

Out [114...

Show Code

## Overall Times

	label	TPCH wall time	TPC-DS wall time	TPCH CPU time	TPC-DS CPU time	TPCH Network GB	TPC-DS Network GB	TPCH peak mem	TPC-DS peak mem	TPCH wall time % change	TPC-DS wall time % change	TPCH CPU time % change	TPC-DS CPU time % change	TPCH Network GB % change	TPC-DS Network GB % change
0	baseline	750	1,921	92,623	278,835	1,720	3,060	795,155,523	1,510,632,770	0.00	0.00	0.00	0.00	0.00	0.00
1	change	747	1,890	90,559	272,862	1,720	3,060	784,373,981	1,504,550,944	-0.35	-1.59	-2.23	-2.14	-0.00	0.00

## FAILED QUERIES

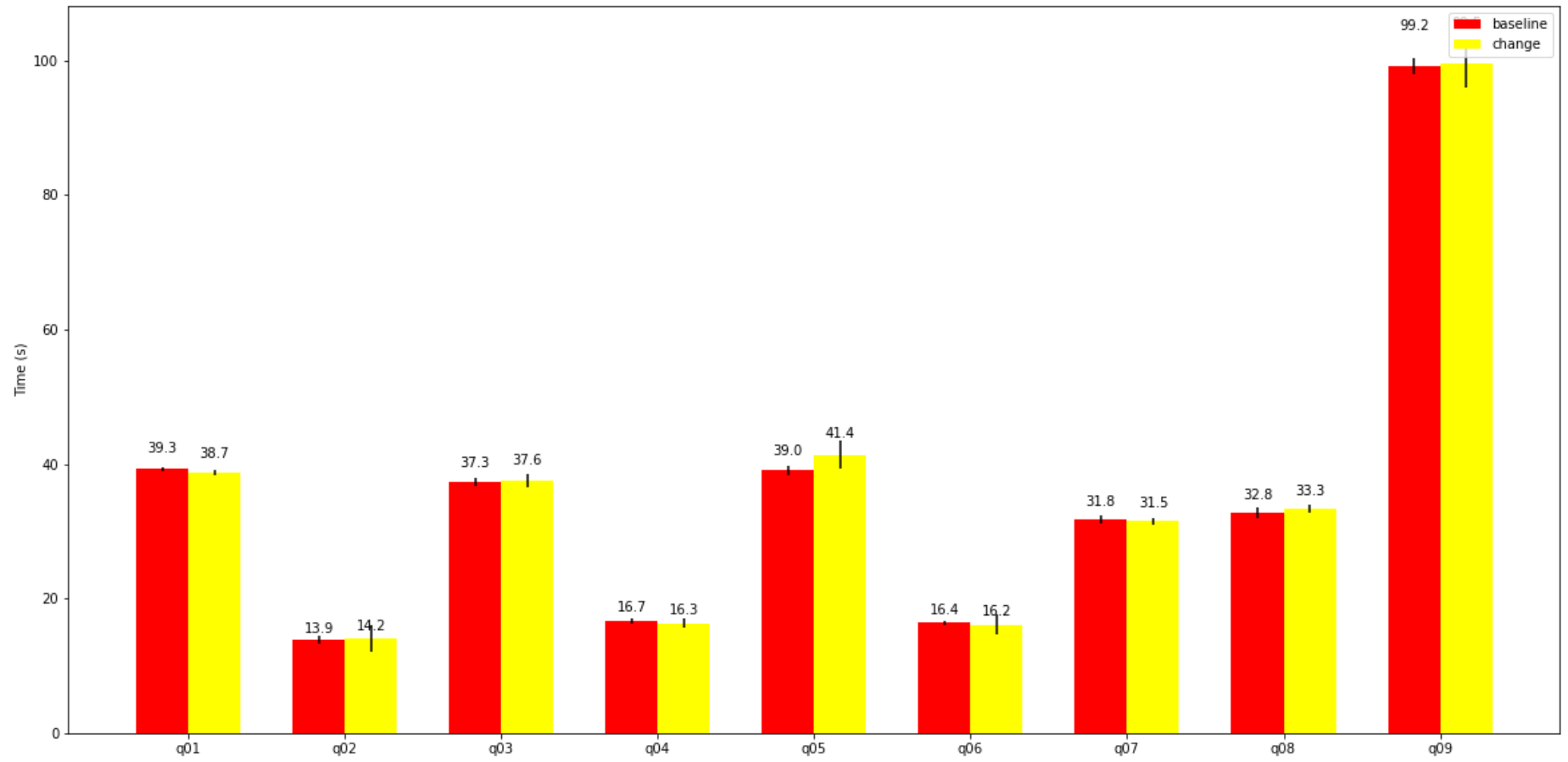
### baseline

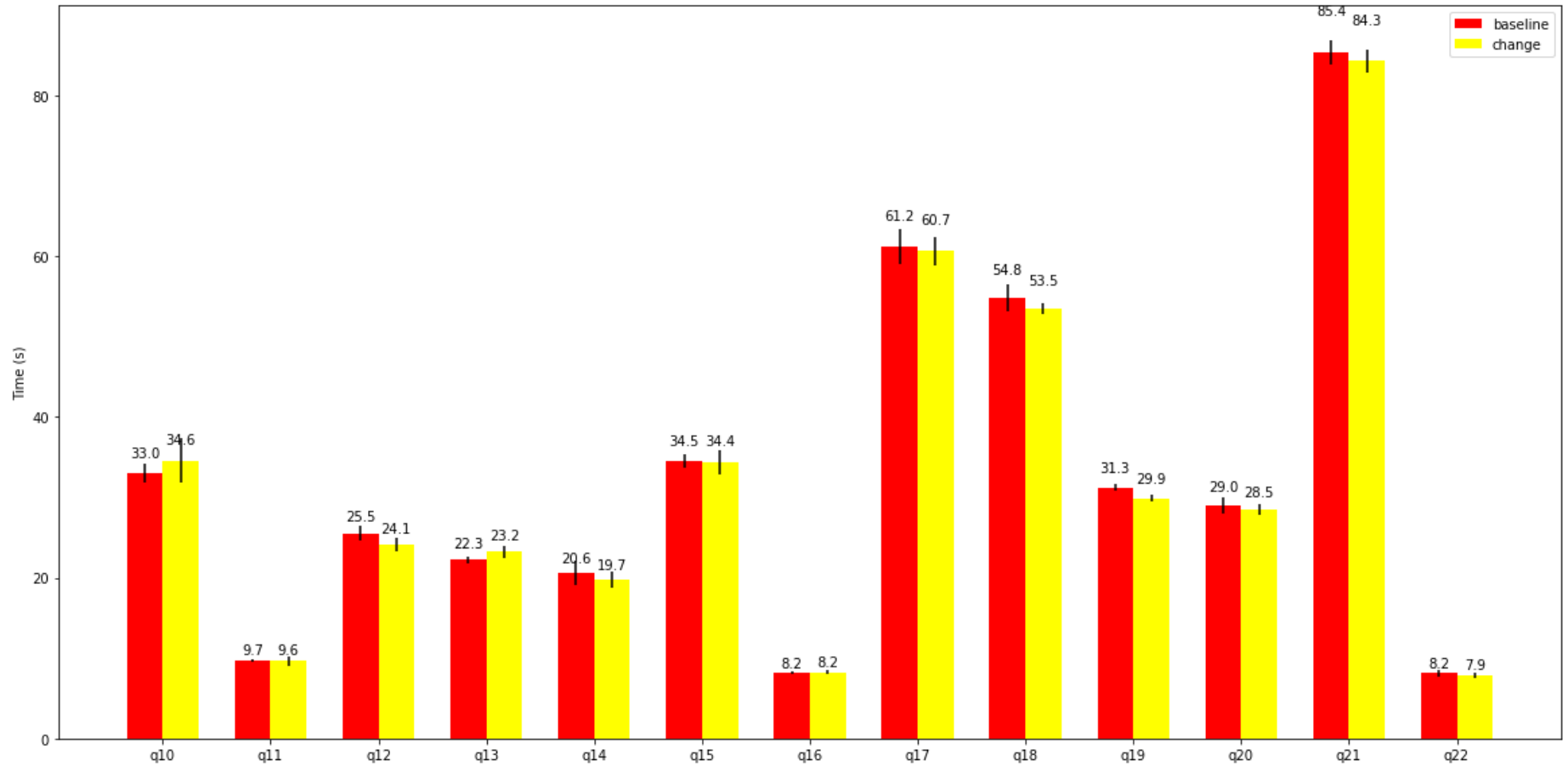
benchmark	query	mean_duration	std_dev
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### change

benchmark	query	mean_duration	std_dev
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## TPC-H Comparison (DURATION)



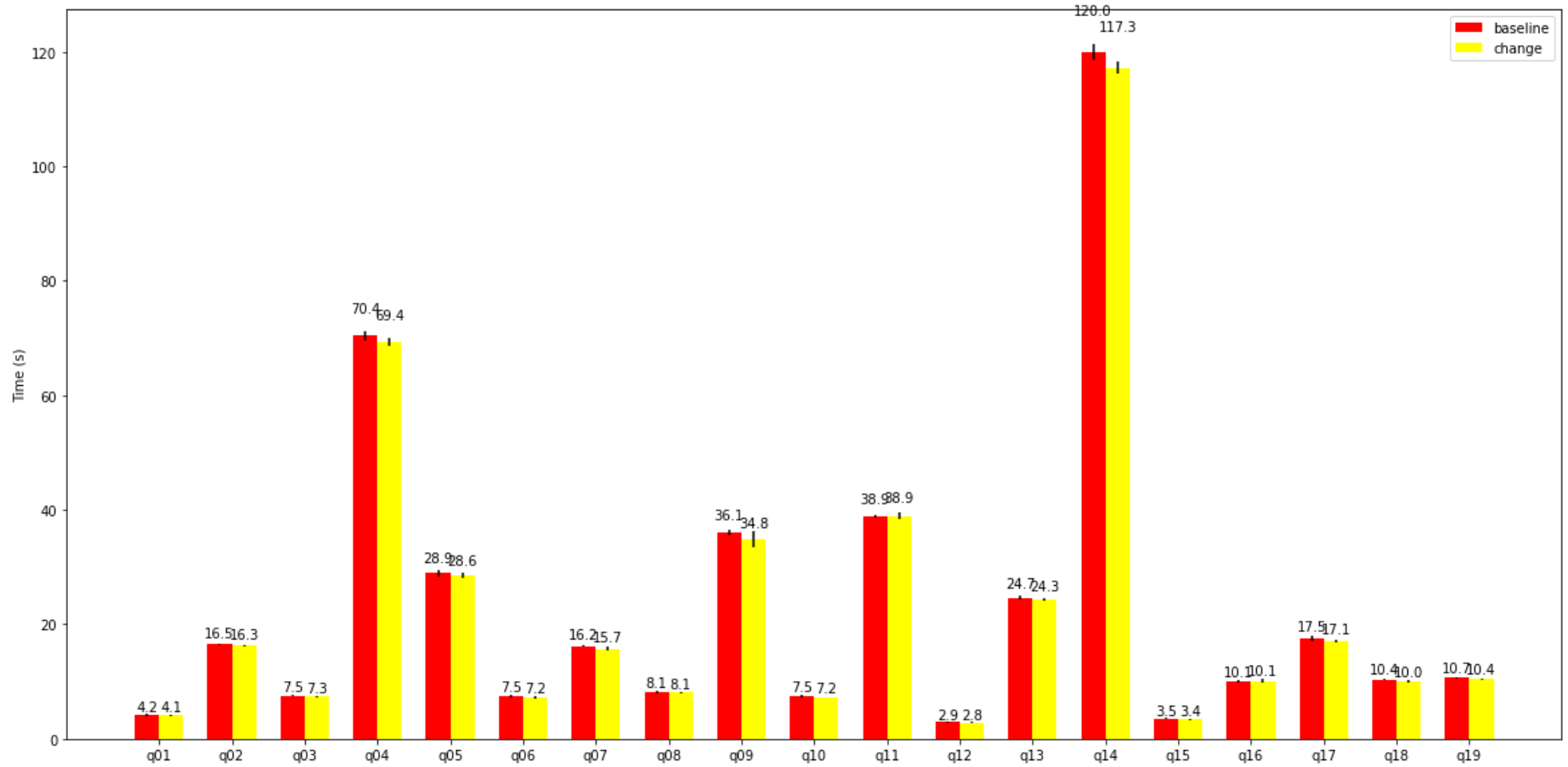


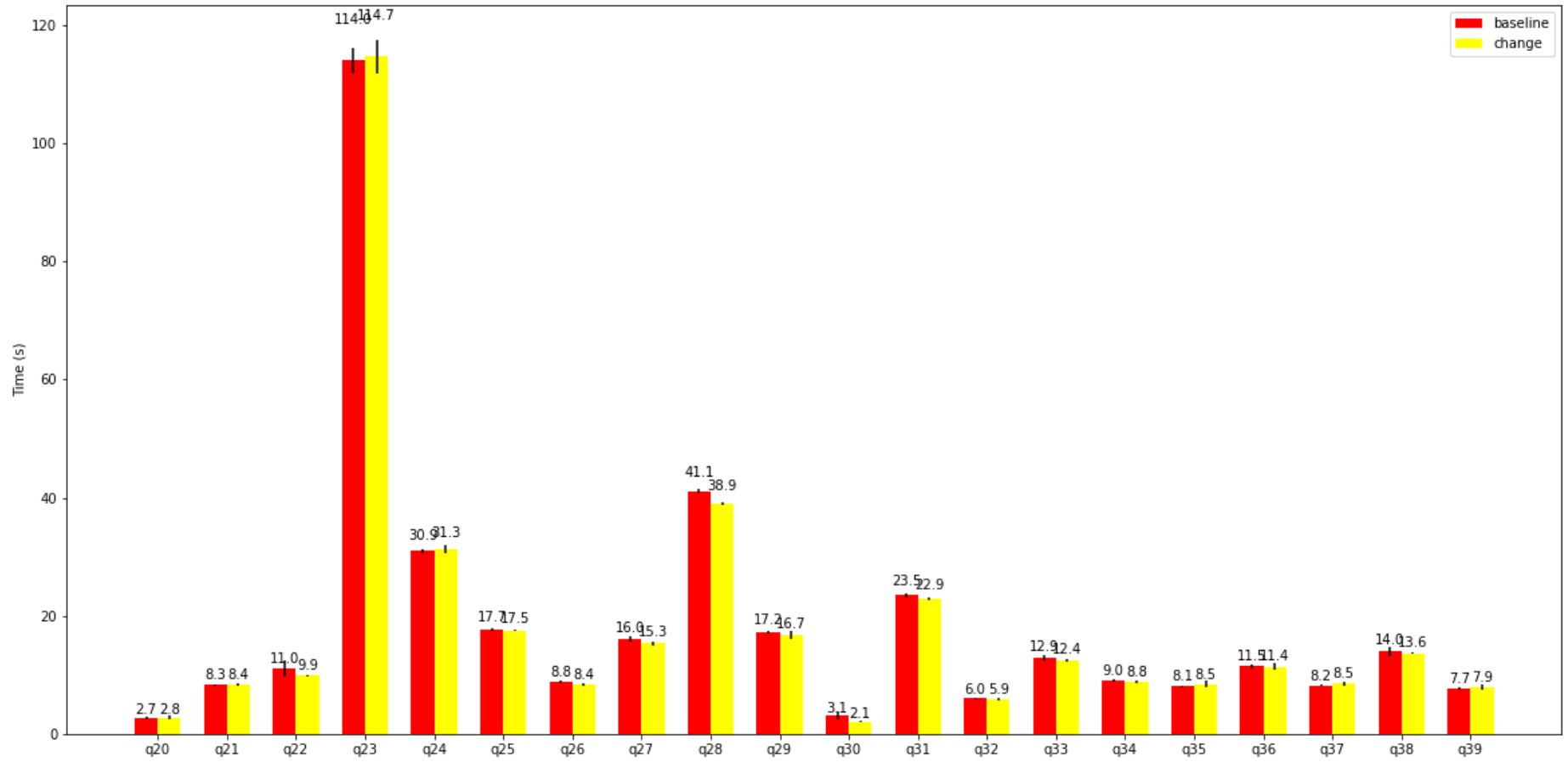
query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>11</b> presto/tpch: q12	25.51	0.92	24.09	0.85	-5.56	3.61	3.52	0.01966
<b>18</b> presto/tpch: q19	31.27	0.46	29.91	0.38	-4.32	1.47	1.28	0.00025
<b>13</b> presto/tpch: q14	20.60	1.55	19.74	1.01	-4.16	7.53	5.14	0.28324
<b>21</b> presto/tpch: q22	8.16	0.45	7.86	0.36	-3.65	5.46	4.57	0.23088
<b>17</b> presto/tpch: q18	54.77	1.68	53.49	0.62	-2.35	3.07	1.15	0.10860

