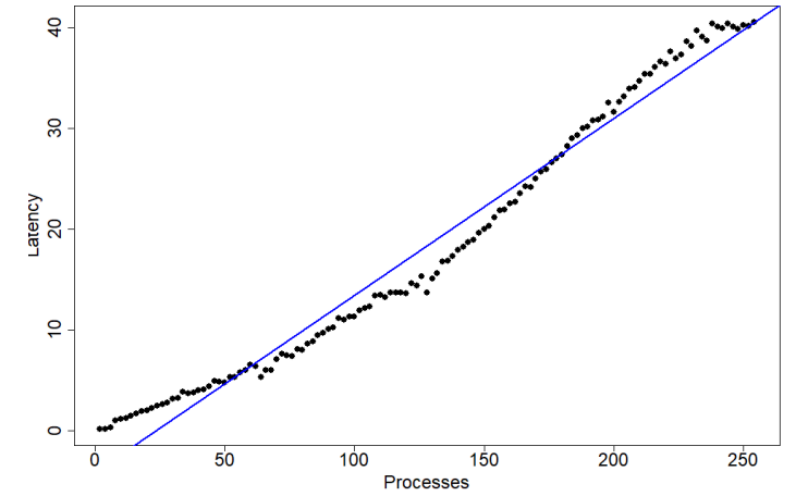
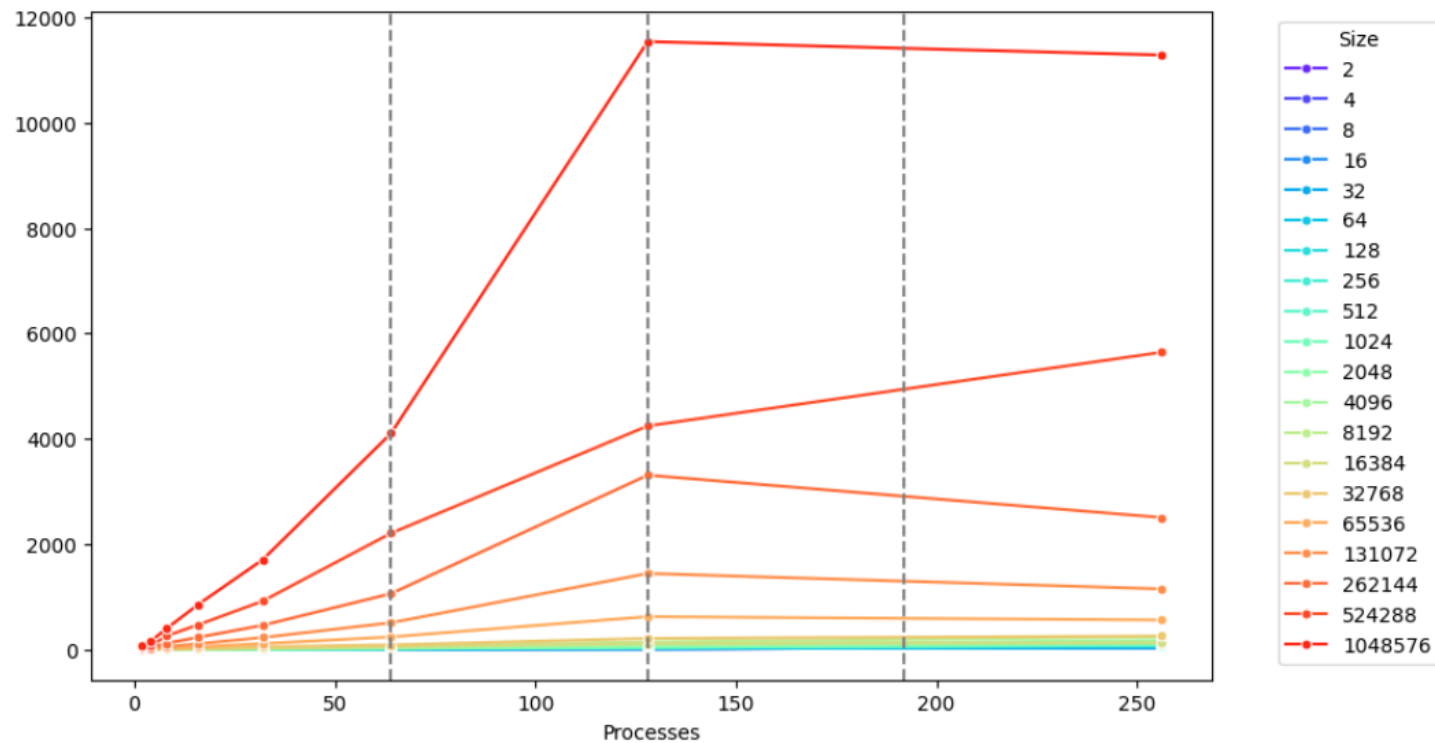


