

AVERAGE of timing			bloom								direct							
			off				on											
			buffered		direct		buffered		direct		buffered		direct		buffered		direct	
run	scale	query	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4
cold	10	1	19.3	4.0	19.6	4.1	20.1	4.1	19.9	4.1	104%	102%	102%	100%				
		2	1.8	1.6	47.1	45.2	1.3	1.2	1.9	1.8	74%	78%	4%	4%				
		3	4.9	1.6	5.4	1.1	3.8	1.6	5.2	1.1	77%	102%	96%	101%				
		4	4.1	10.8	4.6	12.5	2.9	10.5	4.2	12.6	72%	98%	92%	101%				
		5	6.4	3.5	6.4	7.9	3.3	3.6	4.7	7.8	52%	103%	74%	98%				
		6	3.3	2.1	3.1	1.8	3.3	2.1	3.3	2.0	100%	99%	105%	109%				
		7	3.7	11.8	4.8	38.5	3.3	12.2	4.6	38.4	90%	104%	96%	100%				
		8	24.7	12.8	27.9	115.1	24.5	12.9	27.9	115.3	99%	101%	100%	100%				
		9	52.3	18.5	223.7	27.2	8.8	18.5	21.1	27.2	17%	100%	9%	100%				
		10	4.3	3.3	6.5	9.6	3.8	3.4	6.5	9.7	89%	101%	99%	101%				
		11	2.6	2.6	35.4	26.7	2.6	2.6	35.4	26.8	100%	100%	100%	100%				
		12	4.2	3.1	5.1	10.6	4.1	3.0	5.1	10.8	96%	99%	99%	103%				
		13	8.1	8.1	8.0	8.2	8.0	8.3	8.2	8.2	99%	103%	103%	100%				
		14	3.2	1.5	3.0	1.2	3.2	1.5	3.0	1.2	101%	99%	100%	99%				
		15	5.5	5.4	6.5	4.3	5.4	5.3	6.5	4.6	100%	98%	99%	105%				
		16	1.9	0.5	2.6	0.8	1.9	0.5	2.7	0.8	100%	99%	103%	98%				
		17	22.0	9.9	26.1	9.7	22.4	9.7	26.1	9.8	102%	98%	100%	100%				
		18	13.0	22.4	101.8	139.8	12.7	22.2	101.4	140.7	98%	99%	100%	101%				
		19	9.8	2.1	10.0	2.2	9.8	2.1	10.0	2.1	100%	102%	100%	99%				
		20	12.4	6.6	15.2	7.1	12.3	6.6	14.9	7.2	100%	100%	98%	101%				
		21	19.9	1.9	34.2	5.6	19.3	1.8	33.7	5.6	97%	97%	99%	100%				
		22	0.5	0.5	1.1	1.0	0.5	0.5	1.1	1.0	101%	106%	101%	101%				
	50	1	97.3	20.1	97.8	21.2	96.7	20.2	98.5	20.2	99%	101%	101%	95%				
		2	6.7	5.6	22.7	13.3	6.4	5.9	14.8	14.1	96%	107%	65%	106%				
		3	34.1	9.3	36.6	7.0	19.8	8.9	26.9	7.1	58%	95%	73%	100%				
		4	28.5	50.6	29.9	63.9	15.9	54.0	22.5	63.7	56%	107%	75%	100%				
		5	34.2	10.8	37.6	36.8	23.3	10.9	29.0	36.8	68%	100%	77%	100%				
		6	17.7	5.0	17.0	3.1	17.7	5.0	16.6	3.3	100%	100%	97%	106%				
		7	21.3	56.4	27.1	279.0	18.2	54.5	25.6	278.9	86%	96%	94%	100%				
		8	127.0	62.0	145.2	1066.0	125.0	61.5	144.5	1066.4	98%	99%	99%	100%				
		9	265.8	93.0	1139.7	137.2	56.3	93.0	116.4	137.1	21%	100%	10%	100%				
		10	25.8	42.4	36.3	87.1	19.9	42.3	33.0	87.1	77%	100%	91%	100%				
		11	4.2	6.3	7.2	47.0	4.1	6.2	7.1	46.9	98%	100%	99%	100%				
		12	26.2	8.0	29.8	6.2	21.1	8.1	26.2	6.2	81%	102%	88%	100%				
		13	44.3	15.9	44.4	16.0	43.7	15.9	44.4	16.2	99%	100%	100%	101%				
		14	16.1	6.7	15.5	6.0	16.1	6.8	15.5	5.9	100%	101%	100%	99%				
		15	34.6	11.2	35.5	10.1	34.3	11.3	35.4	10.1	99%	101%	100%	100%				
		16	10.7	3.2	15.3	4.8	10.1	3.2	15.3	4.9	94%	102%	100%	100%				
		17	112.9	51.3	133.2	50.4	112.5	51.6	134.2	51.2	100%	101%	101%	101%				
		18	63.4	107.9	479.4	658.0	65.0	106.6	478.7	665.5	102%	99%	100%	101%				
		19	49.4	10.6	50.7	10.7	49.4	10.6	50.7	10.7	100%	100%	100%	100%				
		20	106.2	35.9	136.1	41.0	106.4	35.2	136.4	40.8	100%	98%	100%	99%				