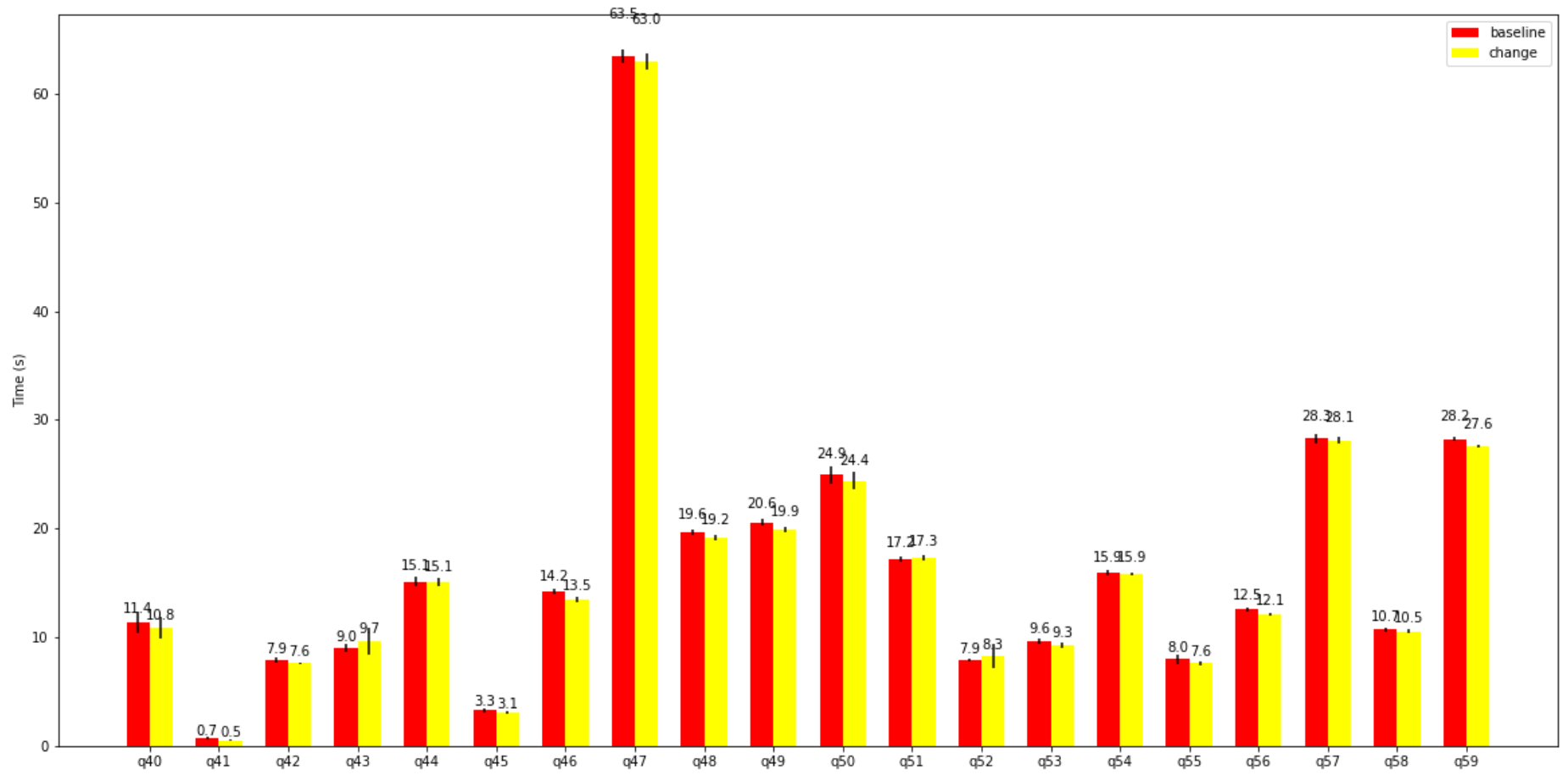
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>3</b>	presto/tpch: q04	16.73	0.38	16.35	0.68	-2.26	2.30	4.16	0.26253
<b>19</b>	presto/tpch: q20	29.01	1.05	28.45	0.69	-1.92	3.64	2.41	0.30234
<b>0</b>	presto/tpch: q01	39.29	0.29	38.68	0.35	-1.55	0.73	0.91	0.00825
<b>5</b>	presto/tpch: q06	16.40	0.31	16.16	1.44	-1.47	1.91	8.89	0.69721
<b>20</b>	presto/tpch: q21	85.43	1.47	84.33	1.44	-1.29	1.72	1.71	0.22026
<b>6</b>	presto/tpch: q07	31.78	0.68	31.51	0.54	-0.86	2.15	1.70	0.45917
<b>16</b>	presto/tpch: q17	61.22	2.15	60.70	1.77	-0.85	3.51	2.91	0.65618
<b>10</b>	presto/tpch: q11	9.66	0.21	9.62	0.53	-0.38	2.14	5.47	0.87583
<b>14</b>	presto/tpch: q15	34.51	0.82	34.41	1.50	-0.28	2.36	4.35	0.89354
<b>8</b>	presto/tpch: q09	99.19	1.22	99.52	3.42	0.33	1.23	3.44	0.83092
<b>2</b>	presto/tpch: q03	37.32	0.65	37.56	0.93	0.64	1.74	2.49	0.61764
<b>15</b>	presto/tpch: q16	8.15	0.19	8.23	0.26	0.96	2.36	3.20	0.57106
<b>7</b>	presto/tpch: q08	32.77	0.88	33.32	0.57	1.67	2.68	1.71	0.22819
<b>1</b>	presto/tpch: q02	13.86	0.60	14.16	1.98	2.11	4.31	13.96	0.73586
<b>12</b>	presto/tpch: q13	22.26	0.41	23.23	0.80	4.37	1.83	3.44	0.02398
count	22								
mean	-0								
std	3								
min	-6								
25%	-2								
50%	-1								
75%	1								
max	6								

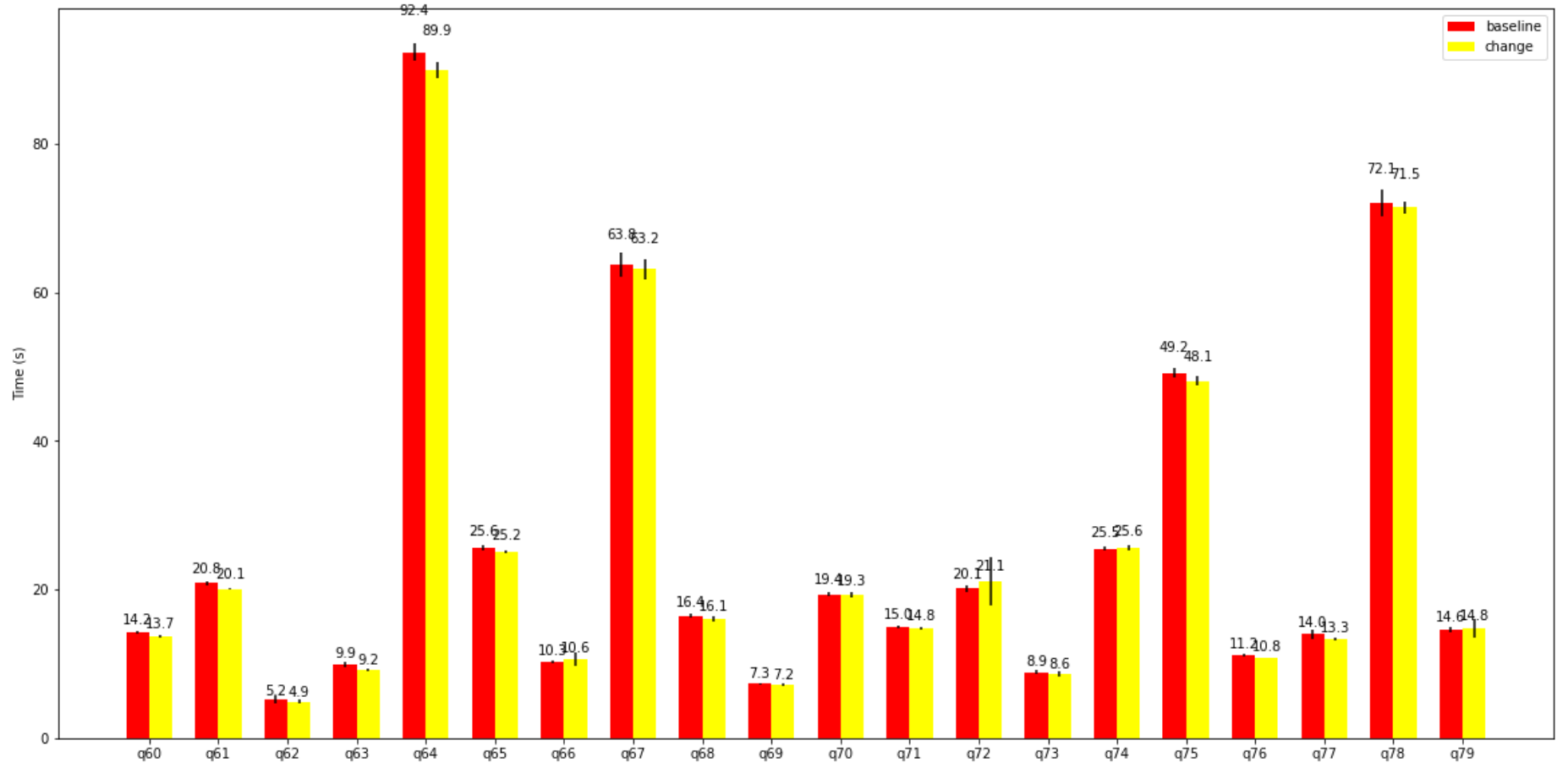
Name: % change, dtype: float64

# TPC-DS Comparison (DURATION)

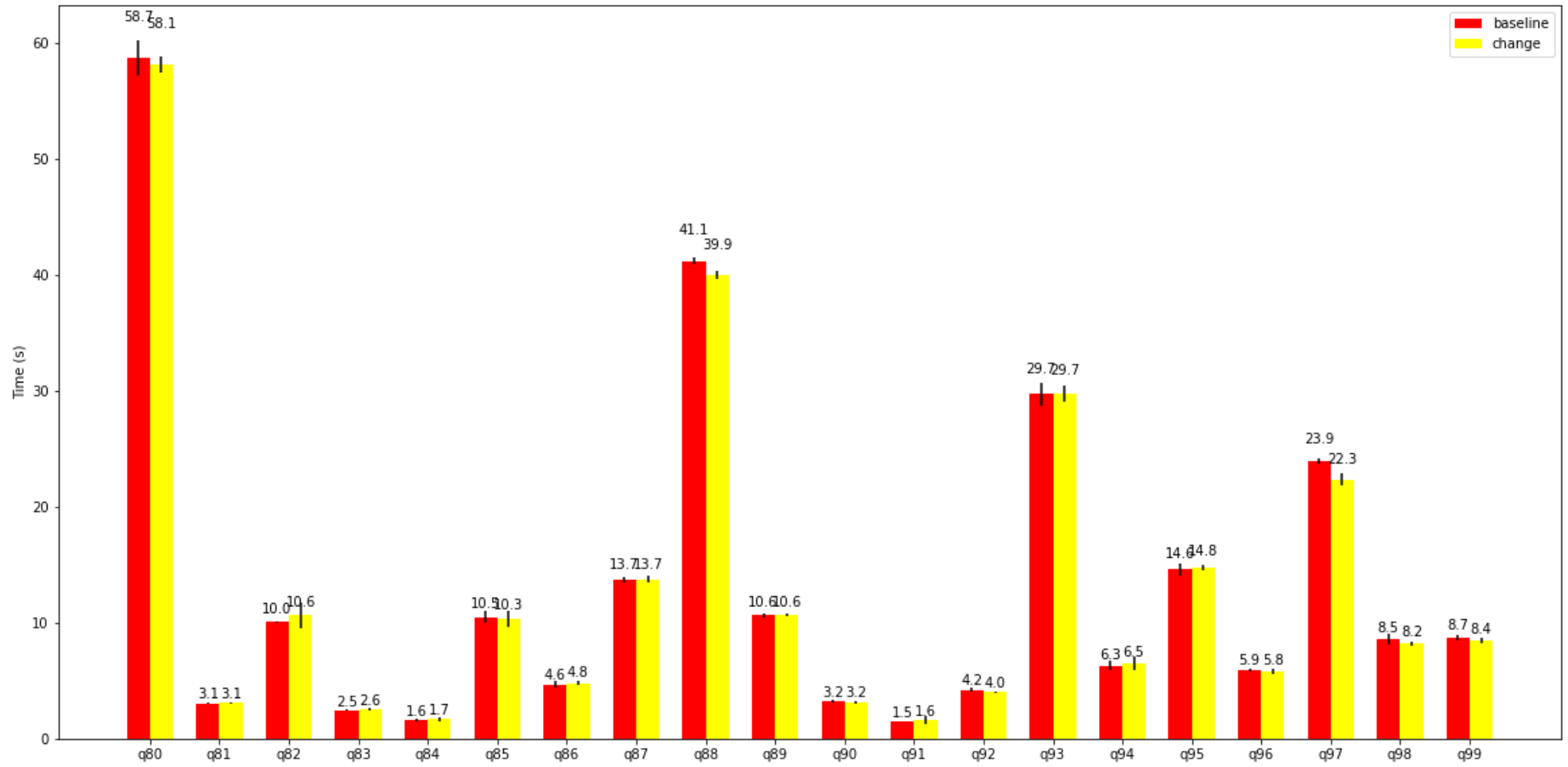


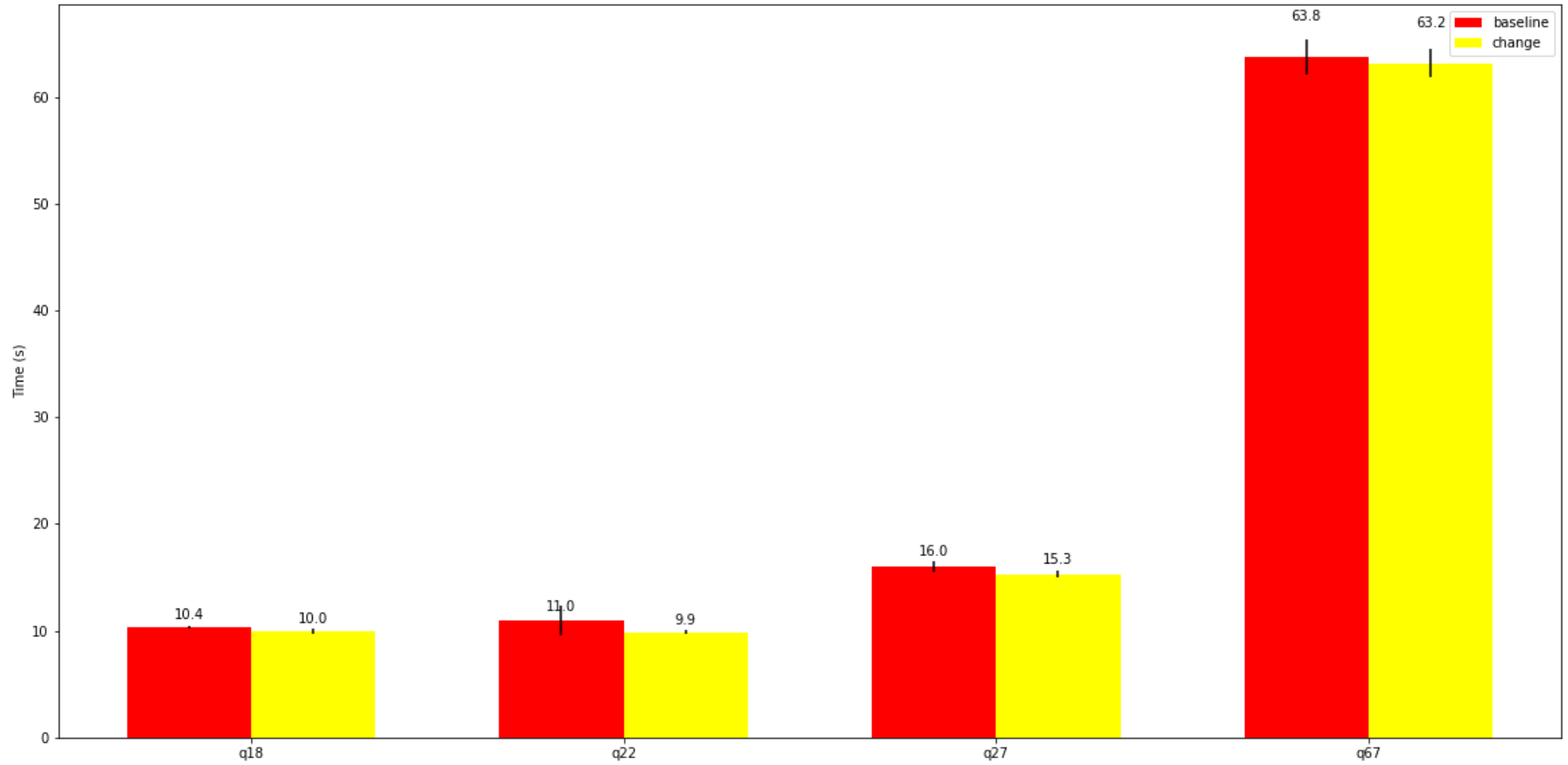












	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>29</b>	presto/tpcds: q30	3.09	0.63	2.08	0.14	-32.57	20.39	6.90	0.00340
<b>40</b>	presto/tpcds: q41	0.74	0.15	0.52	0.02	-29.37	19.89	4.61	0.00510
<b>21</b>	presto/tpcds: q22	10.99	1.38	9.87	0.15	-10.22	12.56	1.55	0.07554
<b>62</b>	presto/tpcds: q63	9.91	0.32	9.18	0.12	-7.30	3.21	1.30	0.00039