Exercise 1

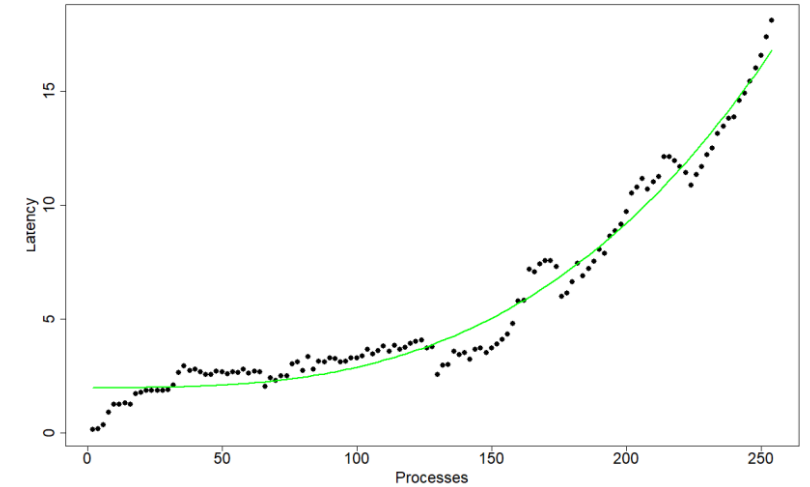
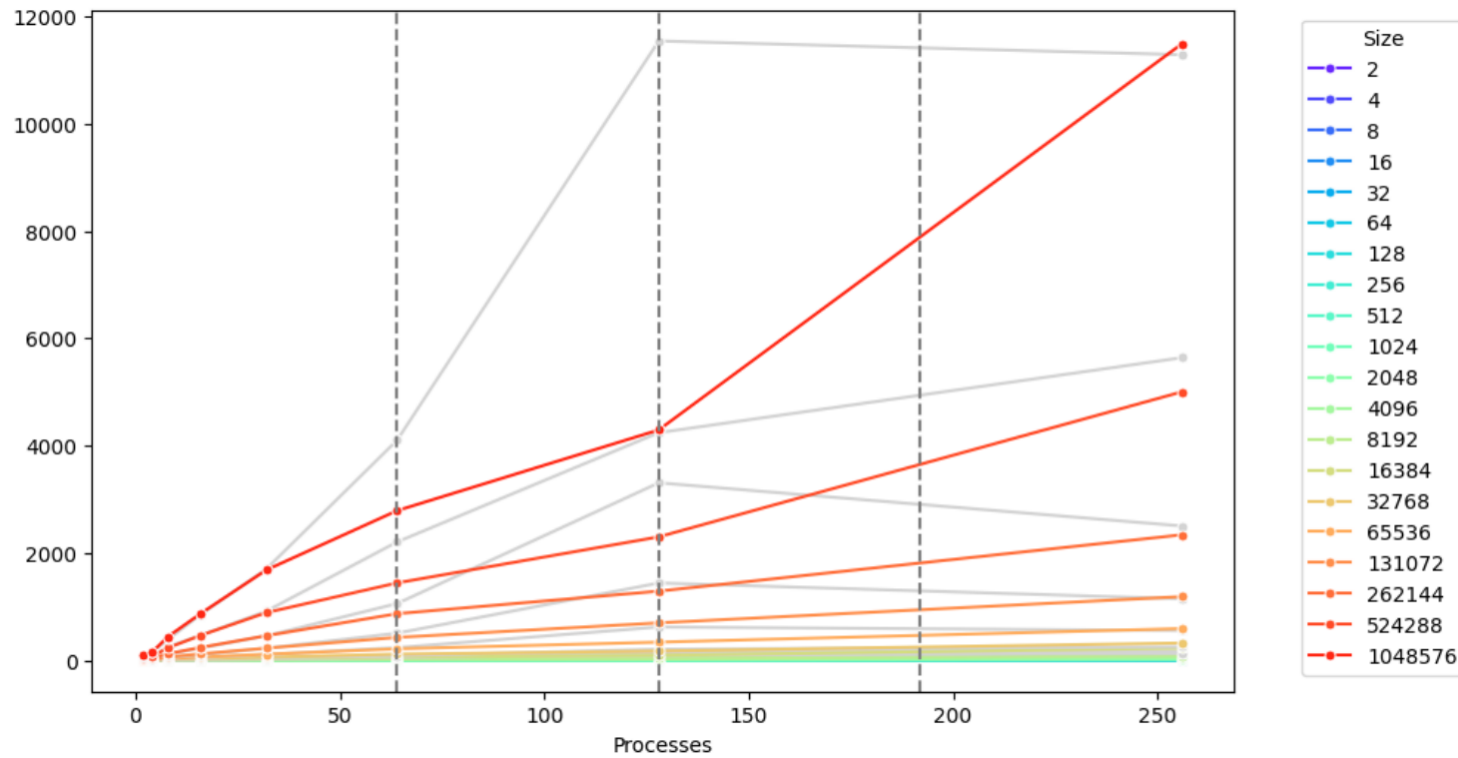
THIS EXERCISE AIMS TO ESTIMATE THE LATENCY OF DIFFERENT OPENMPI IMPLEMENTATION AVAILABLE IN THE OSU BENCHMARK VARYING THE NUMBER OF PROCESSES AND THE SIZE OF THE MESSAGES.

