

7.18. SHOC Bus Download Speed 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6	trial7	trial8
DownloadSpeed		1kB		GB/sec	0.0841	0.082579	0.00513556	0.0673684	0.0652534	0.0673684	0.0848806	0.0844327	0.085509	0.0839895	0.0837696	0.082016
DownloadSpeed		2kB		GB/sec	0.160225	0.160489	0.00770024	0.150598	0.1470024	0.150598	0.170667	0.153846	0.150598	0.152745	0.166667	0.166234
DownloadSpeed		4kB		GB/sec	0.300121	0.299614	0.00418758	0.292237	0.292237	0.292237	0.34762	0.301176	0.298605	0.301176	0.296256	0.294931
DownloadSpeed		8kB		GB/sec	0.55549	0.555278	0.00337272	0.551921	0.551921	0.551921	0.601188	0.551921	0.551921	0.551921	0.551921	0.551921
DownloadSpeed		16kB		GB/sec	1.0767	1.0767	0.0223625	1.4382	1.4382	1.4382	1.50147	1.49489	1.49489	1.49489	1.49489	1.49489
DownloadSpeed		32kB		GB/sec	2.03275	2.03275	0.0101278	2.52372	2.52372	2.52372	2.5584	2.5584	2.5584	2.5584	2.5584	2.5584
DownloadSpeed		128kB		GB/sec	2.53309	2.53611	0.0101023	2.52372	2.52372	2.52372	2.53309	2.53309	2.53309	2.53309	2.53309	2.53309
DownloadSpeed		256kB		GB/sec	2.8551	2.84071	0.0336721	2.75361	2.75361	2.75361	2.83362	2.75361	2.83362	2.83362	2.83362	2.83362
DownloadSpeed		512kB		GB/sec	3.04847	2.76925	0.071862	0.680088	0.680088	0.680088	0.79162	0.680088	0.79162	0.79162	0.79162	0.79162
DownloadSpeed		1024kB		GB/sec	3.14696	2.79079	0.089764	1.38361	1.38361	1.38361	1.38361	1.38361	1.38361	1.38361	1.38361	1.38361
DownloadSpeed		2048kB		GB/sec	3.18725	2.94442	0.509087	1.91559	1.91559	1.91559	1.91559	1.91559	1.91559	1.91559	1.91559	1.91559
DownloadSpeed		4096kB		GB/sec	3.23401	3.0139	0.350765	2.46464	2.46464	2.46464	3.15608	3.15608	3.15608	3.15608	3.15608	3.15608
DownloadSpeed		8192kB		GB/sec	3.234	3.11465	0.202179	2.78975	2.78975	2.78975	3.24351	3.24351	3.24351	3.24351	3.24351	3.24351
DownloadSpeed		16384kB		GB/sec	3.15897	3.12591	0.160862	2.87232	2.87232	2.87232	3.04682	3.04682	3.04682	3.04682	3.04682	3.04682
DownloadSpeed		32768kB		GB/sec	3.24847	3.19635	0.10431	2.96314	2.96314	2.96314	3.1251	3.1251	3.1251	3.1251	3.1251	3.1251
DownloadSpeed		65536kB		GB/sec	3.25814	3.25814	0.0336721	3.25814	3.25814	3.25814	3.25814	3.25814	3.25814	3.25814	3.25814	3.25814
DownloadSpeed		131072kB		GB/sec	3.25807	3.27734	0.0134925	3.25807	3.25807	3.25807	3.25807	3.25807	3.25807	3.25807	3.25807	3.25807
DownloadSpeed		262144kB		GB/sec	3.28511	3.26469	0.0347326	3.18579	3.18579	3.18579	3.28579	3.18579	3.28579	3.28579	3.28579	3.28579
DownloadTime		1kB		ms	0.012176	0.0124576	0.00992028	0.011872	0.0152	0.0152	0.012064	0.012128	0.012556	0.012192	0.012224	0.012352
DownloadTime		2kB		ms	0.0128	0.0127904	0.00612372	0.012	0.0136	0.0136	0.012	0.01312	0.0136	0.013408	0.012288	0.01232
DownloadTime		4kB		ms	0.013648	0.0136736	0.00319492	0.013376	0.014016	0.014016	0.01344	0.0136	0.013696	0.0136	0.013824	0.013888
DownloadTime		8kB		ms	0.015072	0.0151168	0.00192639	0.014848	0.015488	0.015488	0.014944	0.01504	0.014944	0.014848	0.01536	0.015264
DownloadTime		16kB		ms	0.017248	0.0172224	0.0005747	0.016416	0.017888	0.017888	0.017728	0.017696	0.017824	0.017792	0.016736	0.016736
DownloadTime		32kB		ms	0.022032	0.0221952	0.00339321	0.021824	0.022784	0.022784	0.021824	0.02192	0.022304	0.021856	0.02272	0.022496
DownloadTime		64kB		ms	0.032128	0.0322432	0.00332022	0.03184	0.032768	0.032768	0.031968	0.03264	0.032128	0.032256	0.032704	0.03184
DownloadTime		128kB		ms	0.051744	0.0516832	0.00205125	0.051232	0.051936	0.051936	0.051744	0.05184	0.051776	0.051744	0.051488	0.051936
DownloadTime		256kB		ms	0.091808	0.0922944	0.00111694	0.091296	0.091584	0.091584	0.092512	0.0952	0.091296	0.091296	0.091488	0.091872
DownloadTime		512kB		ms	0.234461	0.234461	0.178897	0.17152	0.171936	0.171936	0.187808	0.172576	0.171936	0.171808	0.171808	0.172032
DownloadTime		1024kB		ms	0.45816	0.45816	0.178897	0.17152	0.171936	0.171936	0.187808	0.172576	0.171936	0.171808	0.171808	0.172032
DownloadTime		2048kB		ms	0.85932	0.85932	0.178897	0.17152	0.171936	0.171936	0.187808	0.172576	0.171936	0.171808	0.171808	0.172032
DownloadTime		4096kB		ms	1.29688	1.41264	0.178897	0.17152	0.171936	0.171936	0.187808	0.172576	0.171936	0.171808	0.171808	0.172032
DownloadTime		8192kB		ms	2.5939	2.70531	0.185456	2.56317	3.00694	3.00694	2.65098	2.60154	2.56317	2.56317	2.56317	2.56317
DownloadTime		16384kB		ms	5.32082	5.38166	0.282008	5.11318	5.84099	5.84099	5.49099	5.13517	5.11318	5.11318	5.11318	5.11318
DownloadTime		32768kB		ms	10.3299	10.5092	0.353181	10.2145	11.248	11.248	10.4066	10.2532	10.2145	10.2145	10.2145	10.2145
DownloadTime		65536kB		ms	20.4655	20.5941	0.216152	20.4173	20.9649	20.9649	20.5	20.954	20.4256	20.4173	20.8097	20.4239
DownloadTime		131072kB		ms	40.8569	40.954	0.169335	40.8234	41.2766	41.2766	40.8555	41.0241	40.8555	40.8234	41.2766	40.8217
DownloadTime		262144kB		ms	81.7128	82.2333	0.888031	81.6356	84.2601	84.2601	81.7506	84.2601	82.2783	81.673	82.1649	81.6356