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
96	presto/tpcds: q97	23.95	0.25	22.33	0.56	-6.74	1.04	2.50	0.00007
44	presto/tpcds: q45	3.27	0.17	3.06	0.09	-6.46	5.13	2.84	0.02080
61	presto/tpcds: q62	5.23	0.49	4.93	0.20	-5.70	9.28	4.10	0.19507
45	presto/tpcds: q46	14.24	0.25	13.46	0.27	-5.52	1.78	1.99	0.00039
27	presto/tpcds: q28	41.09	0.34	38.89	0.22	-5.35	0.83	0.57	0.00000
91	presto/tpcds: q92	4.22	0.22	4.01	0.08	-4.92	5.15	1.95	0.05254
25	presto/tpcds: q26	8.79	0.23	8.35	0.18	-4.90	2.63	2.18	0.00497
76	presto/tpcds: q77	14.00	0.64	13.31	0.19	-4.89	4.54	1.42	0.03005
11	presto/tpcds: q12	2.94	0.10	2.79	0.09	-4.85	3.37	3.32	0.02766
39	presto/tpcds: q40	11.36	1.01	10.83	0.99	-4.74	8.91	9.19	0.37433
54	presto/tpcds: q55	7.97	0.44	7.61	0.16	-4.60	5.56	2.12	0.08607
26	presto/tpcds: q27	16.02	0.50	15.30	0.29	-4.55	3.10	1.91	0.01136
97	presto/tpcds: q98	8.54	0.48	8.17	0.15	-4.30	5.60	1.88	0.10346
32	presto/tpcds: q33	12.93	0.44	12.41	0.21	-4.04	3.44	1.65	0.02585
52	presto/tpcds: q53	9.65	0.22	9.26	0.26	-3.99	2.30	2.81	0.02047
5	presto/tpcds: q06	7.49	0.23	7.20	0.19	-3.82	3.12	2.62	0.04163

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
17	presto/tpcds: q18	10.37	0.13	9.97	0.25	-3.78	1.22	2.46	0.00593
59	presto/tpcds: q60	14.23	0.17	13.69	0.23	-3.78	1.21	1.65	0.00093
41	presto/tpcds: q42	7.90	0.26	7.61	0.09	-3.57	3.35	1.21	0.03329
55	presto/tpcds: q56	12.54	0.19	12.10	0.08	-3.55	1.53	0.65	0.00038
8	presto/tpcds: q09	36.12	0.47	34.84	1.37	-3.54	1.31	3.95	0.05663
60	presto/tpcds: q61	20.85	0.31	20.11	0.09	-3.53	1.48	0.47	0.00023
48	presto/tpcds: q49	20.57	0.35	19.87	0.24	-3.39	1.71	1.18	0.00237
72	presto/tpcds: q73	8.88	0.33	8.60	0.40	-3.15	3.67	4.65	0.21366
75	presto/tpcds: q76	11.15	0.14	10.80	0.08	-3.15	1.27	0.74	0.00035
14	presto/tpcds: q15	3.50	0.11	3.40	0.13	-3.00	3.11	3.90	0.16420
87	presto/tpcds: q88	41.14	0.30	39.94	0.35	-2.92	0.72	0.88	0.00008
30	presto/tpcds: q31	23.55	0.35	22.87	0.16	-2.89	1.49	0.69	0.00148
28	presto/tpcds: q29	17.18	0.28	16.69	0.65	-2.84	1.60	3.88	0.12050
98	presto/tpcds: q99	8.69	0.26	8.44	0.22	-2.82	2.97	2.60	0.10660
33	presto/tpcds: q34	9.03	0.16	8.78	0.17	-2.81	1.75	1.95	0.02379
9	presto/tpcds: q10	7.45	0.15	7.25	0.06	-2.78	1.97	0.83	0.00952
63	presto/tpcds: q64	92.38	1.18	89.91	1.04	-2.67	1.27	1.15	0.00320

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
6	presto/tpcds: q07	16.17	0.09	15.74	0.43	-2.62	0.53	2.73	0.03955
37	presto/tpcds: q38	13.97	0.82	13.64	0.16	-2.37	5.88	1.16	0.35495
47	presto/tpcds: q48	19.61	0.23	19.16	0.29	-2.34	1.16	1.53	0.01258
16	presto/tpcds: q17	17.50	0.41	17.09	0.27	-2.32	2.36	1.56	0.07107
0	presto/tpcds: q01	4.21	0.17	4.11	0.13	-2.31	4.03	3.19	0.29255
13	presto/tpcds: q14	119.98	1.37	117.26	1.03	-2.27	1.14	0.88	0.00296
74	presto/tpcds: q75	49.19	0.70	48.09	0.61	-2.24	1.42	1.26	0.01555
67	presto/tpcds: q68	16.44	0.30	16.07	0.31	-2.21	1.82	1.95	0.06641
58	presto/tpcds: q59	28.22	0.20	27.60	0.10	-2.18	0.72	0.38	0.00006
49	presto/tpcds: q50	24.93	0.81	24.39	0.81	-2.15	3.24	3.33	0.27799
89	presto/tpcds: q90	3.22	0.07	3.15	0.11	-2.14	2.28	3.54	0.23618
18	presto/tpcds: q19	10.67	0.18	10.45	0.07	-2.05	1.65	0.70	0.01879
64	presto/tpcds: q65	25.62	0.28	25.15	0.20	-1.85	1.10	0.80	0.00733
57	presto/tpcds: q58	10.73	0.18	10.54	0.15	-1.78	1.71	1.43	0.07673
2	presto/tpcds: q03	7.48	0.12	7.34	0.15	-1.76	1.62	1.98	0.11973
68	presto/tpcds: q69	7.34	0.10	7.22	0.14	-1.62	1.43	1.96	0.12951
1	presto/tpcds: q02	16.53	0.16	16.28	0.16	-1.54	0.98	1.00	0.02189

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
12	presto/tpcds: q13	24.66	0.41	24.30	0.29	-1.47	1.65	1.21	0.10584
31	presto/tpcds: q32	5.99	0.12	5.90	0.29	-1.43	2.03	4.93	0.52173
3	presto/tpcds: q04	70.40	0.72	69.42	0.68	-1.39	1.02	0.98	0.03625
84	presto/tpcds: q85	10.49	0.52	10.35	0.72	-1.33	4.95	6.97	0.70843
95	presto/tpcds: q96	5.89	0.15	5.81	0.24	-1.33	2.49	4.06	0.50632
24	presto/tpcds: q25	17.74	0.22	17.53	0.20	-1.20	1.23	1.13	0.10805
35	presto/tpcds: q36	11.50	0.32	11.36	0.59	-1.17	2.78	5.18	0.63443
70	presto/tpcds: q71	14.95	0.21	14.78	0.18	-1.15	1.38	1.24	0.15905
4	presto/tpcds: q05	28.91	0.49	28.59	0.53	-1.08	1.68	1.87	0.31563
79	presto/tpcds: q80	58.66	1.51	58.06	0.71	-1.02	2.57	1.23	0.39914
66	presto/tpcds: q67	63.75	1.64	63.15	1.34	-0.94	2.57	2.13	0.50527
7	presto/tpcds: q08	8.14	0.16	8.07	0.19	-0.90	1.96	2.31	0.48038
77	presto/tpcds: q78	72.09	1.87	71.49	0.80	-0.84	2.59	1.12	0.48349
46	presto/tpcds: q47	63.48	0.59	62.98	0.76	-0.78	0.93	1.21	0.23371
56	presto/tpcds: q57	28.27	0.43	28.11	0.30	-0.57	1.53	1.06	0.47228
53	presto/tpcds: q54	15.92	0.23	15.86	0.13	-0.42	1.43	0.80	0.53857

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>69</b>	presto/tpcds: q70	19.37	0.29	19.30	0.37	-0.34	1.52	1.90	0.73691
<b>43</b>	presto/tpcds: q44	15.13	0.47	15.11	0.37	-0.13	3.09	2.44	0.93664
<b>88</b>	presto/tpcds: q89	10.65	0.17	10.64	0.14	-0.07	1.64	1.33	0.94070
<b>92</b>	presto/tpcds: q93	29.70	0.96	29.69	0.69	-0.03	3.24	2.34	0.98768
<b>10</b>	presto/tpcds: q11	38.88	0.22	38.92	0.56	0.11	0.57	1.44	0.86929
<b>80</b>	presto/tpcds: q81	3.05	0.07	3.06	0.08	0.34	2.37	2.64	0.81736
<b>15</b>	presto/tpcds: q16	10.05	0.21	10.09	0.32	0.39	2.08	3.15	0.80529
<b>86</b>	presto/tpcds: q87	13.68	0.28	13.74	0.28	0.42	2.08	2.02	0.73006
<b>73</b>	presto/tpcds: q74	25.49	0.23	25.62	0.31	0.49	0.90	1.23	0.44959
<b>50</b>	presto/tpcds: q51	17.19	0.27	17.29	0.23	0.59	1.58	1.31	0.49807
<b>22</b>	presto/tpcds: q23	114.02	2.21	114.72	2.80	0.61	1.94	2.44	0.64151
<b>20</b>	presto/tpcds: q21	8.30	0.17	8.38	0.15	0.99	2.04	1.82	0.39789
<b>23</b>	presto/tpcds: q24	30.95	0.25	31.28	0.58	1.07	0.81	1.84	0.22303
<b>94</b>	presto/tpcds: q95	14.59	0.54	14.77	0.22	1.18	3.70	1.51	0.48633
<b>78</b>	presto/tpcds: q79	14.59	0.28	14.83	1.23	1.58	1.94	8.30	0.66366
<b>19</b>	presto/tpcds: q20	2.69	0.18	2.75	0.28	2.25	6.57	10.04	0.66057
<b>65</b>	presto/tpcds: q66	10.28	0.13	10.61	0.90	3.22	1.26	8.51	0.39497

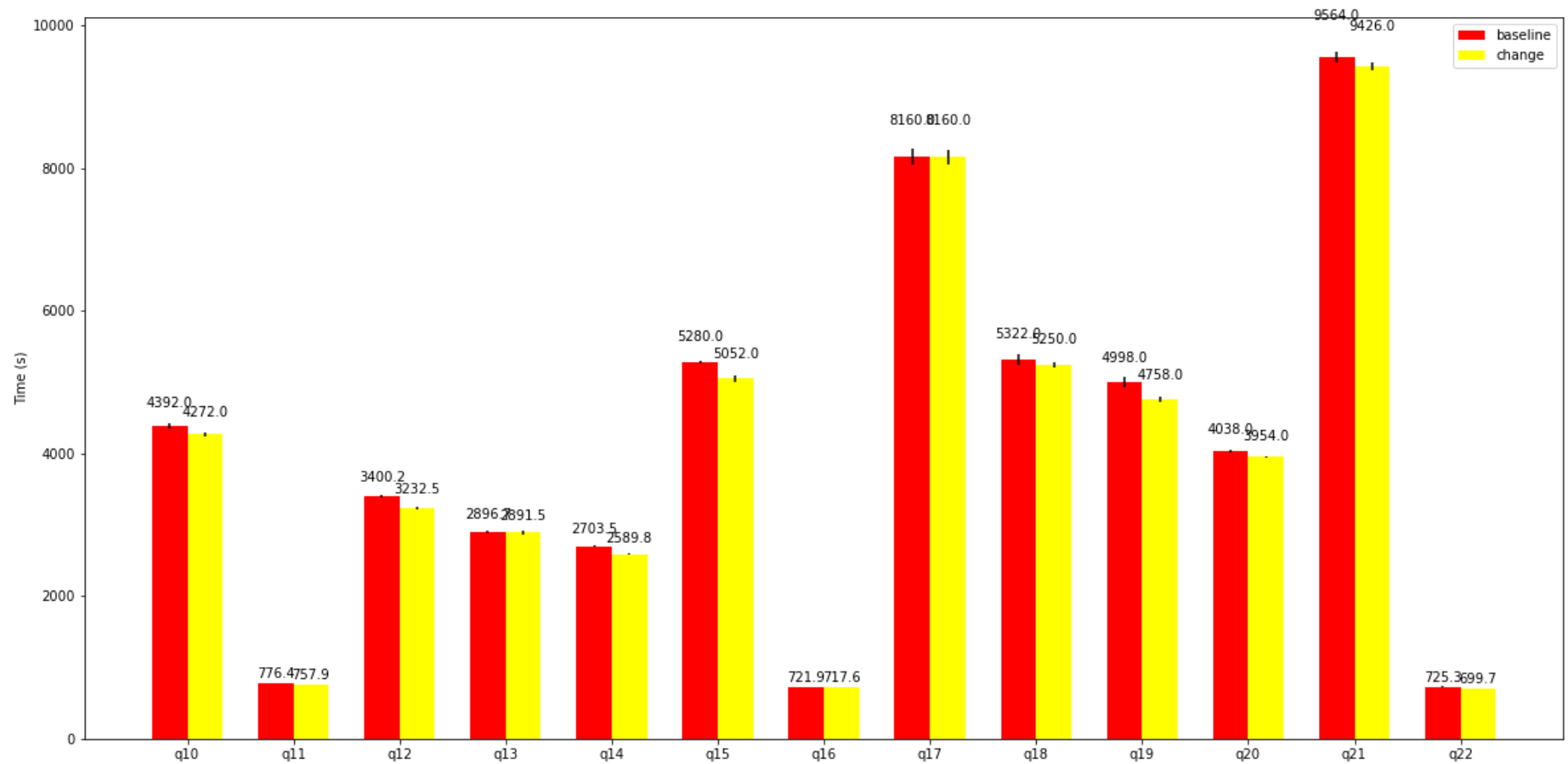
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>85</b>	presto/tpcds: q86	4.64	0.28	4.79	0.19	3.27	6.00	4.00	0.29655
<b>38</b>	presto/tpcds: q39	7.66	0.20	7.91	0.53	3.34	2.65	6.76	0.29858
<b>36</b>	presto/tpcds: q37	8.23	0.20	8.51	0.28	3.43	2.40	3.33	0.07350
count	99								
mean	-2								
std	5								
min	-33								
25%	-4								
50%	-2								
75%	0								
max	10								

Name: % change, dtype: float64

## TPC-H Comparison (CPU)

compare\_benchmark\_runs(benchmarks, benchmark='%tpch', query='q0%', metric='prestoQuery-totalCpuTime')



