

Terms	Meaning													
MPI_Call_Duration	Duration of mean of sampled MPI calls, this metric tracks the time spent in an MPI call so far													
MPI Calls	Number of MPI calls per second per process													
MPI Point to Point Calls /s	This pair of metrics tracks the number of point-to-point calls per second per process													
Main Thread Compute	Percentage of total time for computation in main thread.													
MPI Collective Calls /s	This pair of metrics tracks the number of collective calls per second per process													
MPI	Percentage of total time for MPI operations													
Memory	Amount of physical memory used by each process													
File I/O	Percentage of total time for file I/O operations													
MPI Sent	Tracks the number of bytes sent to MPI Send() per second per process													
MPI Received	Tracks the number of bytes sent to MPI Receive() per second per process													
Lustre Read	The mean number of bytes read per second from Lustre.													
Lustre Write	The mean number of bytes written per second from Lustre.													
Total Execution Time	The Total execution time of the code													
fox.py 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total Execution time(s)
	9	91.8	4	3.4	17.4	39.5	49	1.05	0.10	0.43	1.49	0.14	57.7	30.221
	36	77.5	8.9	6.3	16.1	50.6	81.9	5.14	0.51	3.26	5.08	0.12	55.3	11.885
	64	66.7	11.3	8.6	11.4	42.5	110	6.7	0.83	3.96	12	0.18	53.4	9.104
fox.py 1296														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	16	97.5	1.3	0.8	9.36	23.8	43.4	0.18	0.02	0.08	0.55	0.24	70.3	177.425
	36	93.5	3.7	1.2	21.8	29.5	64.8	0.59	0.07	0.31	1.25	0.4	65.3	83.31
	144	84.5	6.6	4.1	16.3	45.5	96.6	2.48	0.44	1.49	3.93	0.05	59.2	25.778
fox.c 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	9	12.1	17.5	70.4	33.6	7.46*(1000)	9.41*(1000)	518	17.5	232	25.1	27.3	20.3	0.189
	36	3.6	23.4	73	24.6	2.87*(1000)	5.65*(1000)	238	35.4	106	46.6	20.4	20.3	0.169
	64	1.6	32.9	65.5	13.5	2.44*(1000)	3.59*(1000)	614	47.4	303	13.9	7.44	24.5	0.334
fox.c 1296														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	16	39.9	22.3	37.8	6.49	13.0*(1000)	17.2*(1000)	150	12.1	56.7	74.8	37.6	23.8	0.334
	36	19.2	35.1	45.8	8.92*(1000)	8.36*(1000)	13.3	120	19.7	44	43.7	24.3	25.8	0.300
	144	3.9	24.5	71.6	21.5	4.05*(1000)	7.25*(1000)	198	39.9	83.5	18	9.28	25.2	0.302
foxnooptimized.py 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	9	91.9	5.3	2	28	34.9	55.9	1.05	0.1	0.45	0.91	0.12	58.2	30.268
	36	77	10.6	6	20.4	42.7	84.8	4.77	0.5	2.83	4.53	0.1	55.5	11.869
	64	65.9	10.3	8.6	10.8	41.3	79.8	5.88	0.86	3.27	12	0.17	52.9	9.257
foxnooptimized.py 1296														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	16	96.2	2.4	1.1	24.8	22.1	40.7	0.2	0.02	0.08	0.44	0.04	70.4	185.207
	36	92.1	4.6	1.7	28.1	31.1	55.4	0.57	0.07	0.3	0.96	0.08	65.5	84.987
	144	82.9	7.9	4.8	18.6	45.5	97.7	2.41	0.44	1.42	3.74	0.1	59.3	26.467
foxnumpy.py 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)		Total execution time(s)
	9	55.7	2.1	33	87.9*(0.001)	671	921	16	1.89	6.09	20	2.33		1.724
	36	35.6	2.4	34	7.05	107	172	8.22	1.26	3.61	10	0.18		4.264
	64	38.8	1.5	38.3	598*(0.001)	77.5	125	8.03	1.63	3.23	20	0.13		4.895
foxnumpy.py 1296														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)		Total execution time(s)
	16	49.8	1.8	37.9	338*(0.001)	1.20*(1000)	1.84*(1000)	9.7	1.08	4.18	25	4.11		3.373
	36	42.3	3.4	27.4	31.9	636	1.02*(1000)	10	1.47	4.48	15.9	1.99		3.965
	144	41.5	2.9	31.9	14.2	257	445	9.6	2.55	4.02	21.7	0.53		4.752
fox_mul_arr_opt.py 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	9	90.6	4.6	4.1	18.7	41.5	49.2	1.42	0.09	0.51	1.28	0.06	57.2	31.92
	36	69.8	9.5	13	37.2	38.7	127	3.89	0.45	2.24	4.53	0.1	54.9	13.07
	64	65.2	12.1	12.5	27.6	45.7	104	5.94	0.82	3.36	11.70	0.15	53.7	9.23
fox_mul_arr_opt.py 1296														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	#MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Memory(MB)	Total execution time(s)
	16	97.1	1.3	1.2	13	23.7	33.3	0.2	0.02	0.08	0.61	0.08	69.8	179.37

	36	91.7	4	2.7	35.8	30	51	0.47	0.07	0.21	1.07	0.08	65.5	84
	144	80.2	8.1	7.1	35.8	43.9	92.7	2.21	0.43	1.17	3.77	0.1	59	27.198
foxbn.py 576														
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Total execution time(s)	
	9	62	1.5	27	0.19	600	742	16.4	1.47	5.61	16.20	1.32	2.01	
	36	41.8	2.4	25.1	17.1	138	216	8.68	1.57	2.43	19.90	0.3	3.72	
foxbn.py 1296	64	43.4	1.5	25.2	0.73	91	146	8.5	2.01	2.49	23.40	0.41	4.162	
	Threads	Main Thread Compute (%)	MPI (%)	File/IO (%)	MPI CALL DURATIO	MPI Sent (kB/s)	Received (kB/s)	MPI Calls (calls/s)	PI Point-to-Point calls/s	Collectives calls/s	Lustre Read(MB/s)	Lustre Write(MB/s)	Total execution time(s)	
	16	52.7	1.3	33.1	0.4	1.3*(1000)	2.1*(1000)	8.9	1.24	2.72	27.6	4.25	3.155	
	36	46	3.4	26.7	21.4	656	1.04*(1000)	10.3	1.48	4.44	17.60	1.35	3.951	
	144	41.6	2.8	31.3	11.3	261	467	9.4	2.62	3.12	23.800	0.54	4.624	