Basic Linear Broadcast



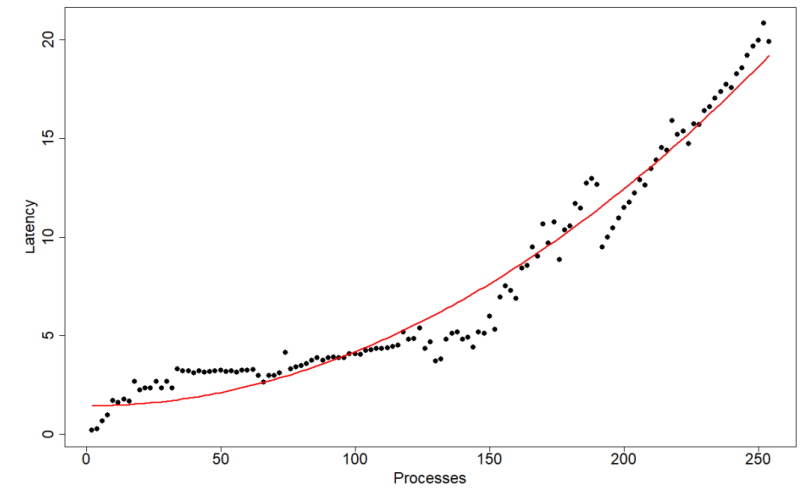
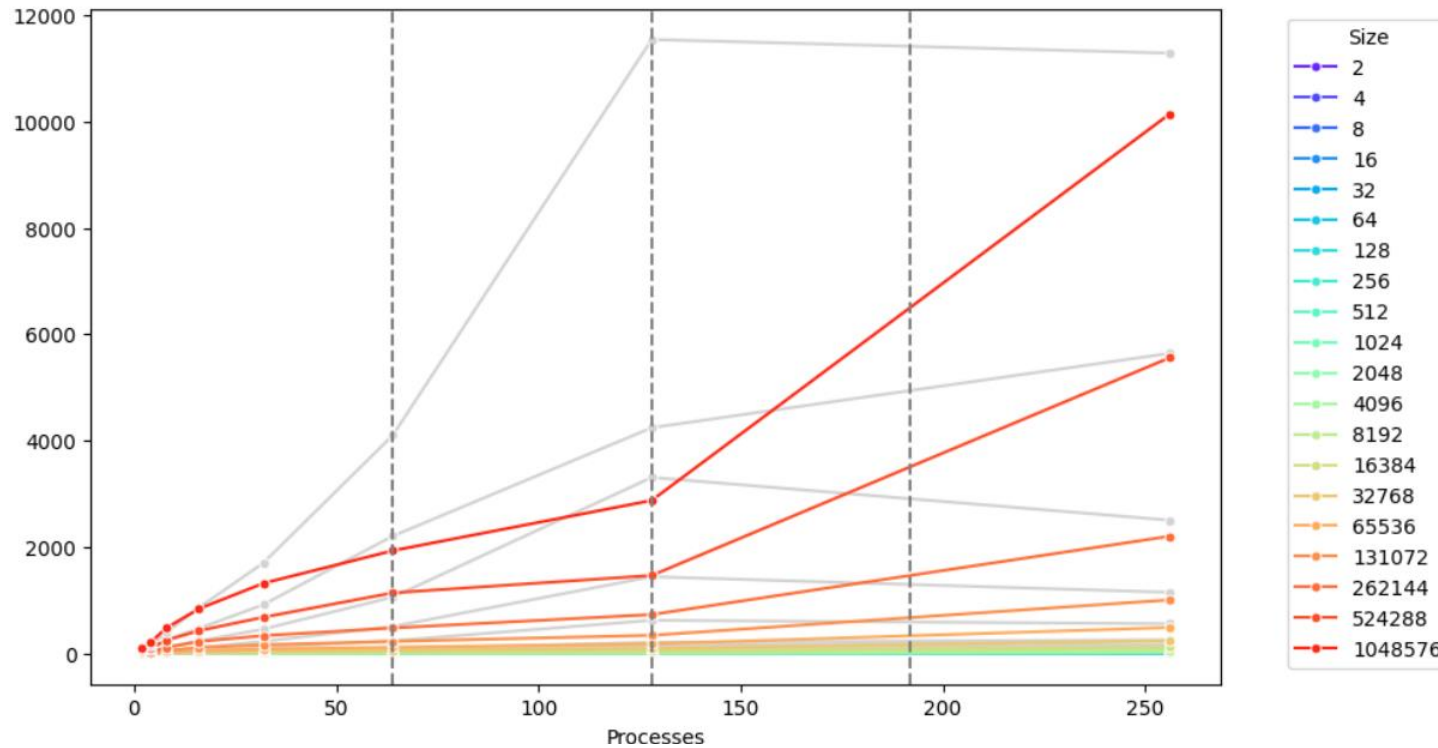
$$\text{latency} = -4.16 + 0.18\text{processes}$$