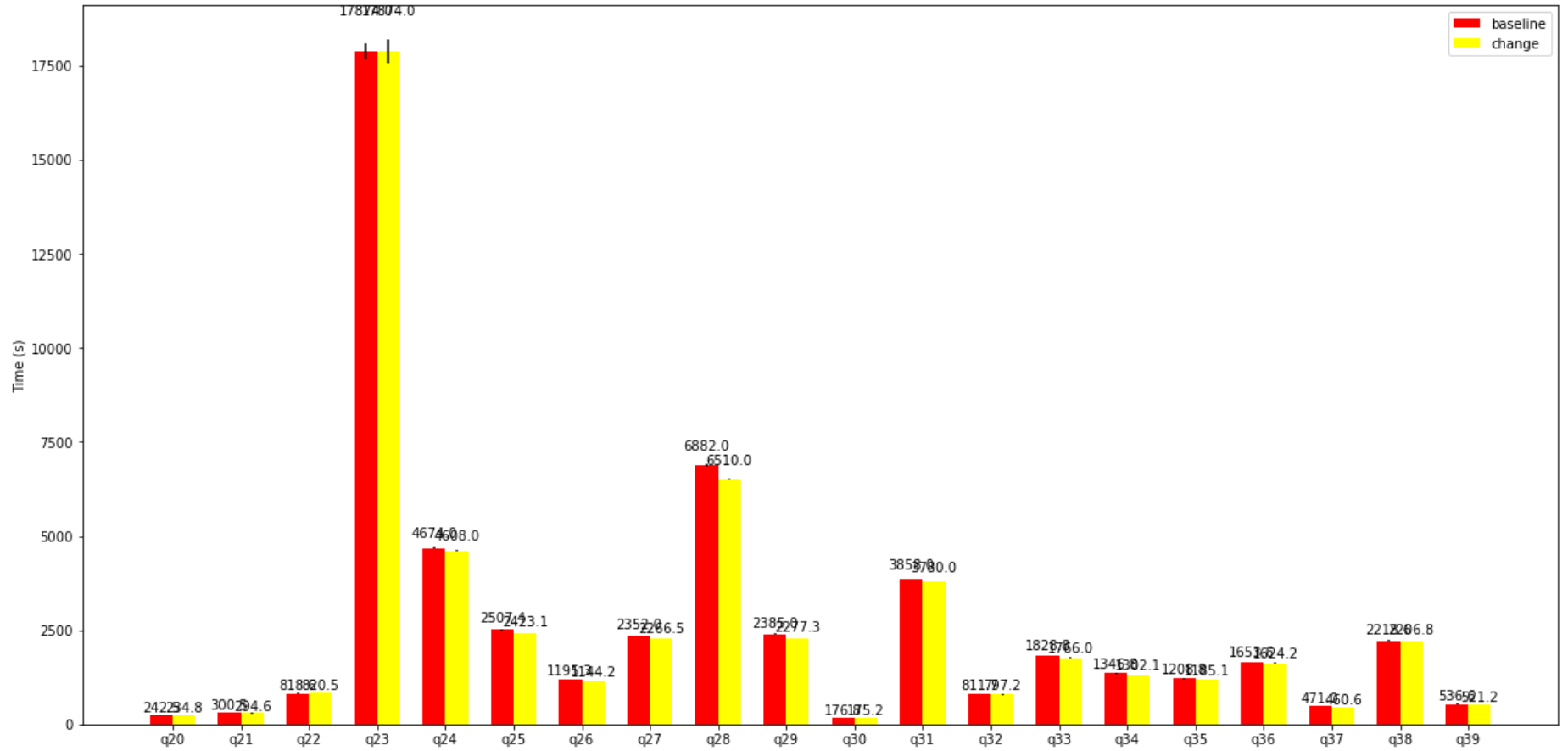


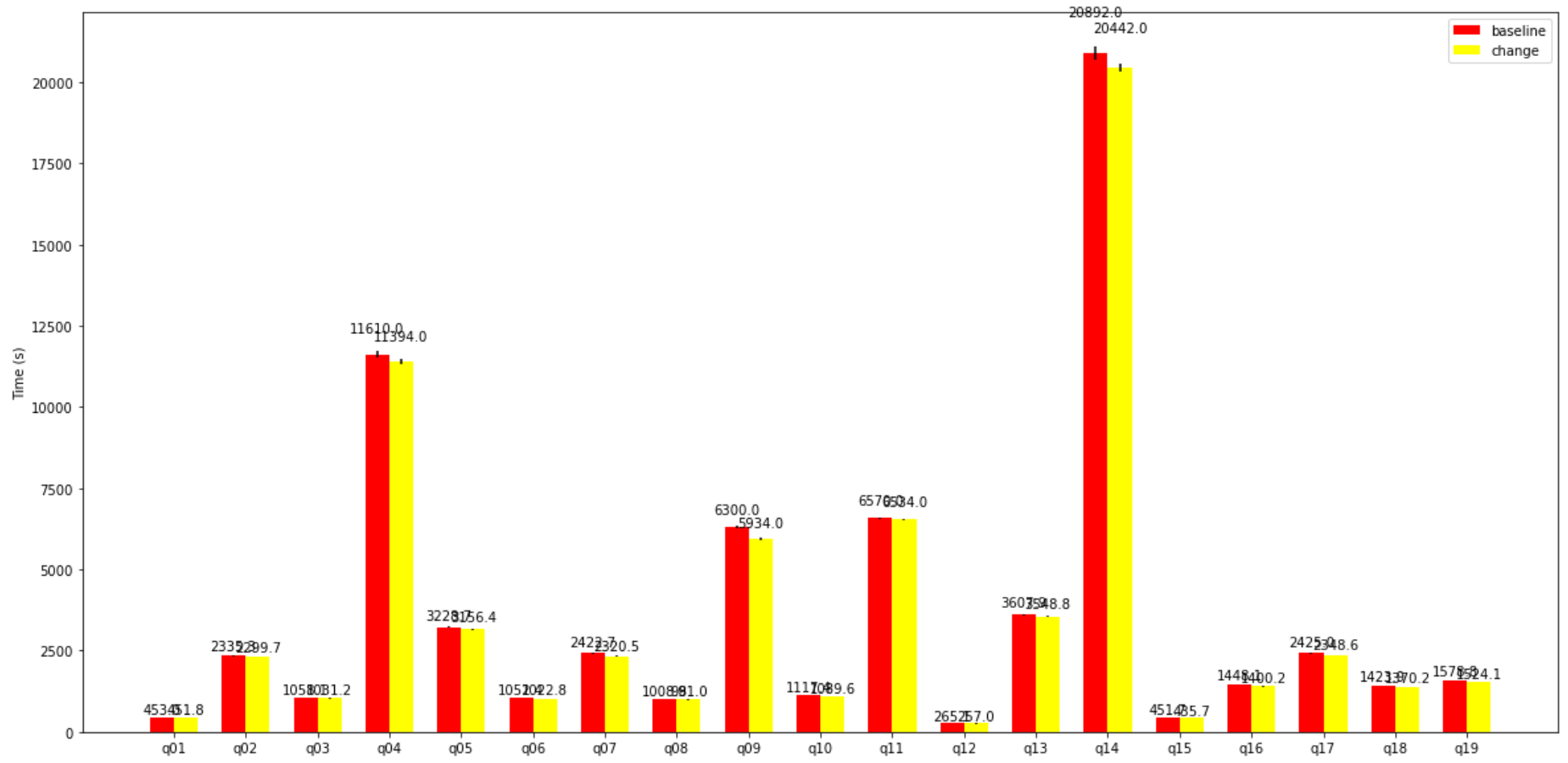
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>5</b>	presto/tpch: q06	2550.10	7.27	2414.50	7.75	-5.32	0.29	0.32	0.00000
<b>11</b>	presto/tpch: q12	3400.20	16.58	3232.50	14.63	-4.93	0.49	0.45	0.00000
<b>18</b>	presto/tpch: q19	4998.00	76.93	4758.00	35.39	-4.80	1.54	0.74	0.00004
<b>14</b>	presto/tpch: q15	5280.00	18.59	5052.00	43.60	-4.32	0.35	0.86	0.00000
<b>13</b>	presto/tpch: q14	2703.50	11.10	2589.80	7.59	-4.21	0.41	0.29	0.00000

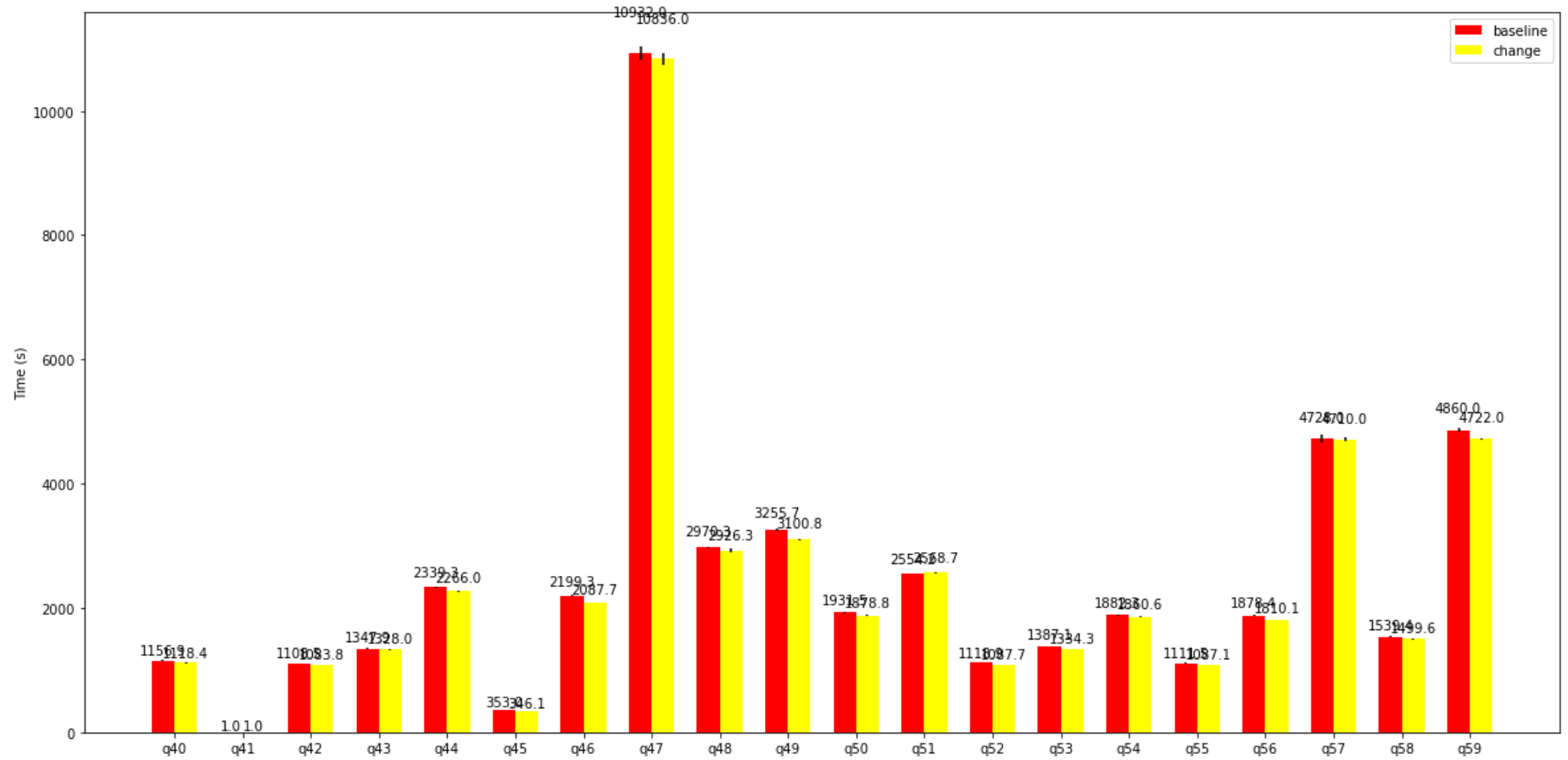
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
2	presto/tpch: q03	3864.00	29.39	3714.00	14.70	-3.88	0.76	0.40	0.00000
21	presto/tpch: q22	725.30	9.41	699.70	1.49	-3.53	1.30	0.21	0.00006
9	presto/tpch: q10	4392.00	39.44	4272.00	29.39	-2.73	0.90	0.69	0.00014
6	presto/tpch: q07	4404.00	37.18	4284.00	22.77	-2.72	0.84	0.53	0.00005
10	presto/tpch: q11	776.40	0.93	757.90	1.03	-2.38	0.12	0.14	0.00000
3	presto/tpch: q04	2662.50	14.17	2600.60	32.02	-2.32	0.53	1.23	0.00149
19	presto/tpch: q20	4038.00	14.70	3954.00	14.70	-2.08	0.36	0.37	0.00000
0	presto/tpch: q01	6654.00	14.70	6546.00	27.10	-1.62	0.22	0.41	0.00001
7	presto/tpch: q08	4518.00	30.12	4446.00	37.76	-1.59	0.67	0.85	0.00445
8	presto/tpch: q09	8160.00	70.79	8034.00	69.87	-1.54	0.87	0.87	0.01119
1	presto/tpch: q02	916.50	3.71	902.90	2.44	-1.48	0.41	0.27	0.00002
20	presto/tpch: q21	9564.00	70.79	9426.00	52.99	-1.44	0.74	0.56	0.00336
17	presto/tpch: q18	5322.00	76.93	5250.00	35.39	-1.35	1.45	0.67	0.06392
4	presto/tpch: q05	5916.00	29.39	5856.00	43.60	-1.01	0.50	0.74	0.01895
15	presto/tpch: q16	721.90	7.39	717.60	2.34	-0.60	1.02	0.33	0.20414
count	22								
mean	-2								
std	2								
min	-5								
25%	-4								
50%	-2								
75%	-1								
max	0								

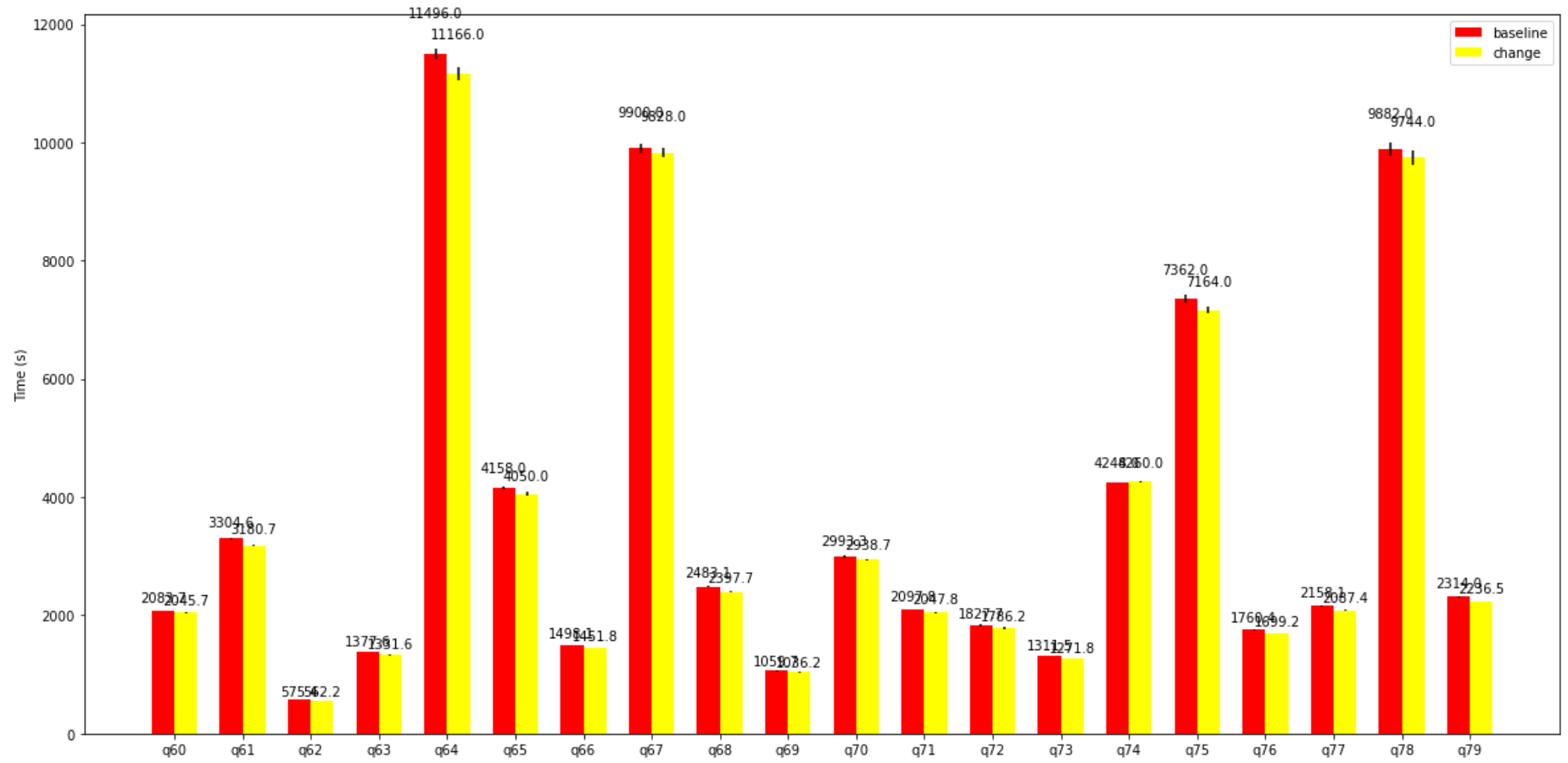
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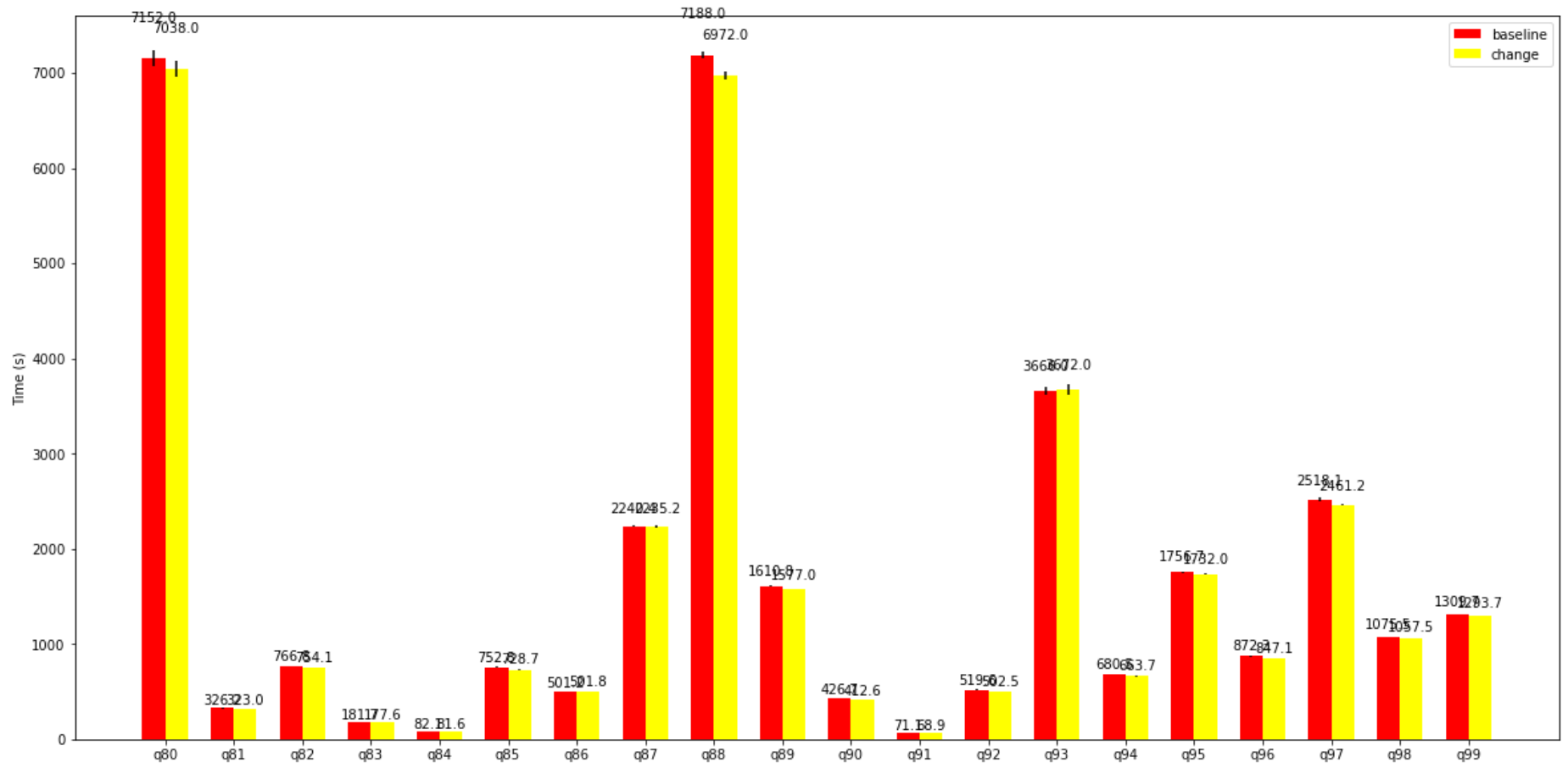
# TPC-DS Comparison (CPU)

