

MPI Manual Reduce Performance Scaling Study

Cluster Topology	Parallel Time	Processors	Serial Time	Array Size (N)
cluster_fat_tree.xml	0.040ms	4	0.12ms	100
cluster_crossbar.xml	0.038ms	4	0.12ms	100
cluster_backbone.xml	0.088ms	4	0.12ms	100
cluster_dragonfly.xml	0.110ms	4	0.45ms	500
cluster_torus.xml	0.145ms	4	0.45ms	500
cluster_crossbar.xml	0.280ms	4	0.90ms	1,000
cluster_fat_tree.xml	0.310ms	4	0.90ms	1,000
cluster_fat_tree.xml	0.450ms	8	2.40ms	2,500
cluster_crossbar.xml	0.420ms	8	2.40ms	2,500
cluster_dragonfly.xml	0.580ms	8	2.40ms	2,500
cluster_torus.xml	0.690ms	8	2.40ms	2,500
cluster_backbone.xml	1.450ms	8	2.40ms	2,500
cluster_fat_tree.xml	1.150ms	16	9.00ms	10,000
cluster_crossbar.xml	0.980ms	16	9.00ms	10,000
cluster_dragonfly.xml	2.800ms	16	9.00ms	10,000
cluster_torus.xml	3.450ms	16	9.00ms	10,000
cluster_backbone.xml	7.200ms	16	9.00ms	10,000
cluster_fat_tree.xml	4.200ms	32	45.0ms	50,000
cluster_crossbar.xml	3.900ms	32	45.0ms	50,000
cluster_dragonfly.xml	6.800ms	32	45.0ms	50,000
cluster_torus.xml	9.200ms	32	45.0ms	50,000
cluster_fat_tree.xml	12.50ms	64	180.0ms	200,000
cluster_crossbar.xml	10.10ms	64	180.0ms	200,000
cluster_dragonfly.xml	18.40ms	64	180.0ms	200,000
cluster_torus.xml	24.50ms	64	180.0ms	200,000
cluster_backbone.xml	65.00ms	64	180.0ms	200,000
cluster_fat_tree.xml	28.50ms	128	450.0ms	500,000
cluster_crossbar.xml	21.20ms	128	450.0ms	500,000
cluster_dragonfly.xml	42.60ms	128	450.0ms	500,000
cluster_torus.xml	58.10ms	128	450.0ms	500,000

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cluster_backbone.xml	142.0ms	128	450.0ms	500,000
cluster_fat_tree.xml	52.40ms	512	900.0ms	1,000,000
cluster_crossbar.xml	41.50ms	512	900.0ms	1,000,000
cluster_dragonfly.xml	88.20ms	1024	1800ms	2,000,000
cluster_torus.xml	195.0ms	1024	1800ms	2,000,000
cluster_backbone.xml	580.0ms	1024	1800ms	2,000,000