Binary Tree Broadcast



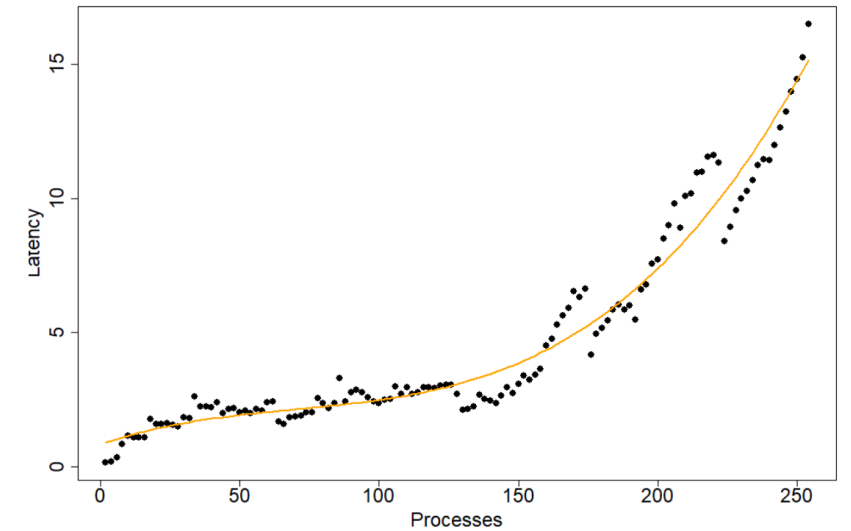
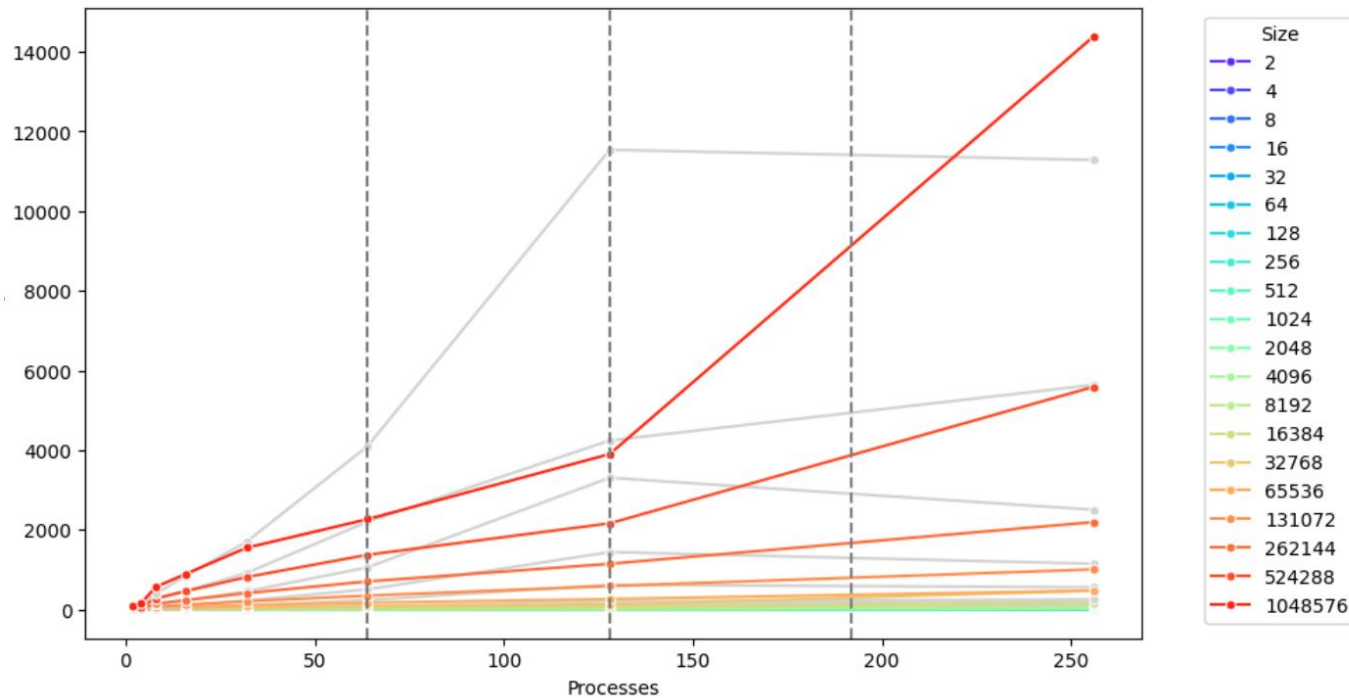
$$latency = 1.997 + 9.034e^{-7}processes^3$$