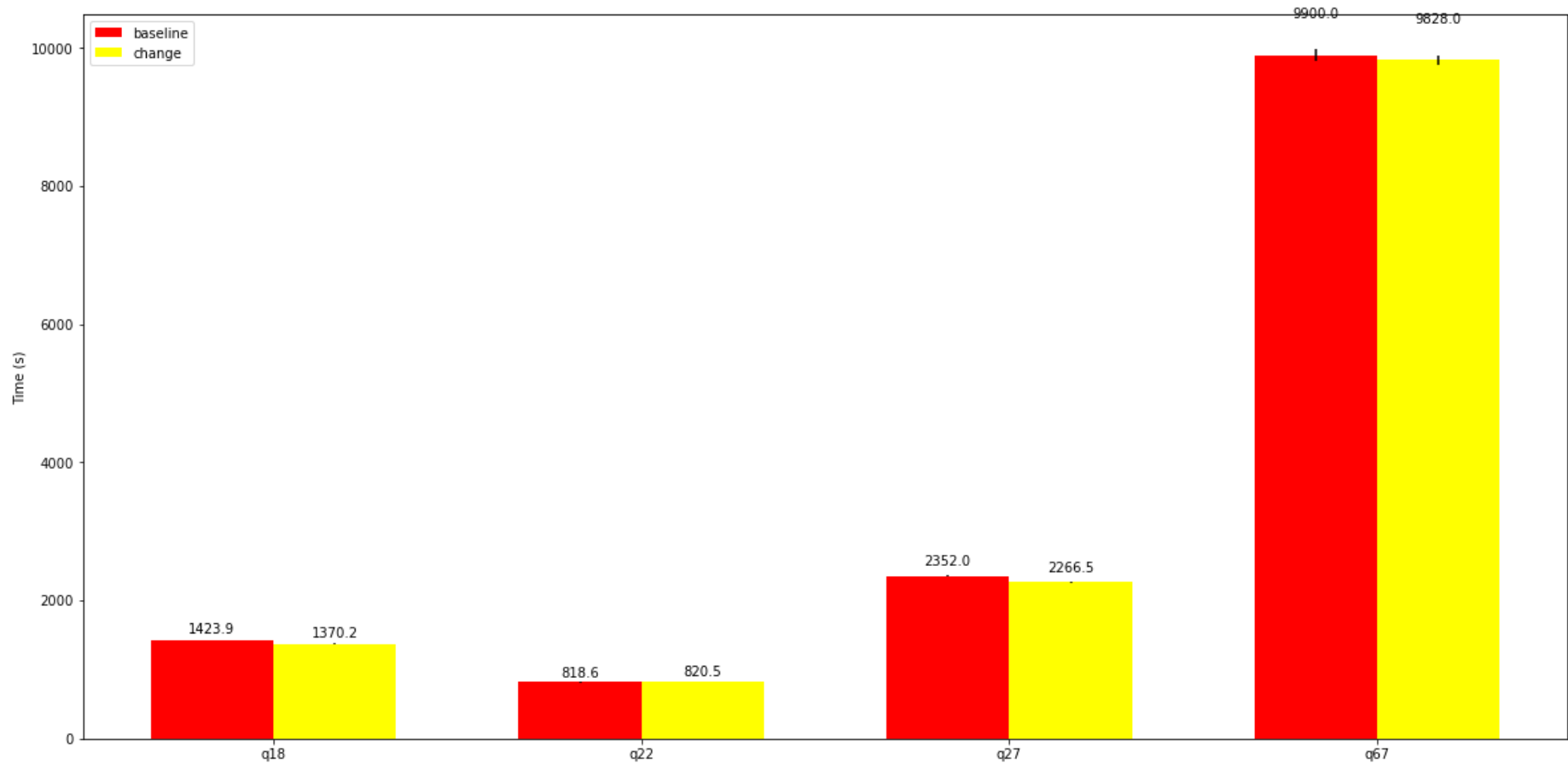












	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>8</b>	presto/tpcds: q09	6300.00	39.44	5934.00	27.10	-5.81	0.63	0.46	0.00000
<b>27</b>	presto/tpcds: q28	6882.00	42.09	6510.00	27.10	-5.41	0.61	0.42	0.00000
<b>45</b>	presto/tpcds: q46	2199.30	18.32	2087.70	3.71	-5.07	0.83	0.18	0.00000
<b>48</b>	presto/tpcds: q49	3255.70	26.92	3100.80	17.21	-4.76	0.83	0.55	0.00000



	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
28	presto/tpcds: q29	2385.00	15.74	2277.30	11.57	-4.52	0.66	0.51	0.00000
25	presto/tpcds: q26	1195.30	4.65	1144.20	1.31	-4.28	0.39	0.11	0.00000
6	presto/tpcds: q07	2422.70	8.33	2320.50	16.54	-4.22	0.34	0.71	0.00000
52	presto/tpcds: q53	1387.10	3.34	1334.30	2.23	-3.81	0.24	0.17	0.00000
17	presto/tpcds: q18	1423.90	2.38	1370.20	8.73	-3.77	0.17	0.64	0.00000
60	presto/tpcds: q61	3304.60	11.63	3180.70	5.57	-3.75	0.35	0.18	0.00000
55	presto/tpcds: q56	1878.40	6.69	1810.10	2.38	-3.64	0.36	0.13	0.00000
26	presto/tpcds: q27	2352.00	7.23	2266.50	5.80	-3.64	0.31	0.26	0.00000
14	presto/tpcds: q15	451.70	1.03	435.70	1.34	-3.54	0.23	0.31	0.00000
75	presto/tpcds: q76	1760.40	8.29	1699.20	3.48	-3.48	0.47	0.20	0.00000
18	presto/tpcds: q19	1578.80	5.07	1524.10	2.88	-3.46	0.32	0.19	0.00000
67	presto/tpcds: q68	2483.10	12.14	2397.70	9.62	-3.44	0.49	0.40	0.00000
32	presto/tpcds: q33	1828.80	6.32	1766.00	5.23	-3.43	0.35	0.30	0.00000
24	presto/tpcds: q25	2507.40	15.34	2423.10	3.32	-3.36	0.61	0.14	0.00000
78	presto/tpcds: q79	2314.00	13.49	2236.50	5.21	-3.35	0.58	0.23	0.00000
62	presto/tpcds: q63	1377.60	3.35	1331.60	9.62	-3.34	0.24	0.72	0.00000
39	presto/tpcds: q40	1156.90	11.27	1118.40	9.33	-3.33	0.97	0.83	0.00007

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
33	presto/tpcds: q34	1346.80	3.41	1302.10	5.28	-3.32	0.25	0.41	0.00000
15	presto/tpcds: q16	1448.10	5.02	1400.20	3.43	-3.31	0.35	0.24	0.00000
89	presto/tpcds: q90	426.70	1.63	412.60	1.50	-3.30	0.38	0.36	0.00000
91	presto/tpcds: q92	519.60	2.01	502.50	1.12	-3.29	0.39	0.22	0.00000
76	presto/tpcds: q77	2158.10	4.45	2087.40	4.89	-3.28	0.21	0.23	0.00000
84	presto/tpcds: q85	752.80	6.81	728.70	5.17	-3.20	0.90	0.71	0.00004
19	presto/tpcds: q20	242.50	1.10	234.80	1.92	-3.18	0.45	0.82	0.00001
16	presto/tpcds: q17	2425.00	12.57	2348.60	5.13	-3.15	0.52	0.22	0.00000
43	presto/tpcds: q44	2339.30	11.39	2266.00	4.91	-3.13	0.49	0.22	0.00000
90	presto/tpcds: q91	71.10	1.06	68.90	0.70	-3.09	1.49	1.02	0.00169
65	presto/tpcds: q66	1498.10	2.41	1451.80	7.09	-3.09	0.16	0.49	0.00000
11	presto/tpcds: q12	265.10	1.34	257.00	2.48	-3.06	0.50	0.96	0.00004
72	presto/tpcds: q73	1311.50	4.23	1271.80	6.73	-3.03	0.32	0.53	0.00000
87	presto/tpcds: q88	7188.00	29.39	6972.00	37.18	-3.01	0.41	0.53	0.00000
95	presto/tpcds: q96	872.30	2.50	847.10	2.26	-2.89	0.29	0.27	0.00000
63	presto/tpcds: q64	11496.00	90.12	11166.00	110.18	-2.87	0.78	0.99	0.00020
38	presto/tpcds: q39	536.60	3.21	521.20	3.88	-2.87	0.60	0.74	0.00002

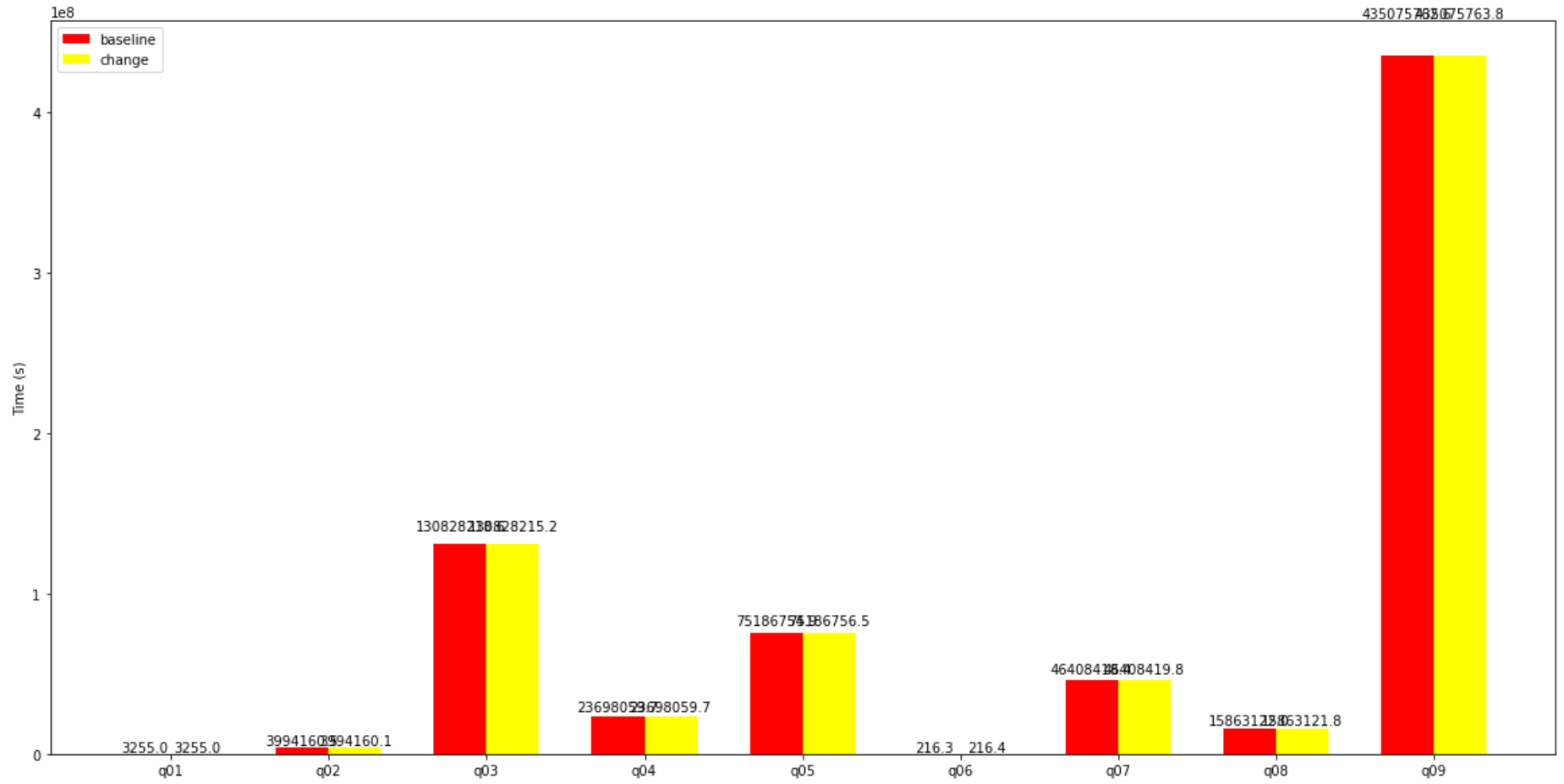
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
58	presto/tpcds: q59	4860.00	32.20	4722.00	14.70	-2.84	0.66	0.31	0.00000
5	presto/tpcds: q06	1052.40	7.18	1022.80	2.20	-2.81	0.68	0.22	0.00000
51	presto/tpcds: q52	1118.90	3.73	1087.70	2.32	-2.79	0.33	0.21	0.00000
49	presto/tpcds: q50	1931.50	14.03	1878.80	6.28	-2.73	0.73	0.33	0.00001
74	presto/tpcds: q75	7362.00	63.38	7164.00	50.91	-2.69	0.86	0.71	0.00014
64	presto/tpcds: q65	4158.00	19.72	4050.00	30.12	-2.60	0.47	0.74	0.00002
57	presto/tpcds: q58	1539.40	2.62	1499.60	4.25	-2.59	0.17	0.28	0.00000
2	presto/tpcds: q03	1058.10	3.39	1031.20	1.81	-2.54	0.32	0.18	0.00000
9	presto/tpcds: q10	1117.40	0.73	1089.60	1.86	-2.49	0.07	0.17	0.00000
93	presto/tpcds: q94	680.50	1.49	663.70	2.85	-2.47	0.22	0.43	0.00000
70	presto/tpcds: q71	2097.80	1.85	2047.80	5.75	-2.38	0.09	0.28	0.00000
61	presto/tpcds: q62	575.40	1.37	562.20	2.21	-2.29	0.24	0.39	0.00000
71	presto/tpcds: q72	1827.70	15.62	1786.20	24.69	-2.27	0.85	1.38	0.00592
96	presto/tpcds: q97	2518.10	25.34	2461.20	8.21	-2.26	1.01	0.33	0.00038
82	presto/tpcds: q83	181.70	0.45	177.60	1.07	-2.26	0.25	0.60	0.00001
4	presto/tpcds: q05	3228.70	23.43	3156.40	15.88	-2.24	0.73	0.50	0.00009