7.19. SHOC SPMV 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4
CSR-Scalar-SP	10485_elements_1024_rows	Gflop/s	0.492353	0.491852	0.00156929	0.487232	0.49285	0.487232	0.49285	0.491884	0.492394	0.492394
CSR-Scalar-SP_PClc	10485_elements_1024_rows	Gflop/s	0.137159	0.136804	0.000837205	0.134479	0.137312	0.134479	0.137019	0.137231	0.136955	0.137234
CSR-Vector-SP	10485_elements_1024_rows	Gflop/s	0.261349	0.255234	0.0128315	0.223399	0.262433	0.23735	0.223399	0.260362	0.262245	0.261401
CSR-Vector-SP_PClc	10485_elements_1024_rows	Gflop/s	0.109412	0.108255	0.00243434	0.102147	0.109601	0.104968	0.102147	0.109238	0.109568	0.109421
ELLPACKR-SP	10485_elements_1024_rows	Gflop/s	0.558802	0.558625	0.000974549	0.555872	0.559661	0.555872	0.558511	0.558687	0.559059	0.558854
Padded_CSR-Scalar-SP	16832_elements_1024_rows	Gflop/s	0.639735	0.639539	0.000408259	0.638691	0.640031	0.639339	0.640031	0.639747	0.639852	0.638691
Padded_CSR-Scalar-SP_PClc	16832_elements_1024_rows	Gflop/s	0.210868	0.211135	0.00057479	0.210648	0.212292	0.212292	0.210751	0.210889	0.210774	0.210648
Padded_CSR-Vector-SP	16832_elements_1024_rows	Gflop/s	0.471938	0.471626	0.00082654	0.470233	0.472941	0.471965	0.472041	0.471018	0.471912	0.472682
Padded_CSR-Vector-SP_PClc	16832_elements_1024_rows	Gflop/s	0.18873	0.18868	0.000141317	0.188456	0.18889	0.188734	0.188746	0.188583	0.188726	0.188849

