**Performance Analysis**

Since I wrote my own stream compactor in both CPU and GPU variants, I was interested in finding the performance differential resulting from the use of each. I document my findings below.

I used the default 3-sphere scene setup. The scene was rendered on a system with a Quadro FX 5600 GPU (and a Xeon E5645 CPU) on Release mode.

|  |  |
| --- | --- |
| Type of run | Seconds to render |
| CPU stream compaction (100 iterations, 5 bounces) | 70 |
| CPU stream compaction (500 iterations, 5 bounces) | 392 |
| GPU stream compaction (100 iterations, 5 bounces) | 62 |
| GPU stream compaction (500 iterations, 5 bounces) | 310 |
| Hybrid stream compaction (2000 iterations, 5 bounces) | 1541 |
| Hybrid stream compaction (5000 iterations, 5 bounces) | 4040 |
| Hybrid stream compaction (100 iterations, 5 bounces) | 77 |

The last set of results might suggest that Hybrid stream compaction performs worse than even CPU stream compaction, but it must be said that we’re not comparing apples-to-apples here. It must be divulged that Hybrid stream compaction codebase also includes code for texture mapping, which for some reason, has negatively impacted the performance of the codebase.