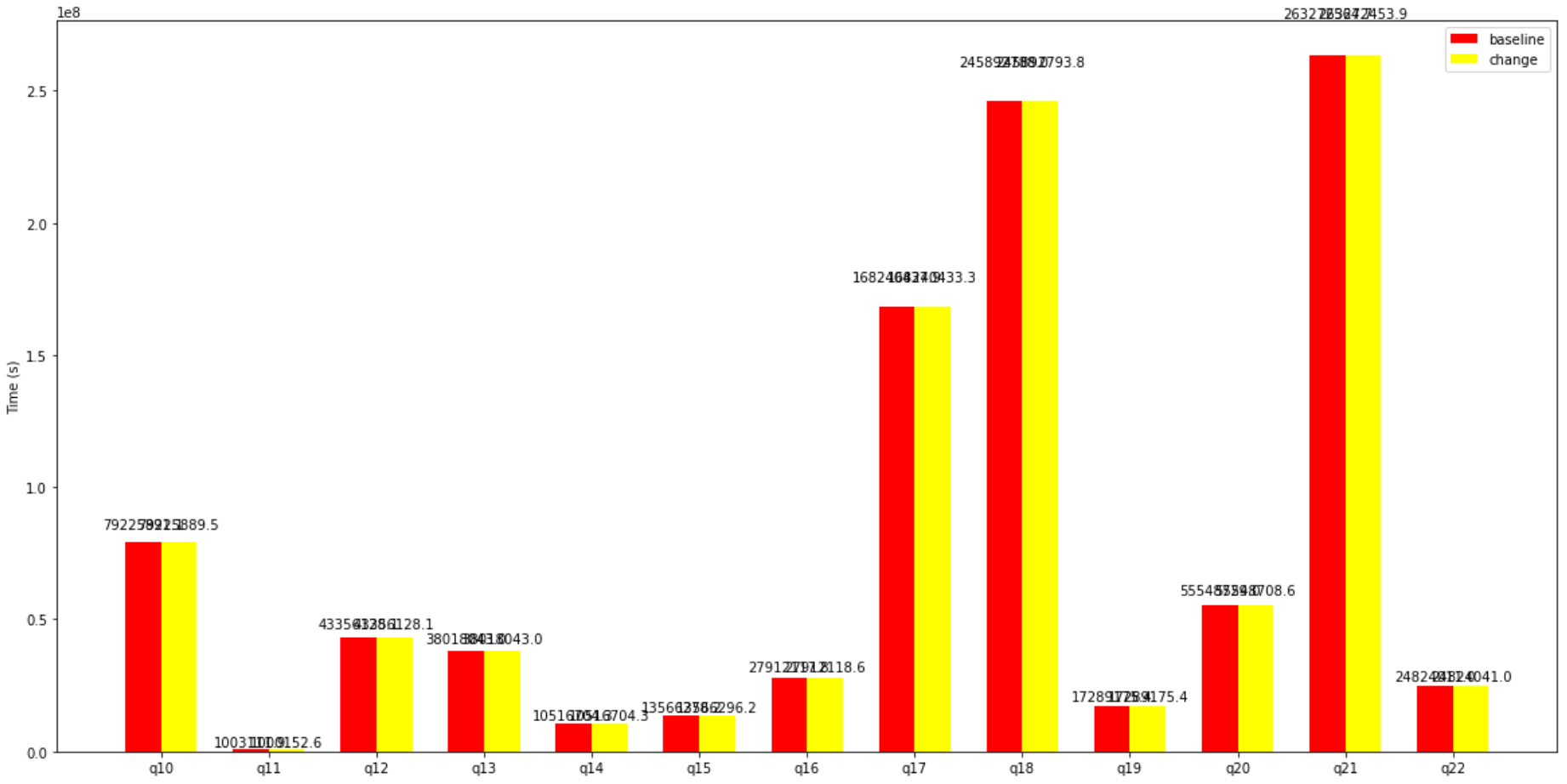
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>41</b>	presto/tpcds: q42	1108.50	5.07	1083.80	3.88	-2.23	0.46	0.36	0.00000
<b>68</b>	presto/tpcds: q69	1059.70	1.76	1036.20	0.85	-2.22	0.17	0.08	0.00000
<b>36</b>	presto/tpcds: q37	471.00	2.18	460.60	5.16	-2.21	0.46	1.12	0.00106
<b>54</b>	presto/tpcds: q55	1111.50	6.10	1087.10	1.76	-2.20	0.55	0.16	0.00000
<b>13</b>	presto/tpcds: q14	20892.00	194.09	20442.00	107.80	-2.15	0.93	0.53	0.00057
<b>88</b>	presto/tpcds: q89	1610.80	6.95	1577.00	3.32	-2.10	0.43	0.21	0.00000
<b>30</b>	presto/tpcds: q31	3858.00	14.70	3780.00	0.00	-2.02	0.38	0.00	0.00000
<b>20</b>	presto/tpcds: q21	300.50	5.18	294.60	6.43	-1.96	1.72	2.18	0.11062
<b>34</b>	presto/tpcds: q35	1208.80	4.17	1185.10	5.63	-1.96	0.34	0.48	0.00001
<b>44</b>	presto/tpcds: q45	353.00	0.98	346.10	1.03	-1.95	0.28	0.30	0.00000
<b>3</b>	presto/tpcds: q04	11610.00	110.96	11394.00	71.09	-1.86	0.96	0.62	0.00246
<b>69</b>	presto/tpcds: q70	2993.30	28.48	2938.70	12.06	-1.82	0.95	0.41	0.00150
<b>59</b>	presto/tpcds: q60	2083.70	3.09	2045.70	10.16	-1.82	0.15	0.50	0.00001
<b>31</b>	presto/tpcds: q32	811.70	1.54	797.20	16.68	-1.79	0.19	2.09	0.06002
<b>35</b>	presto/tpcds: q36	1653.60	3.50	1624.20	4.26	-1.78	0.21	0.26	0.00000
<b>7</b>	presto/tpcds: q08	1008.80	1.64	991.00	3.28	-1.76	0.16	0.33	0.00000

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>97</b>	presto/tpcds: q98	1075.50	1.06	1057.50	2.48	-1.67	0.10	0.23	0.00000
<b>81</b>	presto/tpcds: q82	766.80	2.18	754.10	4.01	-1.66	0.28	0.53	0.00005
<b>12</b>	presto/tpcds: q13	3607.90	22.52	3548.80	19.35	-1.64	0.62	0.55	0.00065
<b>79</b>	presto/tpcds: q80	7152.00	84.17	7038.00	81.30	-1.59	1.18	1.16	0.03820
<b>1</b>	presto/tpcds: q02	2335.30	9.49	2299.70	5.44	-1.52	0.41	0.24	0.00001
<b>47</b>	presto/tpcds: q48	2970.30	11.68	2926.30	22.88	-1.48	0.39	0.78	0.00184
<b>42</b>	presto/tpcds: q43	1347.90	1.60	1328.00	4.81	-1.48	0.12	0.36	0.00000
<b>23</b>	presto/tpcds: q24	4674.00	14.70	4608.00	22.77	-1.41	0.31	0.49	0.00014
<b>94</b>	presto/tpcds: q95	1756.70	8.24	1732.00	7.34	-1.41	0.47	0.42	0.00027
<b>77</b>	presto/tpcds: q78	9882.00	110.96	9744.00	126.09	-1.40	1.12	1.29	0.07186
<b>98</b>	presto/tpcds: q99	1309.70	3.55	1293.70	2.93	-1.22	0.27	0.23	0.00001
<b>53</b>	presto/tpcds: q54	1882.30	3.51	1860.60	10.03	-1.15	0.19	0.54	0.00053
<b>80</b>	presto/tpcds: q81	326.20	1.45	323.00	0.73	-0.98	0.45	0.22	0.00070
<b>29</b>	presto/tpcds: q30	176.80	0.82	175.20	0.38	-0.90	0.46	0.22	0.00147
<b>46</b>	presto/tpcds: q47	10932.00	103.51	10836.00	104.34	-0.88	0.95	0.96	0.14068
<b>66</b>	presto/tpcds: q67	9900.00	85.19	9828.00	72.00	-0.73	0.86	0.73	0.14493

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>83</b>	presto/tpcds: q84	82.10	0.59	81.60	0.76	-0.61	0.72	0.93	0.23144
<b>10</b>	presto/tpcds: q11	6570.00	19.72	6534.00	30.12	-0.55	0.30	0.46	0.03429
<b>37</b>	presto/tpcds: q38	2218.60	15.25	2206.80	6.48	-0.53	0.69	0.29	0.11169
count	99								
mean	-2								
std	1								
min	-6								
25%	-3								
50%	-2								
75%	-2								
max	1								
Name: % change, dtype: float64									

## TPC-H Comparison (Network)





	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
10	presto/tpch: q11	1003111.94	2690.84	1000152.57	5419.69	-0.30	0.27	0.54	0.25854
20	presto/tpch: q21	263272564.65	290.39	263272453.93	146.05	-0.00	0.00	0.00	0.42357
19	presto/tpch: q20	55548729.02	160.88	55548708.61	129.88	-0.00	0.00	0.00	0.81380
1	presto/tpch: q02	3994160.55	6.50	3994160.10	8.98	-0.00	0.00	0.00	0.92284
16	presto/tpch: q17	168240437.92	16.94	168240433.29	19.60	-0.00	0.00	0.00	0.67041

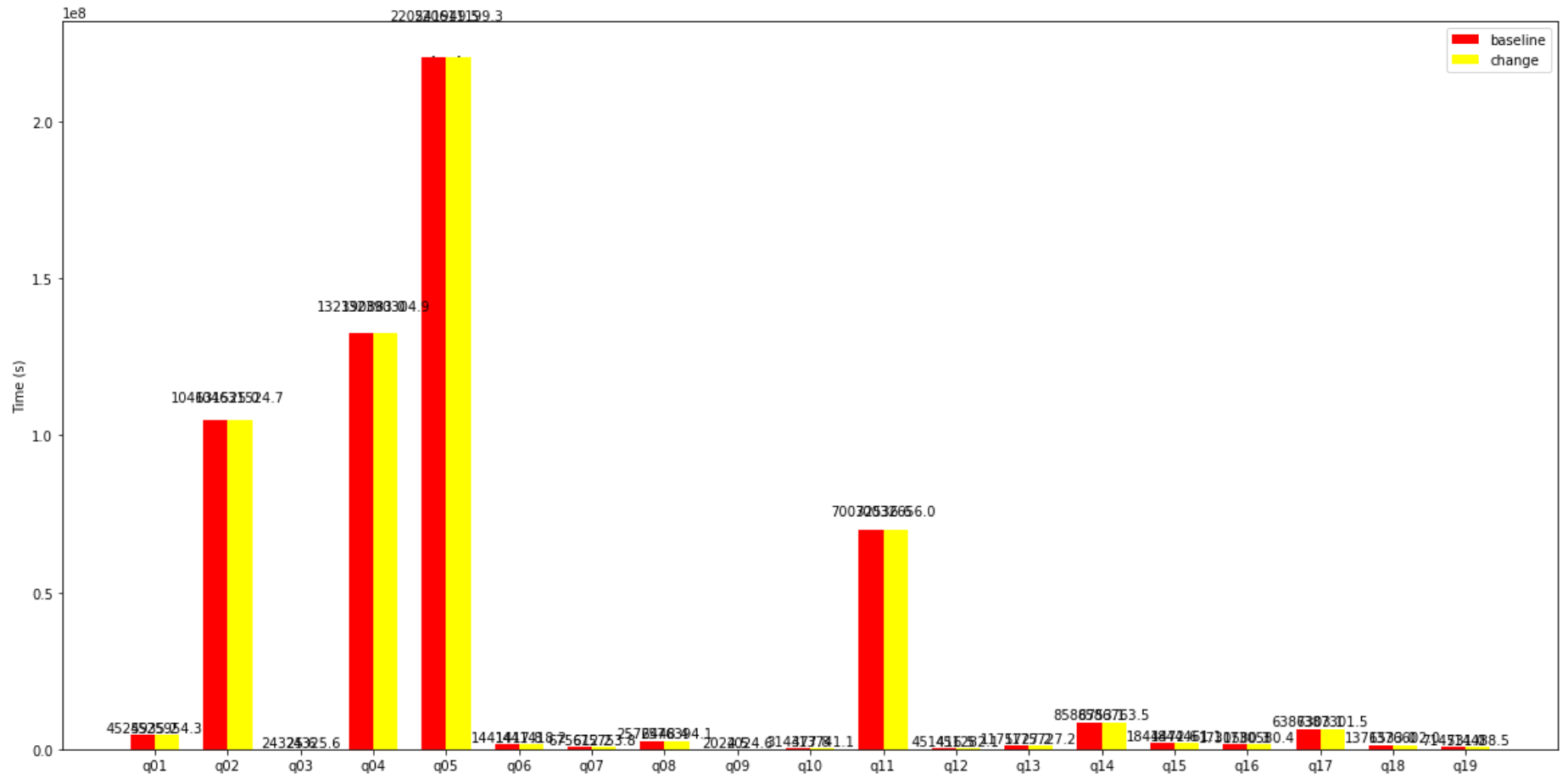


	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
2	presto/tpch: q03	130828218.59	4.34	130828215.22	4.23	-0.00	0.00	0.00	0.20355
9	presto/tpch: q10	79225891.08	4.05	79225889.53	3.69	-0.00	0.00	0.00	0.50418
7	presto/tpch: q08	15863121.97	4.86	15863121.84	4.79	-0.00	0.00	0.00	0.96335
18	presto/tpch: q19	17289175.39	0.00	17289175.39	0.00	0.00	0.00	0.00	nan
13	presto/tpch: q14	10516704.35	0.00	10516704.35	0.00	0.00	0.00	0.00	nan
12	presto/tpch: q13	38018043.00	0.00	38018043.00	0.00	0.00	0.00	0.00	nan
0	presto/tpch: q01	3255.01	0.00	3255.01	0.00	0.00	0.00	0.00	nan
3	presto/tpch: q04	23698059.71	0.00	23698059.71	0.00	0.00	0.00	0.00	nan
11	presto/tpch: q12	43356128.13	0.00	43356128.13	0.00	0.00	0.00	0.00	nan
8	presto/tpch: q09	435075762.57	7.91	435075763.77	13.20	0.00	0.00	0.00	0.85232
4	presto/tpch: q05	75186754.91	3.39	75186756.48	3.04	0.00	0.00	0.00	0.41935
17	presto/tpch: q18	245892787.98	5.73	245892793.80	4.74	0.00	0.00	0.00	0.08431
15	presto/tpch: q16	27912117.84	3.76	27912118.58	3.40	0.00	0.00	0.00	0.72781
6	presto/tpch: q07	46408418.39	5.20	46408419.75	3.80	0.00	0.00	0.00	0.61459
21	presto/tpch: q22	24824011.03	48.05	24824041.02	57.16	0.00	0.00	0.00	0.34844
14	presto/tpch: q15	13566278.25	596.64	13566296.18	696.12	0.00	0.00	0.01	0.96274
count	22								