Split Binary Tree Broadcast



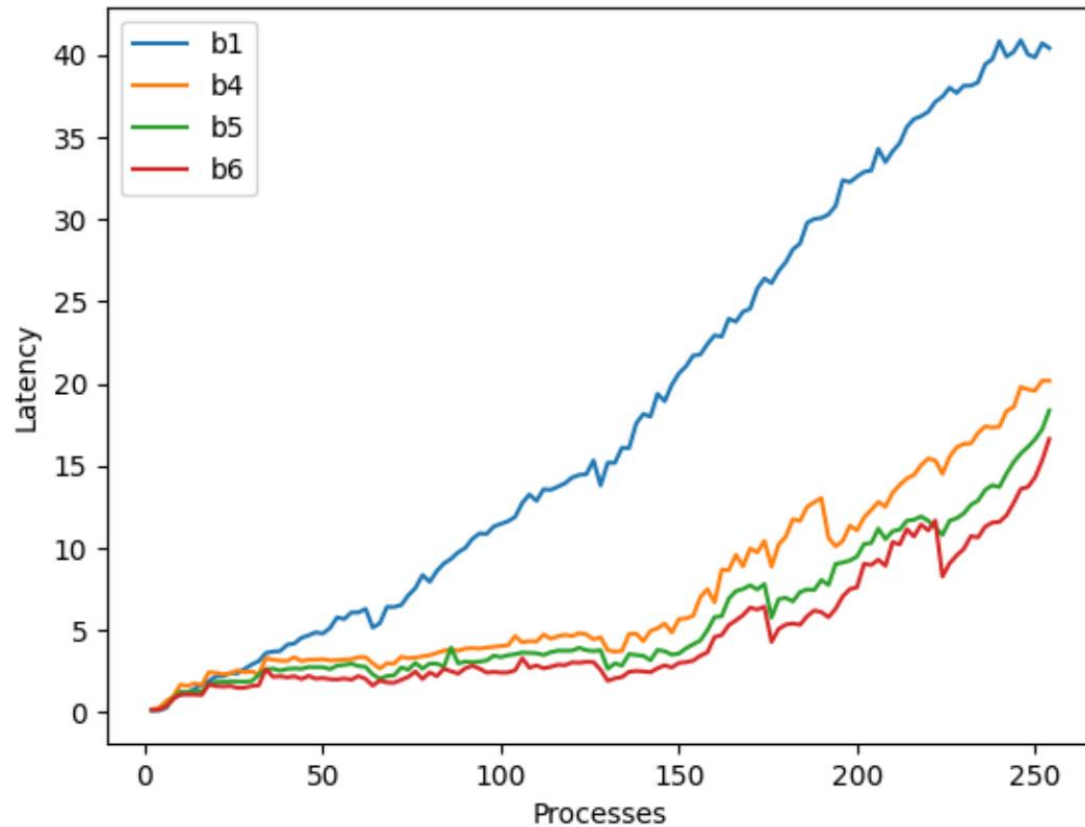
$$latency = 1.441 + 2.750e^{-4}processes^2$$