7.20. SHOC MD 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6	trial7	trial8	trial9
MD-LJ	12288_atoms	GfLOPS	38.3134	38.2883	0.220931	37.7012	38.5828	37.7012	38.5828	38.2593	38.2635	38.3632	38.3803	38.2564	38.3818	38.2366	38.4576
MD-LJ-Bandwidth	12288_atoms	GB/s	29.3915	29.3722	0.169483	28.9218	29.5982	28.9218	29.5982	29.35	29.3532	29.4297	29.4428	29.3478	29.4439	29.3326	29.5021
MD-LJ-Bandwidth_PCIe	12288_atoms	GB/s	8.62724	8.62553	0.0147116	8.58632	8.64497	8.58632	8.64497	8.62367	8.62385	8.63054	8.63167	8.62348	8.63176	8.62216	8.63676
MD-LJ_PCIe	12288_atoms	GfLOPS	11.2461	11.2438	0.0191774	11.1927	11.2692	11.1927	11.2692	11.2414	11.2418	11.2504	11.2518	11.2412	11.252	11.2395	11.2585
MD-LJ_Parity	12288_atoms	N	2.40682	2.40524	0.0138787	2.36836	2.42374	2.36836	2.42374	2.40342	2.40369	2.40995	2.41102	2.40324	2.4111	2.40199	2.41588

7.21. SHOC Reduction 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6	trial7	trial8	trial9
Reduction	262144_items	GB/s	45.021	45.0116	0.042387	44.9105	45.0758	44.9105	44.968	45.0758	45.0202	45.0219	45.032	45.0407	45.0267	45.0052	45.0153
Reduction_PCie	262144_items	GB/s	2.79718	2.7812	0.0489921	2.63522	2.80602	2.63522	2.7905	2.79448	2.80072	2.79929	2.80268	2.79507	2.80602	2.80186	2.78617
Reduction_Parity	262144_items	N	15.0988	15.1893	0.28622	15.0465	16.0424	16.0424	15.1147	15.1303	15.0745	15.0833	15.0675	15.1144	15.0465	15.0626	15.1567

7.22. SHOC S3D 9800 GTX+

test	atts	units	median	mean	stdev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6
S3D-SP	13824 gridPoints	GFLOPS	23.0383	22.9121	0.32531	21.9698	23.1593	21.9698	23.0096	23.1074	23.0713	23.0669	22.8426	23.1593
S3D-SP-PCle	13824 gridPoints	GFLOPS	19.4323	19.3408	0.234265	18.6752	19.5184	18.6752	19.4123	19.476	19.4553	19.4524	19.2929	19.5184
S3D-SP Parity	13824 gridPoints	N	0.185562	0.184621	0.00254038	0.177486	0.18654	0.177486	0.185307	0.186453	0.185857	0.185817	0.183989	0.18654