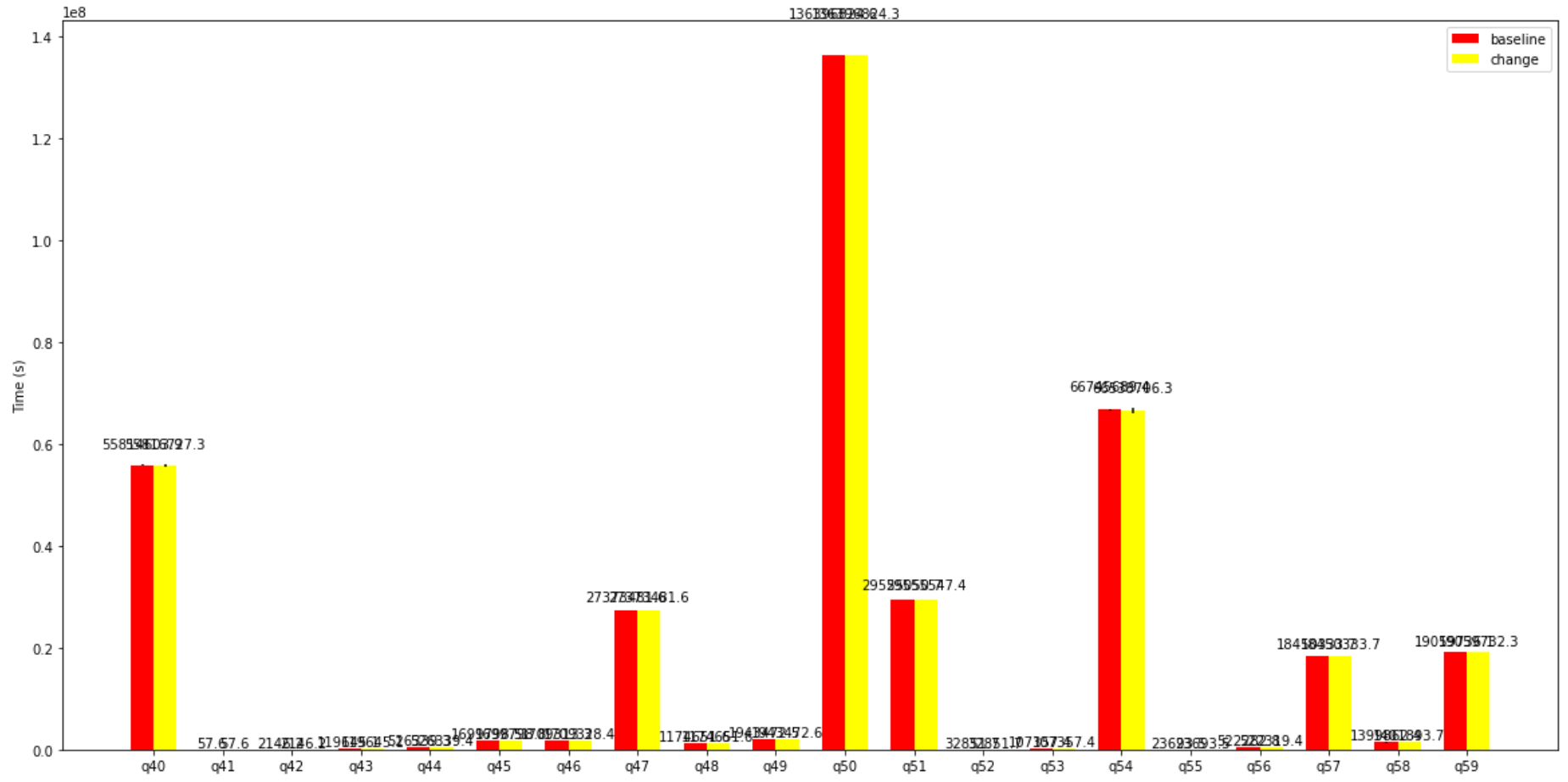
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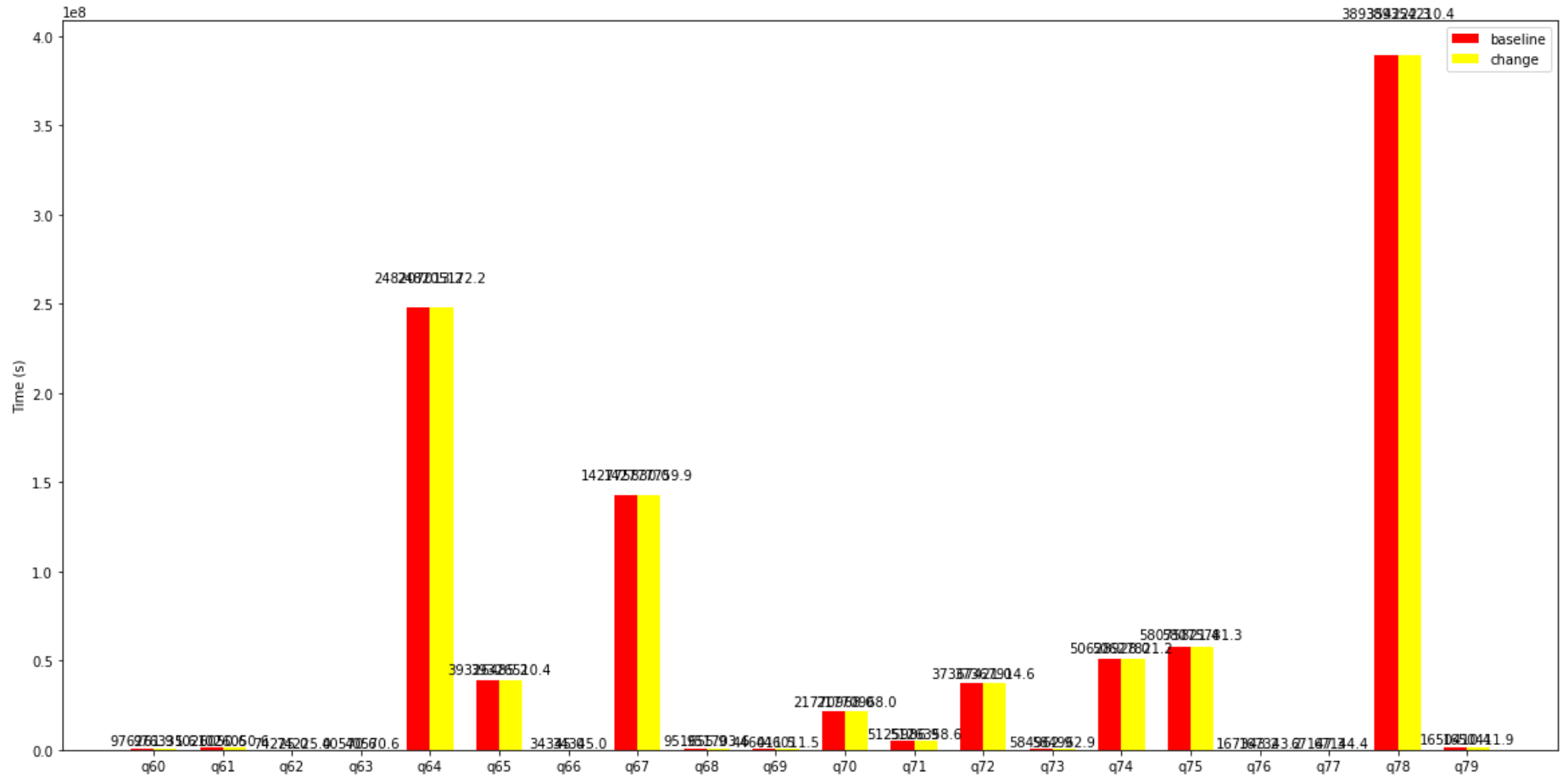
mean      -0
std        0
min        -0
25%       -0
50%        0
75%        0
max        0
Name: % change dtype: float64
    