Binomial Tree Broadcast



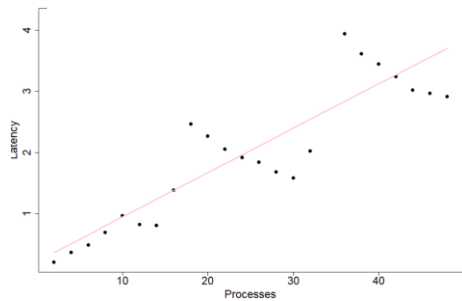
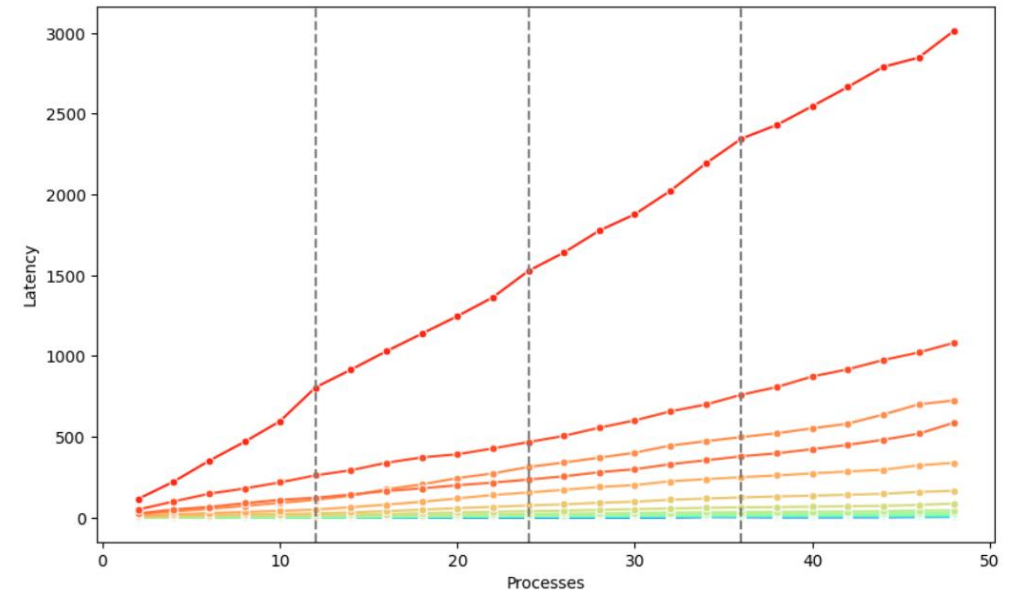
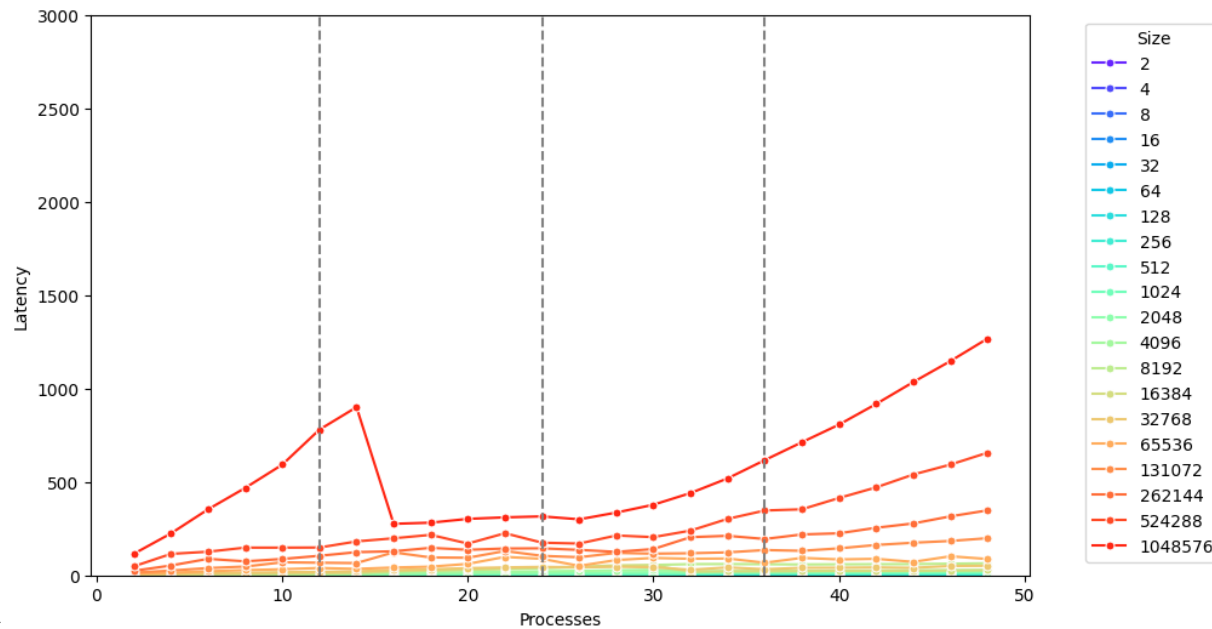
$$\text{latency} = 8.254e^{-1} + 3.620e^{-2}proc - 3.745e^4proc^2 + 1.789e^{-6}proc^3$$

Comparison

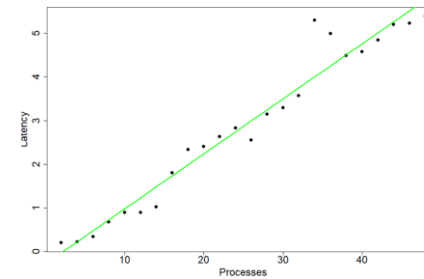


	fixed size		fixed processes	
	2byte	1MB	2 procs	256 procs
b1	38.09	11204.30	78.49	11244.70
b4	6.96	10046.22	90.88	10130.14
b5	5.35	11400.35	88.58	11483.58
b6	4.42	14300.55	86.76	14382.89

