

CPU-Style SIMD Ray Traversal on GPUs

Supplemental Material

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Method	2-Wide Reference			4-Wide Reference			2-Wide Ours			4-Wide Ours			8-Wide Ours		
	prim.	diff.	diff. 8	prim.	diff. 1	diff. 8	prim.	diff. 1	diff. 8	prim.	diff. 1	diff. 8	prim.	diff. 1	diff. 8
Conference	676.57	370.78	302.35	1.09	1.04	1.03	0.99	0.96	1.04	0.79	0.87	0.97	0.55	0.65	0.74
Fairy Forest	408.95	263.81	61.25	1.00	1.00	1.01	0.92	1.00	1.16	0.76	0.92	1.26	0.56	0.71	1.12
Sibenik	650.11	306.91	169.80	0.99	1.02	1.08	0.96	1.04	1.49	0.74	0.88	1.38	0.48	0.62	0.98
My Citadel	366.05	195.66	95.81	1.10	1.03	1.03	1.16	1.25	1.27	0.77	0.91	1.05	0.55	0.75	0.94
Sponza	439.54	219.99	129.37	1.03	1.02	1.02	0.92	1.08	1.47	0.78	0.96	1.47	0.48	0.65	1.06
Piper's Alley	395.15	208.62	52.58	1.08	1.02	1.04	0.99	1.04	1.27	0.88	1.02	1.44	0.59	0.73	1.27
Hairball	123.29	47.73	21.59	1.08	1.11	1.05	1.09	1.61	1.58	1.13	2.00	2.75	0.86	1.71	2.60
San Miguel	231.12	90.81	37.24	1.06	1.03	1.01	1.05	1.49	1.72	0.92	1.49	2.51	0.63	1.13	2.14
Rungholt	572.37	283.45	77.04	1.14	1.03	1.03	0.92	1.26	1.68	0.76	1.07	1.63	0.48	0.71	1.26
Powerplant	289.60	161.45	83.23	1.07	1.00	1.03	1.12	1.32	1.80	0.92	1.37	2.25	0.64	1.05	1.84
Powerplant2	394.21	232.17	130.12	1.04	1.01	1.02	0.90	1.09	1.56	0.80	1.07	1.64	0.54	0.77	1.24
Average	413.36	216.49	105.49	1.06	1.03	1.03	1.00	1.19	1.46	0.84	1.14	1.67	0.58	0.86	1.38

Table 1: Absolute performance results in MRays/s for the 2-wide reference [Aila et al. 2012] utilizing triangle duplication according to the original implementation (first column). Results are segmented into primary, diffuse first bounce, and diffuse eighth bounce. The relative performance values of the 4-wide reference [Guthe 2014] and our approaches with 2-, 4-, and 8-wide BVHs are normalized to to the 2-wide reference.