		21	104.5	11.7	188.5	52.1	100.8	11.8	186.8	51.9	97%	101%	99%	100%				
		22	2.6	2.9	5.5	4.6	2.7	2.5	5.5	4.9	104%	88%	100%	106%				

AVERAGE of timing			bloom direct workers											
			off				on							
			buffered direct				buffered direct				buffered		direct	
run	scale	query	0	4	0	4	0	4	0	4	0	4	0	4
warmup	10	1	19.1	4.0	19.9	4.1	20.0	4.0	19.9	4.1	105%	102%	100%	100%
		2	1.2	1.0	47.1	45.2	0.6	0.5	1.4	0.9	52%	48%	3%	2%
		3	4.7	1.1	5.4	1.1	3.8	1.1	5.2	1.1	81%	102%	96%	103%
		4	3.6	0.4	4.5	12.5	2.6	0.4	4.2	12.6	71%	97%	93%	100%
		5	6.1	0.9	6.3	7.9	3.2	0.9	4.7	7.8	52%	99%	74%	100%
		6	1.2	0.8	3.1	1.7	1.2	0.9	3.1	1.7	97%	111%	100%	98%
		7	3.8	1.5	4.8	38.2	3.3	1.6	4.6	37.7	87%	103%	96%	99%
		8	2.1	3.4	27.9	114.9	1.9	3.4	28.0	114.9	92%	99%	100%	100%
		9	10.5	0.6	223.8	27.2	8.1	0.6	21.0	27.2	77%	100%	9%	100%
		10	4.0	1.3	6.5	9.6	3.3	1.4	6.3	9.7	84%	101%	97%	100%
		11	0.5	0.4	35.4	26.7	0.4	0.4	35.4	26.8	98%	99%	100%	100%
		12	4.1	1.0	5.1	10.7	4.2	1.0	5.1	10.8	102%	100%	99%	101%
		13	8.0	7.9	7.9	7.9	8.0	8.0	7.8	7.9	99%	100%	99%	100%
		14	0.9	0.5	3.0	1.2	0.9	0.5	2.9	1.2	93%	101%	96%	101%
		15	4.4	2.4	6.5	4.6	4.3	2.4	6.4	4.5	98%	101%	99%	100%
		16	1.9	0.5	2.6	0.8	1.9	0.5	2.6	0.8	98%	101%	98%	101%
		17	22.1	9.5	26.0	9.7	22.2	9.5	26.0	9.7	100%	100%	100%	100%
		18	11.5	21.2	101.9	137.8	11.4	21.8	101.3	139.7	99%	103%	99%	101%
		19	0.3	0.1	10.0	2.2	0.3	0.1	10.0	2.1	106%	101%	100%	99%
		20	9.7	4.9	15.6	7.5	9.7	5.0	15.3	7.4	100%	102%	98%	99%
		21	8.5	1.5	34.4	5.5	7.5	1.5	33.9	5.6	88%	100%	99%	100%
		22	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1	99%	100%	101%	107%
	50	1	97.3	20.0	96.6	21.3	96.7	19.9	97.0	20.1	99%	100%	100%	95%
		2	5.9	4.9	22.7	13.4	3.1	2.6	14.3	13.7	52%	53%	63%	102%
		3	33.6	7.1	36.6	7.0	19.4	7.0	26.8	7.1	58%	99%	73%	101%
		4	27.5	3.8	29.8	63.8	14.7	3.9	22.6	63.6	53%	101%	76%	100%
		5	34.8	3.9	37.3	36.8	22.5	3.8	29.8	36.8	65%	97%	80%	100%
		6	10.9	2.6	15.9	3.1	11.1	2.5	15.9	3.2	102%	97%	100%	102%
		7	20.9	20.8	27.3	280.8	17.7	21.0	25.8	276.9	85%	101%	95%	99%
		8	11.4	28.4	145.3	1065.9	9.3	28.1	144.4	1065.8	82%	99%	99%	100%
		9	133.2	5.1	1140.2	137.0	56.4	5.1	116.9	137.0	42%	100%	10%	100%
		10	24.6	8.2	36.2	87.2	18.9	8.2	33.0	87.1	77%	100%	91%	100%
		11	4.1	2.7	7.2	46.8	4.0	2.7	7.1	46.7	97%	100%	99%	100%
		12	25.8	6.2	29.7	6.3	20.9	6.2	26.1	6.3	81%	100%	88%	101%
		13	43.7	15.7	43.8	16.0	43.7	15.5	43.9	16.0	100%	99%	100%	100%
		14	8.1	3.4	15.6	6.0	8.1	3.3	15.5	6.0	99%	97%	100%	101%
		15	29.9	9.2	35.5	10.0	29.4	9.2	35.8	10.1	98%	100%	101%	101%
		16	10.4	3.0	15.4	5.1	9.9	3.0	15.0	5.6	95%	101%	97%	110%
		17	110.9	51.5	134.8	50.6	111.8	50.7	134.4	51.4	101%	98%	100%	102%
		18	61.7	106.9	477.7	662.7	63.1	107.5	477.3	661.3	102%	101%	100%	100%
		19	2.2	0.7	50.7	10.8	2.2	0.7	50.7	10.7	98%	102%	100%	99%
		20	95.2	33.5	138.4	40.8	95.1	32.9	134.8	40.8	100%	98%	97%	100%
		21	50.2	12.2	189.3	52.3	45.6	12.4	188.4	52.2	91%	102%	100%	100%
		22	2.5	0.6	5.5	4.7	2.6	0.7	5.5	4.3	104%	101%	100%	91%