Scatter ignore/linear

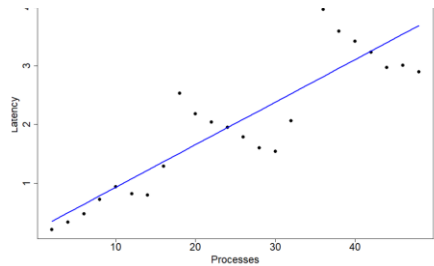
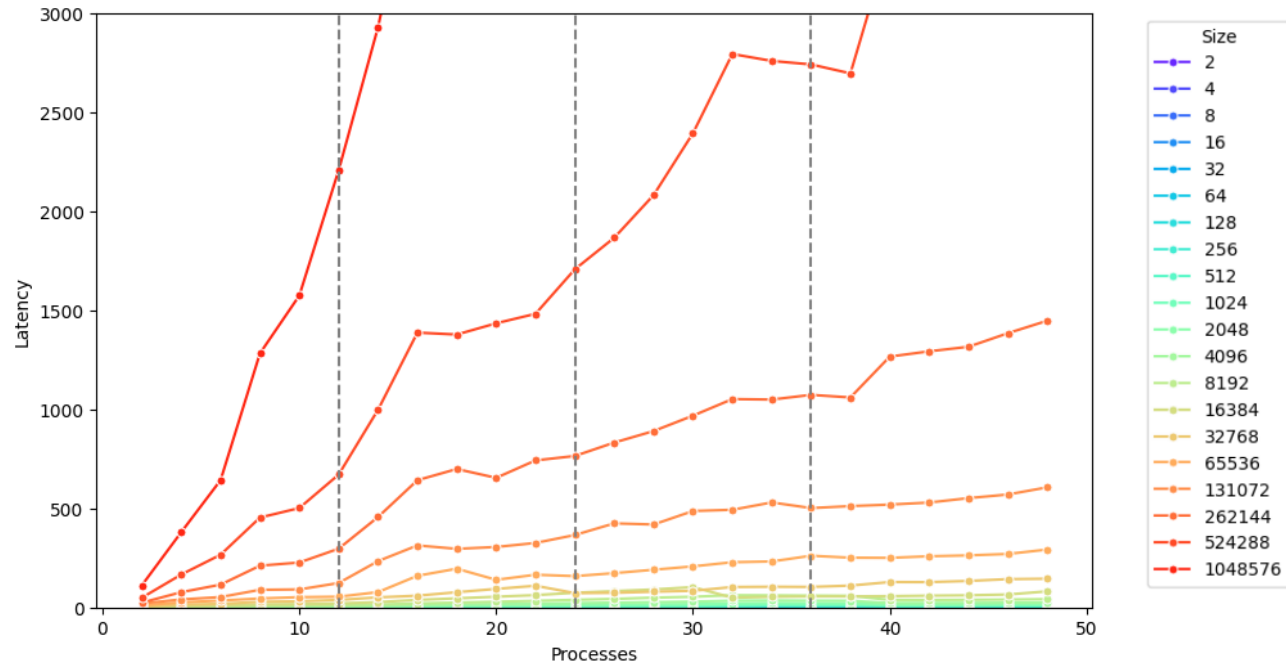


$$latency = 2.0338 + 4.9285processes$$

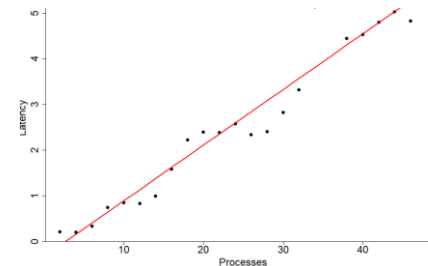
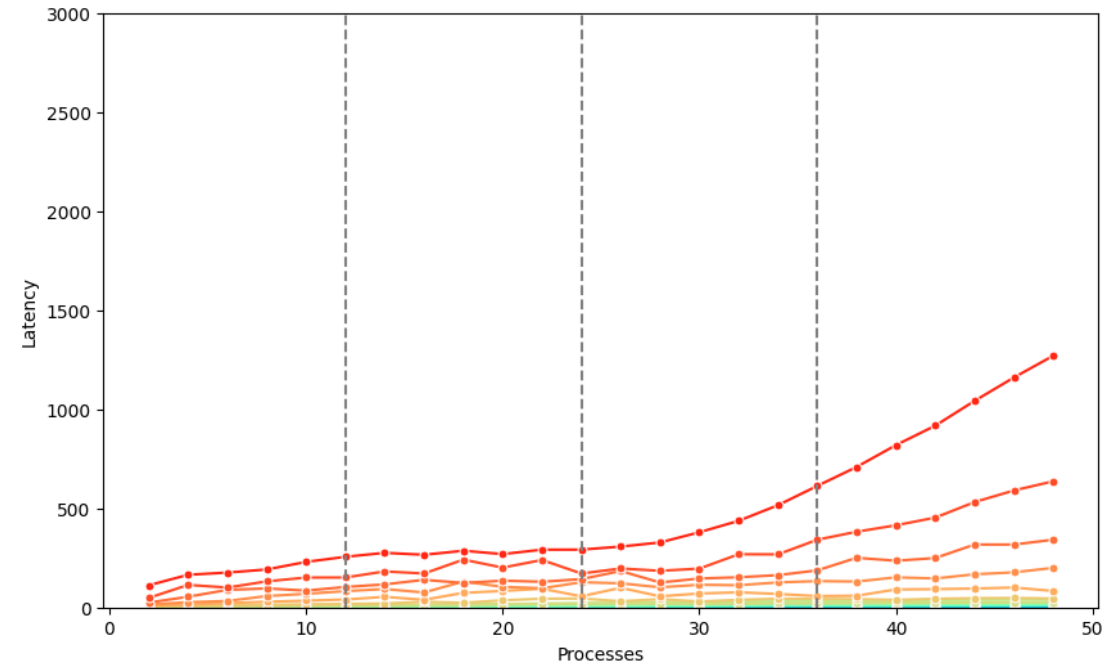