7.23. SHOC SGEMM 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6	trial7	trial8	trial9
SGEMM-N	256	GFlops	227.254	226.987	0.752719	225.331	227.877	227.408	227.1	225.331	227.531	226.084	227.877	227.605	226.768	226.646	227.519
SGEMM-N PCIe	256	GFlops	72.3799	72.3526	0.0766422	72.1837	72.443	72.3955	72.3642	72.1837	72.408	72.2608	72.443	72.4155	72.3306	72.3181	72.4067
SGEMM-N Parity	256	N	2.13973	2.13722	0.00708732	2.12163	2.1456	2.14118	2.13829	2.12163	2.14235	2.12872	2.1456	2.14304	2.13516	2.13401	2.14223
SGEMM-T	256	GFlops	236.712	236.773	0.352543	236.299	237.436	237.436	236.539	236.299	236.365	237.261	236.819	236.619	236.579	236.806	237.007
SGEMM-T PCIe	256	GFlops	73.3129	73.3187	0.0337872	73.2732	73.3822	73.3822	73.2962	73.2732	73.2796	73.3655	73.3231	73.3039	73.3001	73.3219	73.3411
SGEMM-T Parity	256	N	2.22879	2.22936	0.00331941	2.2249	2.23561	2.23561	2.22716	2.2249	2.22553	2.23396	2.2298	2.22791	2.22754	2.22967	2.23156

7.24. SHOC Sort 9800 GTX+

test	atts	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6
Sort-Rate	262144items	GB/s	0.666183	0.666404	0.00499752	0.659243	0.672937	0.660272	0.672771	0.67173	0.672937	0.659243	0.669185	0.668919
Sort-Rate_PCTe	262144items	GB/s	0.455566	0.455641	0.00258533	0.451393	0.459132	0.451393	0.458788	0.458525	0.459132	0.452575	0.456786	0.456691
Sort-Rate Parity	262144items	N	0.463726	0.462551	0.00320461	0.45665	0.466411	0.462743	0.466411	0.464982	0.465673	0.45665	0.464987	0.46471

7.25. SHOC Stencil 2D 9800 GTX+

test	SP_Stencil2D	atts	1000:768x768:16x16	units	s	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5	trial6
								0.978881	0.0146955	0.972847	1.02273	1.02273	0.974375	0.973131	0.97814	0.972935	0.972955	0.972847

7.26. SHOC Triad 9800 GTX+

test	atts	GB/s	units	median	mean	stddev	min	max	trial0	trial1	trial2	trial3	trial4	trial5
TriadBwTh	Block:00054Kb	GB/s	0.776321	0.77593	0.00488421	0.762938	0.782538	0.775907	0.777225	0.776422	0.782538	0.762938	0.77622	0.778149
TriadBwTh	Block:00128Kb	GB/s	1.22945	1.23375	0.00610622	1.22538	1.24078	1.22538	1.23093	1.23775	1.22726	1.23663	1.23366	1.24078
TriadBwTh	Block:00256Kb	GB/s	1.76476	1.76476	0.00893592	1.74948	1.76478	1.7446	1.75653	1.77461	1.74641	1.75663	1.75099	1.75664
TriadBwTh	Block:00512Kb	GB/s	2.95175	2.95175	0.0148899	2.94081	2.95178	2.94081	2.9455	2.96004	2.94081	2.95178	2.95178	2.95684
TriadBwTh	Block:01024Kb	GB/s	2.60669	2.60647	0.00300208	2.60081	2.60647	2.60008	2.60267	2.6095	2.61176	2.60879	2.60385	2.6071
TriadBwTh	Block:02048Kb	GB/s	2.83006	2.82806	0.0054738	2.83431	2.83179	2.83008	2.82291	2.83089	2.82943	2.83431	2.82988	2.83546
TriadBwTh	Block:04096Kb	GB/s	2.95399	2.95399	0.00866205	2.94882	2.96482	2.94882	2.95772	2.95961	2.9478	2.93846	2.96191	2.96308
TriadBwTh	Block:08192Kb	GB/s	3.02946	3.02946	0.00375629	3.02181	3.03457	3.02181	3.03236	3.0357	3.03397	3.02839	3.03114	3.0329
TriadBwTh	Block:16384Kb	GB/s	2.92692	2.91495	0.0197325	2.87615	2.87615	2.87615	2.92909	2.92537	2.8912	2.92819	2.92878	2.9267
TriadFlups	Block:00054Kb	GFLOP/s	0.129387	0.129322	0.00814035	0.127156	0.130423	0.129318	0.129538	0.129404	0.130423	0.127156	0.12937	0.129658
TriadFlups	Block:00128Kb	GFLOP/s	0.20575	0.205625	0.0010177	0.20423	0.207197	0.20423	0.205155	0.206291	0.204544	0.206106	0.205509	0.207797
TriadFlups	Block:00256Kb	GFLOP/s	0.294575	0.294126	0.00148899	0.291069	0.295107	0.29541	0.294154	0.295191	0.291069	0.295707	0.295164	0.291774
TriadFlups	Block:00512Kb	GFLOP/s	0.375283	0.375295	0.00499297	0.374635	0.37603	0.375157	0.375928	0.374673	0.375137	0.375594	0.375408	0.374635
TriadFlups	Block:01024Kb	GFLOP/s	0.434449	0.434412	0.00500346	0.433468	0.435298	0.434846	0.434612	0.433916	0.435298	0.434799	0.433992	0.434517
TriadFlups	Block:02048Kb	GFLOP/s	0.471676	0.471343	0.00109123	0.468527	0.472386	0.468527	0.470485	0.471815	0.471571	0.472386	0.471646	0.470909
TriadFlups	Block:04096Kb	GFLOP/s	0.493111	0.492566	0.00149367	0.489744	0.494136	0.494136	0.492953	0.493269	0.4913	0.489744	0.493652	0.493846
TriadFlups	Block:08192Kb	GFLOP/s	0.504904	0.50491	0.00626049	0.503635	0.505762	0.503635	0.505394	0.505762	0.505662	0.504732	0.505189	0.504984
TriadFlups	Block:16384Kb	GFLOP/s	0.48782	0.485824	0.00328875	0.479358	0.488181	0.479358	0.488181	0.487562	0.481867	0.488031	0.48813	0.487784

