
| 4096, 512, | 0, | 158307 |
| 4096, 1024, | 1, | -776033 |
| 4096, 2048, | 0, | 233102 |
| 4096, 4096, | 0, | 257886 |
| 8192, 2, | 1, | 17188 |
| 8192, 4, | 1, | -107673 |
| 8192, 8, | 1, | -400545 |
| 8192, 16, | 1, | -580046 |
| 8192, 32, | 0, | 353815 |
| 8192, 64, | 0, | 374816 |
| 8192, 128, | 0, | 396808 |
| 8192, 256, | 0, | 377117 |
| 8192, 512, | 0, | 542120 |
| 8192, 1024, | 1, | 271230 |
| 8192, 2048, | 2, | -481389 |
| 8192, 4096, | 2, | -670266 |
| 8192, 8192, | 1, | 385132 |

Timing Results for Part 2

| Matrix Height, | Matrix Width, | Block Size, | Time Taken(s), | Time Taken(μs) |
|----------------|---------------|-------------|----------------|----------------|
| 2001, | 2049, | 2, | 0, | 44204 |
| 2001, | 2049, | 4, | 0, | 40914 |
| 2001, | 2049, | 8, | 0, | 43193 |
| 2001, | 2049, | 16, | 0, | 36946 |
| 2001, | 2049, | 32, | 0, | 45553 |
| 2001, | 2049, | 64, | 0, | 49138 |
| 2001, | 2049, | 128, | 0, | 52070 |
| 2001, | 2049, | 256, | 0, | 50876 |
| 2001, | 2049, | 512, | 0, | 52352 |
| 2001, | 2049, | 1024, | 0, | 56067 |
| 2001, | 4090, | 2, | 1, | -886666 |
| 2001, | 4090, | 4, | 0, | 110391 |
| 2001, | 4090, | 8, | 0, | 93223 |
| 2001, | 4090, | 16, | 0, | 96266 |
| 2001, | 4090, | 32, | 0, | 94621 |
| 2001, | 4090, | 64, | 0, | 101629 |
| 2001, | 4090, | 128, | 0, | 103908 |
| 2001, | 4090, | 256, | 0, | 104203 |
| 2001, | 4090, | 512, | 0, | 110133 |
| 2001, | 4090, | 1024, | 0, | 113288 |
| 2001, | 8195, | 2, | 1, | -761876 |
| 2001, | 8195, | 4, | 0, | 156003 |
| 2001, | 8195, | 8, | 0, | 135105 |
| 2001, | 8195, | 16, | 1, | -784900 |
| 2001, | 8195, | 32, | 0, | 204119 |
| 2001, | 8195, | 64, | 0, | 211704 |
| 2001, | 8195, | 128, | 0, | 199559 |
| 2001, | 8195, | 256, | 0, | 229609 |
| 2001, | 8195, | 512, | 0, | 244387 |
| 2001, | 8195, | 1024, | 0, | 266944 |
| 4099, | 2049 , | 2, | 0, | 112189 |
| 4099, | 2049, | 4, | 0, | 95488 |
| 4099, | 2049, | 8, | 1, | -906617 |
| 4099, | 2049, | 16, | 0, | 80123 |
| 4099, | 2049, | 32, | 0, | 99987 |
| 4099, | 2049, | 64, | 0, | 112621 |
| 4099, | 2049, | 128, | 0, | 109558 |
| 4099, | 2049, | 256, | 0, | 108990 |
| 4099, | 2049, | 512, | 0, | 111999 |

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|-------|-------|-------|----|---------|
| 4099, | 2049, | 1024, | 0, | 119819 |
| 4099, | 2049, | 2048, | 0, | 121496 |
| 4099, | 4090, | 2, | 0, | 246612 |
| 4099, | 4090, | 4, | 0, | 213286 |
| 4099, | 4090, | 8, | 0, | 213006 |
| 4099, | 4090, | 16, | 1, | -787863 |
| 4099, | 4090, | 32, | 0, | 211780 |
| 4099, | 4090, | 64, | 0, | 214318 |
| 4099, | 4090, | 128, | 0, | 220746 |
| 4099, | 4090, | 256, | 0, | 222662 |
| 4099, | 4090, | 512, | 1, | -767047 |
| 4099, | 4090, | 1024, | 0, | 225189 |
| 4099, | 4090, | 2048, | 0, | 252196 |
| 4099, | 8195, | 2, | 0, | 529826 |
| 4099, | 8195, | 4, | 0, | 346846 |
| 4099, | 8195, | 8, | 1, | -709786 |
| 4099, | 8195, | 16, | 0, | 425348 |
| 4099, | 8195, | 32, | 0, | 472586 |
| 4099, | 8195, | 64, | 1, | -573421 |
| 4099, | 8195, | 128, | 1, | -549097 |
| 4099, | 8195, | 256, | 0, | 480104 |
| 4099, | 8195, | 512, | 0, | 515251 |
| 4099, | 8195, | 1024, | 0, | 532234 |
| 4099, | 8195, | 2048, | 1, | -441159 |
| 4099, | 8195, | 4096, | 1, | -344250 |
| 8100, | 2049, | 2, | 0, | 219318 |
| 8100, | 2049, | 4, | 0, | 180523 |
| 8100, | 2049, | 8, | 0, | 179123 |
| 8100, | 2049, | 16, | 0, | 169412 |
| 8100, | 2049, | 32, | 0, | 241223 |
| 8100, | 2049, | 64, | 0, | 231040 |
| 8100, | 2049, | 128, | 1, | -767257 |
| 8100, | 2049, | 256, | 0, | 243151 |
| 8100, | 2049, | 512, | 1, | -757643 |
| 8100, | 2049, | 1024, | 0, | 265612 |
| 8100, | 2049, | 2048, | 0, | 267257 |
| 8100, | 4090, | 2, | 0, | 536400 |
| 8100, | 4090, | 4, | 0, | 408628 |
| 8100, | 4090, | 8, | 0, | 457953 |
| 8100, | 4090, | 16, | 1, | -542838 |
| 8100, | 4090, | 32, | 1, | -537819 |
| 8100, | 4090, | 64, | 0, | 480925 |
| 8100, | 4090, | 128, | 0, | 471572 |

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|-------|-------|-------|----|---------|
| 8100, | 4090, | 256, | 0, | 438174 |
| 8100, | 4090, | 512, | 1, | -495334 |
| 8100, | 4090, | 1024, | 1, | -487520 |
| 8100, | 4090, | 2048, | 1, | -439383 |
| 8100, | 8195, | 2, | 1, | 110330 |
| 8100, | 8195, | 4, | 1, | -180807 |
| 8100, | 8195, | 8, | 1, | -223026 |
| 8100, | 8195, | 16, | 1, | -13411 |
| 8100, | 8195, | 32, | 1, | -39093 |
| 8100, | 8195, | 64, | 1, | -45739 |
| 8100, | 8195, | 128, | 1, | -40876 |
| 8100, | 8195, | 256, | 1, | 100728 |
| 8100, | 8195, | 512, | 1, | 166099 |
| 8100, | 8195, | 1024, | 1, | 208312 |
| 8100, | 8195, | 2048, | 1, | 327946 |
| 8100, | 8195, | 4096, | 1, | 445772 |