$$latency = -0.283261 + 0.125980processes$$

Scatter Binomial/Linear nb

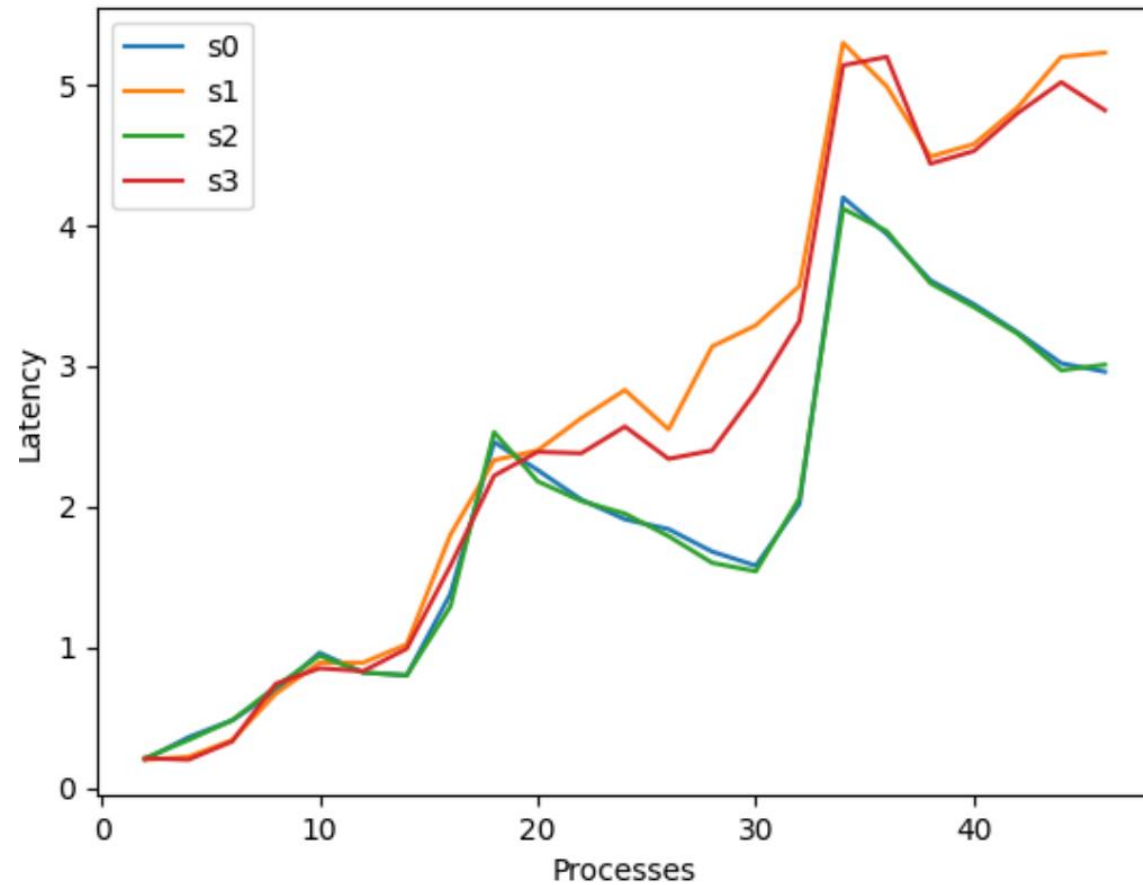


$$\text{latency} = 0.21 + 0.072\text{processes}$$



$$\text{latency} = -0.323080 + 0.121807\text{processes}$$

Comparison



	fixed size		fixed processes	
	1byte	1MB	2 procs	256 procs
s0	2.64	1151.81	115.11	1264.28
s1	5.25	2899.99	114.51	3009.25
s2	2.57	8081.88	111.52	8190.83
s3	4.93	1158.85	111.32	1265.24