7.27. SPEC CPU2006 Integer Results (No Auto-Parallel)

	Iteration #1 [s]	Iteration #2 [s]	Iteration #3 [s]
400.perlbench	398.00	396.00	396.00
401.bzip2	582.00	582.00	581.00
403.gcc	375.00	375.00	375.00
429.mcf	373.00	373.00	371.00
445.gobmk	510.00	511.00	511.00
456.hmmer	869.00	869.00	869.00
458.jeng	595.00	612.00	595.00
462.libquantum	508.00	506.00	506.00
464.h264ref	710.00	706.00	709.00
471.omnetpp	374.00	373.00	374.00
473.atar	494.00	495.00	494.00
483.xalancbmk	268.00	260.00	259.00

7.28. SPEC CPU2006 Integer Results (Auto-Parallel Enabled)

	Iteration #1 [s]	Iteration #2 [s]	Iteration #3 [s]
400.perlbench	410.00	411.00	411.00
401.bzip2	539.00	539.00	538.00
403.gcc	330.00	331.00	334.00
429.mcf	184.00	184.00	184.00
445.gobmk	600.00	601.00	607.00
456.hmmer	213.00	214.00	214.00
458.jeng	508.00	508.00	507.00
462.libquantum	12.20	14.30	13.00
464.h264ref	959.00	959.00	1031.00
471.omnetpp	339.00	340.00	339.00
473.atar	350.00	349.00	349.00
483.xalancbmk	214.00	214.00	214.00

7.29. Speedup of SPEC CPU2006 Integer Results

	Iteration Speedup	#1 Iteration Speedup	#2 Iteration Speedup	#2
400.perlbench	-3.02%	-3.79%	-3.79%	
401.bzip2	7.39%	7.39%	7.40%	
403.gcc	12.00%	11.73%	10.93%	
429.mcf	50.67%	50.67%	50.40%	
445.gobmk	-17.65%	-17.61%	-18.79%	
456.hammer	75.49%	75.37%	75.37%	
458.jeng	14.62%	16.99%	14.79%	
462.libquantum	97.60%	97.17%	97.43%	
464.h264ref	-35.07%	-35.84%	-45.42%	
471.omnetpp	9.36%	8.85%	9.36%	
473.atar	29.15%	29.49%	29.35%	
483.xalancbmk	20.15%	17.69%	17.37%	
Average Increase Per Benchmark	21.72%	21.51%	20.37%	
Total Average Increase		21.20%		

7.30. SPEC CPU2006 Floating Point Results (No Auto-Parallel)

	Iteration #1 [s]	Iteration #2 [s]	Iteration #3 [s]
416.gamess	937	940	938
433.milc	479	463	489
435.gromacs	579	579	578
436.cactusADM	1372	1441	1338
437.leslie3d	604	604	603
444.namd	496	497	496
447.dealII	430	429	430
450.soplex	270	270	283
453.povray	236	235	237
454.calculix	1484	1484	1484
459.GemsFDTD	517	517	517
465.tonto	652	649	652
470.lbm	378	379	378

482.sphinx3	632	630	632
434.zeusmp	623	625	625

7.31. SPEC CPU2006 Floating Point Results (Auto-Parallel Enabled)

	Iteration #1 [s]	Iteration #2 [s]	Iteration #3 [s]
416.gamess	1238	1185	1197
433.milc	190	189	190
435.gromacs	485	489	482
436.cactusADM	60.9	53.1	50.3
437.leslie3d	87.7	90.5	95.8
444.namd	457	456	457
447.dealII	293	293	293
450.soplex	296	263	286
453.povray	191	191	190
454.calculix	382	292	375
459.GemsFDTD	119	122	121
465.tonto	469	462	469
470.lbm	49.9	49.9	50.1
482.sphinx3	528	544	514
434.zeusmp	93.9	93	90.8

7.32. Speedup of SPEC CPU2006 Floating Point Results

	Iteration #1 Speedup	Iteration #2 Speedup	Iteration #3 Speedup
416.gamess	-32.12%	-26.06%	-27.61%
433.milc	60.33%	59.18%	61.15%
435.gromacs	16.23%	15.54%	16.61%
436.cactusADM	95.56%	96.32%	96.24%
437.leslie3d	85.48%	85.02%	84.11%
444.namd	7.86%	8.25%	7.86%
447.dealII	31.86%	31.70%	31.86%
450.soplex	-9.63%	2.59%	-1.06%
453.povray	19.07%	18.72%	19.83%
454.calculix	74.26%	80.32%	74.73%
459.GemsFDTD	76.98%	76.40%	76.60%
465.tonto	28.07%	28.81%	28.07%
470.lbm	86.80%	86.83%	86.75%

482.sphinx3	16.46%	13.65%	18.67%
434.zeusmp	84.93%	85.12%	85.47%
Average Increase Per Benchmark	42.81%	44.16%	43.95%
Total Average Increase	43.64%		

7.33. Rodinia/Burkardt Benchmarks Average Execution Times

	2 threads	4 threads	8 threads	12 threads	24 threads
Leukocyte (s)	11.70	6.11	3.65	2.16	1.67
LU Decomposition (ms)	242.82	130.00	76.40	69.23	145.20
Speckle Reduction (ms)	638.14	415.07	306.41	283.93	492.26
Kmeans (s)	3.35	3.67	2.91	2.16	1.67
Stream Clusters (s)	47.08	25.18	14.61	11.91	10.40
FFT (ms)	76.17	45.41	31.63	27.85	31.36
Primes (s)	2.04	1.17	0.64	0.44	0.36

7.34. Rodinia/Burkardt Benchmarks Speedup between Thread Count

	2-4 threads	4-8 threads	8-12 threads	12-24 threads
Leukocyte (s)	47.78%	40.26%	40.82%	22.69%
LU Decomposition (ms)	46.46%	41.23%	9.38%	-109.74%
Speckle Reduction (ms)	34.96%	26.18%	7.34%	-73.37%
kmeans (s)	-9.55%	20.71%	25.77%	22.69%
Stream Clusters (s)	46.52%	41.98%	18.48%	12.68%
FFT (ms)	40.38%	30.35%	11.95%	-12.60%
Primes (s)	42.65%	45.30%	31.25%	18.18%
Average Increase Between Threads	35.60%	35.14%	20.71%	-17.07%

7.35. FPGA Results

Benchmark	Clk Period (MHz)	Clk Cycles	Throughput (ns)	Delay for valid data (Clock Cycles)	Delay (ns)
FFT	101	1	9.87	12	118
AES	376	1	2.66	1	2.66
FIR	710	1	1.41	8	1.13
FP Mul	550	9	16.4	9	46.4
FIR Core	550	11	20.0	20	36.4

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