```

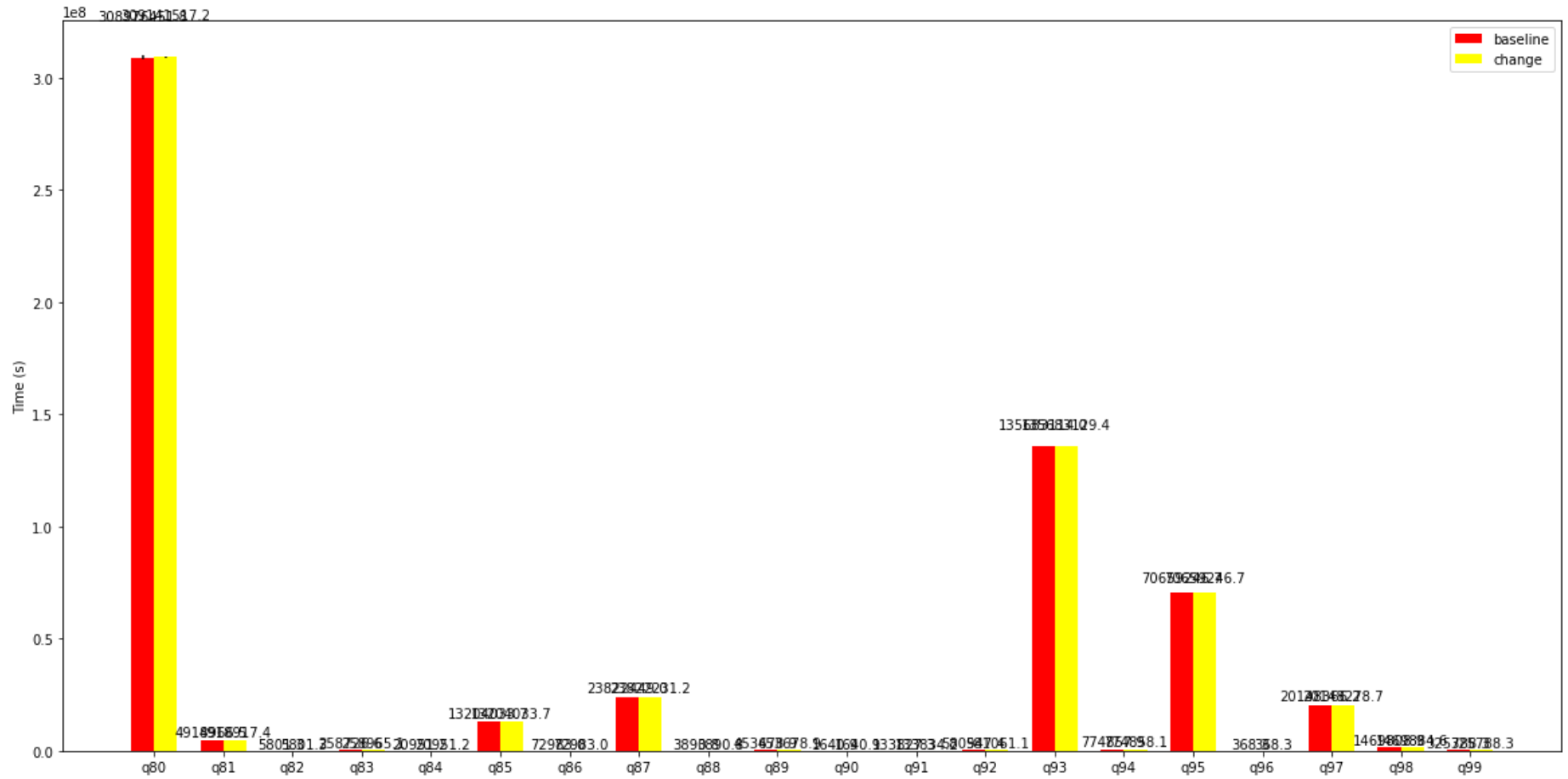
## TPC-DS Comparison (Network)











	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>53</b>	presto/tpcds: q54	66745689.38	129489.66	66538706.30	468346.23	-0.31	0.19	0.70	0.32133
<b>9</b>	presto/tpcds: q10	314477.80	1804.61	313741.08	2946.91	-0.23	0.57	0.94	0.61288
<b>11</b>	presto/tpcds: q12	451416.51	84.33	451282.08	91.99	-0.03	0.02	0.02	0.02480
<b>18</b>	presto/tpcds: q19	714530.98	21.82	714488.53	74.34	-0.01	0.00	0.01	0.20920

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
76	presto/tpcds:q77	67147.27	3.19	67144.44	2.56	-0.00	0.00	0.00	0.12118
73	presto/tpcds:q74	50628927.98	1374.42	50627821.21	1544.69	-0.00	0.00	0.00	0.21911
7	presto/tpcds:q08	2576448.42	142.03	2576394.14	94.08	-0.00	0.01	0.00	0.45322
80	presto/tpcds:q81	4918966.54	260.63	4918917.43	148.67	-0.00	0.01	0.00	0.69691
86	presto/tpcds:q87	23822448.96	103.40	23822231.21	268.88	-0.00	0.00	0.00	0.09381
63	presto/tpcds:q64	248207013.20	14262.11	248205172.21	18158.27	-0.00	0.01	0.01	0.84907
14	presto/tpcds:q15	1844472.55	23.98	1844461.10	49.93	-0.00	0.00	0.00	0.62331
3	presto/tpcds:q04	132390883.04	477.96	132390304.94	454.73	-0.00	0.00	0.00	0.05741
96	presto/tpcds:q97	20148366.16	97.28	20148278.68	146.86	-0.00	0.00	0.00	0.25178
24	presto/tpcds:q25	2884680.92	8.23	2884678.10	6.91	-0.00	0.00	0.00	0.53579
74	presto/tpcds:q75	58075821.40	80.84	58075781.26	68.48	-0.00	0.00	0.00	0.37530
16	presto/tpcds:q17	6387303.10	5.56	6387301.53	5.39	-0.00	0.00	0.00	0.63046
58	presto/tpcds:q59	19059736.07	62.30	19059732.34	17.77	-0.00	0.00	0.00	0.89066
75	presto/tpcds:q76	167343.22	5.22	167343.19	6.25	-0.00	0.00	0.00	0.99481
77	presto/tpcds:q78	389354222.30	236.65	389354210.44	248.69	-0.00	0.00	0.00	0.93425

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
22	presto/tpcds:q23	452160490.25	123.37	452160488.01	177.31	-0.00	0.00	0.00	0.98023
1	presto/tpcds:q02	104631524.99	0.73	104631524.65	0.72	-0.00	0.00	0.00	0.43320
33	presto/tpcds:q34	590643.93	0.00	590643.93	0.00	-0.00	0.00	0.00	0.28969
49	presto/tpcds:q50	136396824.56	0.50	136396824.26	0.95	-0.00	0.00	0.00	0.49941
84	presto/tpcds:q85	13204033.70	104.95	13204033.68	105.03	-0.00	0.00	0.00	0.99972
81	presto/tpcds:q82	5801.33	0.00	5801.33	0.00	0.00	0.00	0.00	nan
51	presto/tpcds:q52	32851.67	0.00	32851.67	0.00	0.00	0.00	0.00	nan
52	presto/tpcds:q53	107357.41	0.00	107357.41	0.00	0.00	0.00	0.00	nan
95	presto/tpcds:q96	368.26	0.00	368.26	0.00	0.00	0.00	0.00	nan
54	presto/tpcds:q55	23693.46	0.00	23693.46	0.00	0.00	0.00	0.00	nan
56	presto/tpcds:q57	18450333.73	0.00	18450333.73	0.00	0.00	0.00	0.00	nan
94	presto/tpcds:q95	70659246.68	0.00	70659246.68	0.00	0.00	0.00	0.00	nan
61	presto/tpcds:q62	74224.99	0.00	74224.99	0.00	0.00	0.00	0.00	nan
89	presto/tpcds:q90	1640.89	0.00	1640.89	0.00	0.00	0.00	0.00	nan
62	presto/tpcds:q63	40570.57	0.00	40570.57	0.00	0.00	0.00	0.00	nan



	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
88	presto/tpcds:q89	453678.86	0.00	453678.86	0.00	0.00	0.00	0.00	nan
65	presto/tpcds:q66	34345.01	0.00	34345.01	0.00	0.00	0.00	0.00	nan
68	presto/tpcds:q69	446011.52	0.00	446011.52	0.00	0.00	0.00	0.00	nan
69	presto/tpcds:q70	21770968.05	0.00	21770968.05	0.00	0.00	0.00	0.00	nan
87	presto/tpcds:q88	3890.80	0.00	3890.80	0.00	0.00	0.00	0.00	nan
85	presto/tpcds:q86	72982.99	0.00	72982.99	0.00	0.00	0.00	0.00	nan
83	presto/tpcds:q84	20951.17	0.00	20951.17	0.00	0.00	0.00	0.00	nan
47	presto/tpcds:q48	1174651.56	0.00	1174651.56	0.00	0.00	0.00	0.00	nan
46	presto/tpcds:q47	27373481.56	0.00	27373481.56	0.00	0.00	0.00	0.00	nan
98	presto/tpcds:q99	325788.27	0.00	325788.27	0.00	0.00	0.00	0.00	nan
12	presto/tpcds:q13	1175727.17	0.00	1175727.17	0.00	0.00	0.00	0.00	nan
2	presto/tpcds:q03	24325.63	0.00	24325.63	0.00	0.00	0.00	0.00	nan
42	presto/tpcds:q43	119645.09	0.00	119645.09	0.00	0.00	0.00	0.00	nan
41	presto/tpcds:q42	2146.24	0.00	2146.24	0.00	0.00	0.00	0.00	nan
27	presto/tpcds:q28	3180825.15	0.00	3180825.15	0.00	0.00	0.00	0.00	nan

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
21	presto/tpcds:q22	13455986.68	0.00	13455986.68	0.00	0.00	0.00	0.00	nan
40	presto/tpcds:q41	57.55	0.00	57.55	0.00	0.00	0.00	0.00	nan
20	presto/tpcds:q21	134862.95	0.00	134862.95	0.00	0.00	0.00	0.00	nan
32	presto/tpcds:q33	789900.16	0.00	789900.16	0.00	0.00	0.00	0.00	nan
36	presto/tpcds:q37	1186.47	0.00	1186.47	0.00	0.00	0.00	0.00	nan
35	presto/tpcds:q36	81118.17	0.00	81118.17	0.00	0.00	0.00	0.00	nan
72	presto/tpcds:q73	584962.87	0.01	584962.87	0.01	0.00	0.00	0.00	0.95536
60	presto/tpcds:q61	1026050.64	0.01	1026050.64	0.02	0.00	0.00	0.00	0.90066
48	presto/tpcds:q49	1943472.50	2.53	1943472.62	3.40	0.00	0.00	0.00	0.94462
15	presto/tpcds:q16	1730580.28	0.53	1730580.44	0.27	0.00	0.00	0.00	0.53750
92	presto/tpcds:q93	135683114.04	182.06	135683129.41	252.91	0.00	0.00	0.00	0.90620
44	presto/tpcds:q45	1699798.53	7.22	1699798.81	5.06	0.00	0.00	0.00	0.93901
93	presto/tpcds:q94	774857.93	0.96	774858.10	1.10	0.00	0.00	0.00	0.78106
43	presto/tpcds:q44	526339.27	1.92	526339.40	2.74	0.00	0.00	0.00	0.92776
37	presto/tpcds:q38	23822441.25	113.70	23822447.75	222.25	0.00	0.00	0.00	0.95036

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
5	presto/tpcds: q06	1441417.80	1.53	1441418.20	1.26	0.00	0.00	0.00	0.63269
28	presto/tpcds: q29	3936231.11	5.12	3936232.54	8.05	0.00	0.00	0.00	0.72025
64	presto/tpcds: q65	39326485.25	1030.51	39326510.40	1573.66	0.00	0.00	0.00	0.97451
38	presto/tpcds: q39	2147484.62	4.27	2147486.22	2.13	0.00	0.00	0.00	0.42969
78	presto/tpcds: q79	1650410.40	3.04	1650411.88	0.21	0.00	0.00	0.00	0.26055
13	presto/tpcds: q14	8586753.07	14.38	8586763.47	16.25	0.00	0.00	0.00	0.26791
10	presto/tpcds: q11	70032536.55	763.77	70032655.99	560.38	0.00	0.00	0.00	0.76379
29	presto/tpcds: q30	2545056.59	103.32	2545066.51	43.47	0.00	0.00	0.00	0.83281
0	presto/tpcds: q01	4525935.20	0.00	4525954.31	46.83	0.00	0.00	0.00	0.34089
45	presto/tpcds: q46	1709313.34	82.66	1709328.37	54.58	0.00	0.00	0.00	0.71792
71	presto/tpcds: q72	37367421.04	1192.45	37367914.61	23.49	0.00	0.00	0.00	0.33463
66	presto/tpcds: q67	142775830.04	1539.58	142777759.91	2013.80	0.00	0.00	0.00	0.09178
50	presto/tpcds: q51	29555050.68	1621.59	29555547.39	1632.33	0.00	0.01	0.01	0.60849
39	presto/tpcds: q40	55814603.86	143945.91	55816727.35	332026.96	0.00	0.26	0.59	0.98881
67	presto/tpcds: q68	951655.93	151.93	951703.60	91.53	0.01	0.02	0.01	0.52517
17	presto/tpcds: q18	1376532.99	89.42	1376601.97	66.84	0.01	0.01	0.00	0.16109

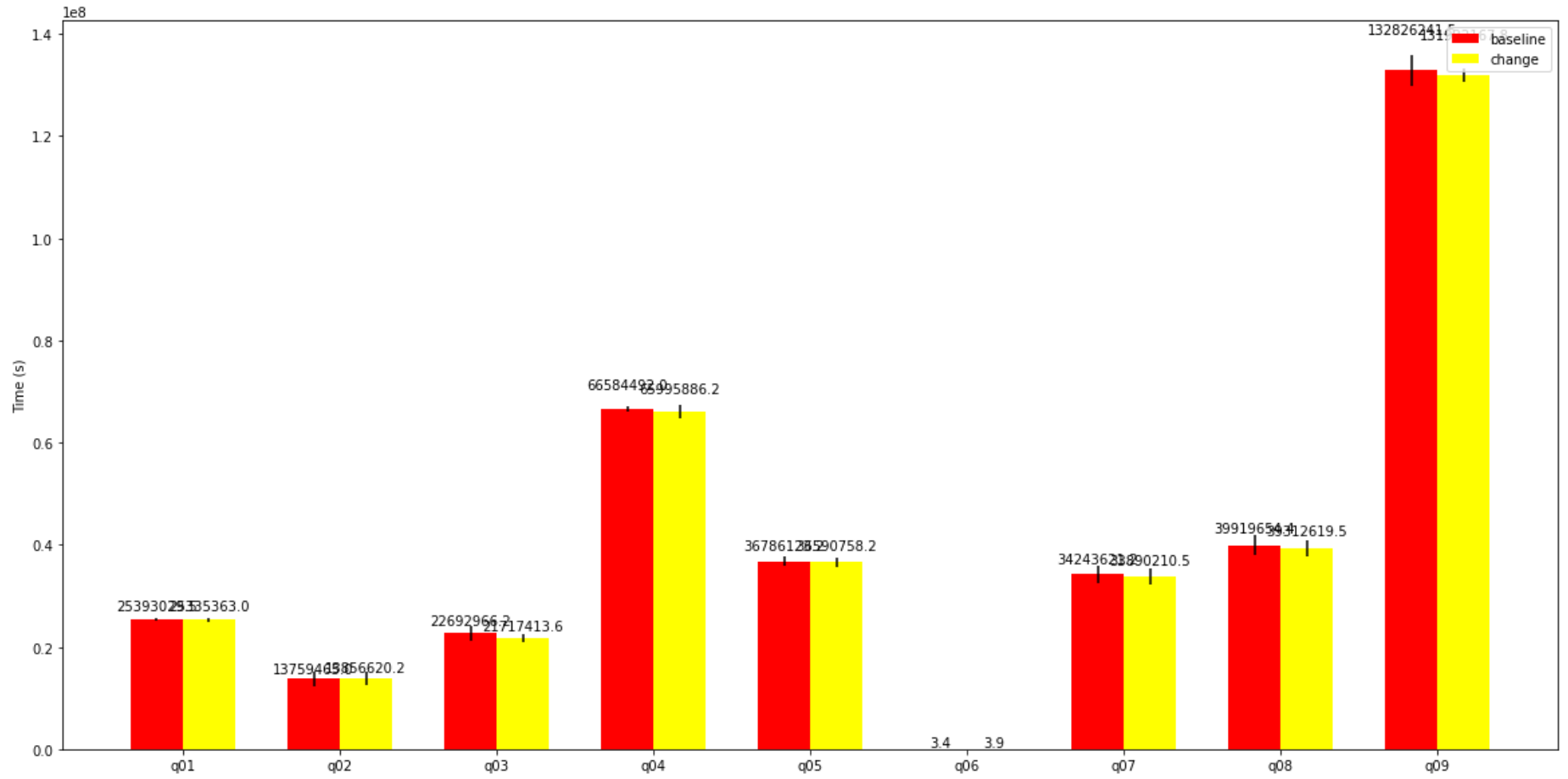
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>90</b>	presto/tpcds: q91	133827.31	7.64	133834.18	23.00	0.01	0.01	0.02	0.50323
<b>97</b>	presto/tpcds: q98	1469808.92	117.75	1469884.63	243.13	0.01	0.01	0.02	0.50797
<b>34</b>	presto/tpcds: q35	3420868.21	1846.41	3421052.42	1067.62	0.01	0.05	0.03	0.83671
<b>55</b>	presto/tpcds: q56	522282.83	71.81	522319.35	79.89	0.01	0.01	0.02	0.42440
<b>30</b>	presto/tpcds: q31	13725365.98	786.90	13726343.04	748.37	0.01	0.01	0.01	0.05210
<b>70</b>	presto/tpcds: q71	5125986.93	271.80	5126358.59	317.88	0.01	0.01	0.01	0.05455
<b>59</b>	presto/tpcds: q60	976261.92	197.39	976335.56	243.29	0.01	0.02	0.02	0.57751
<b>8</b>	presto/tpcds: q09	2024.46	0.94	2024.64	0.76	0.01	0.05	0.04	0.72220
<b>25</b>	presto/tpcds: q26	394472.86	50.95	394524.89	68.64	0.01	0.01	0.02	0.16683

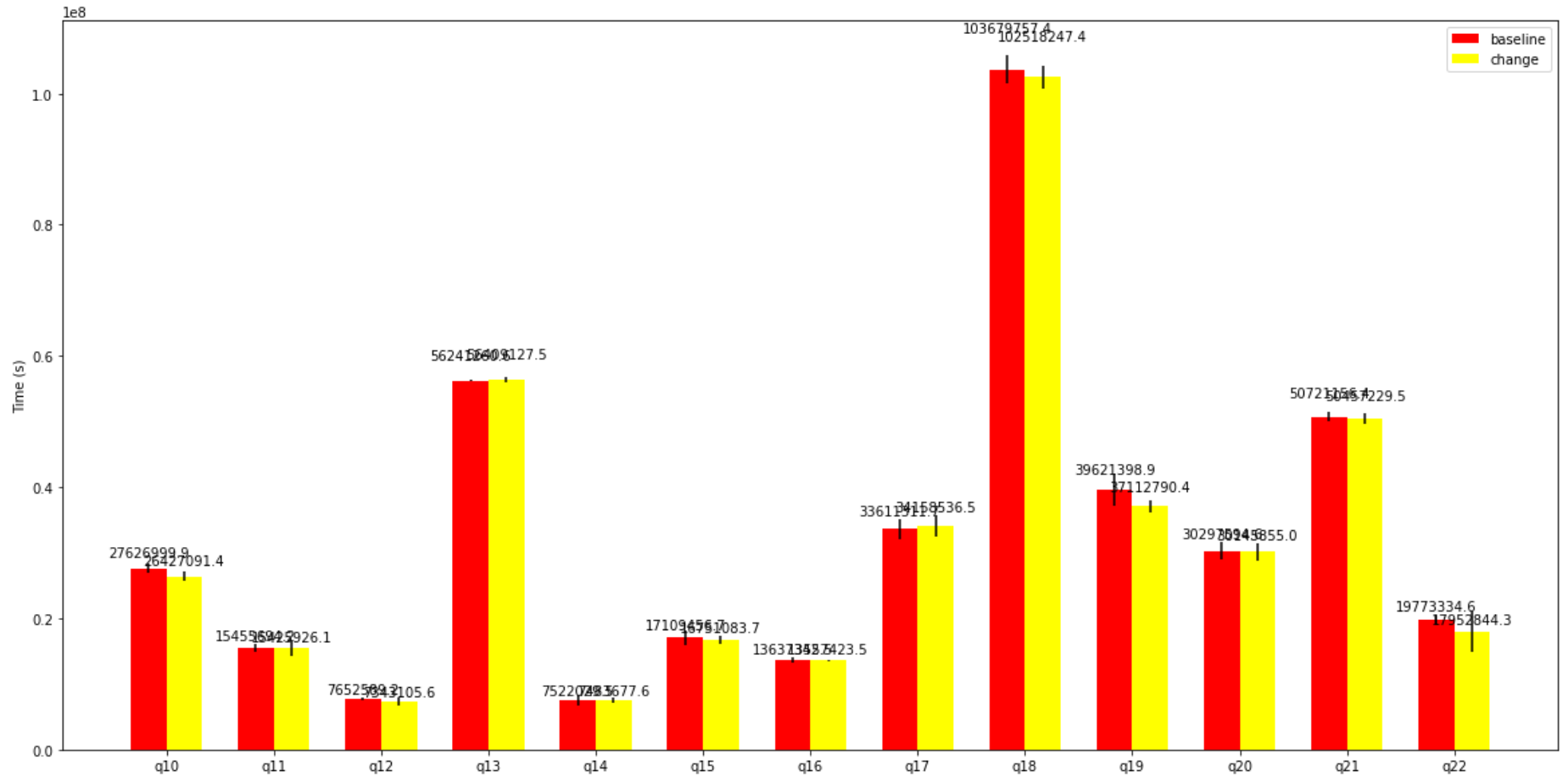
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count    99
mean      0
std       0
min      -0
25%       0
50%       0
75%       0
max        3
Name: % change, dtype: float64

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## TPC-H Comparison (Peak memory)





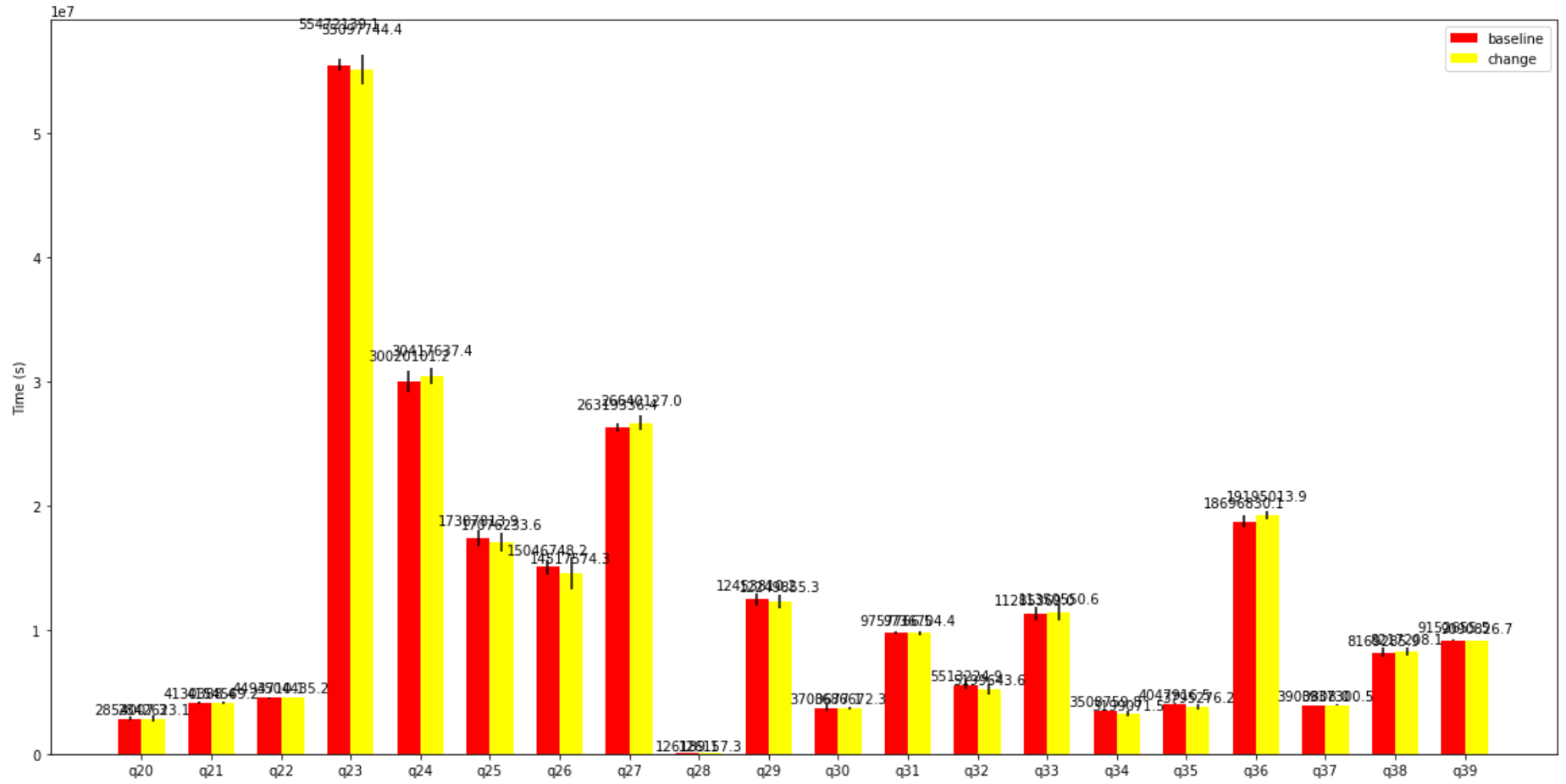
	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>21</b>	presto/tpch: q22	19773334.57	669991.67	17952844.32	2996742.99	-9.21	3.39	16.69	0.17709
<b>18</b>	presto/tpch: q19	39621398.94	2450143.93	37112790.40	919929.82	-6.33	6.18	2.48	0.04079
<b>9</b>	presto/tpch: q10	27626999.92	778609.85	26427091.36	680936.66	-4.34	2.82	2.58	0.01750
<b>2</b>	presto/tpch: q03	22692966.21	1451510.48	21717413.64	849709.17	-4.30	6.40	3.91	0.18581

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
11	presto/tpch: q12	7652589.24	208470.19	7343105.57	555130.26	-4.04	2.72	7.56	0.22998
14	presto/tpch: q15	17109456.72	1124419.76	16751083.70	634842.03	-2.09	6.57	3.79	0.51204
7	presto/tpch: q08	39919654.41	1899610.40	39312619.47	1510781.68	-1.52	4.76	3.84	0.55380
17	presto/tpch: q18	103679757.36	2142165.44	102518247.40	1697287.19	-1.12	2.07	1.66	0.32239
6	presto/tpch: q07	34243621.24	1677409.62	33890210.52	1587787.05	-1.03	4.90	4.69	0.71564
3	presto/tpch: q04	66584492.03	622247.99	65995886.20	1327077.37	-0.88	0.93	2.01	0.34848
8	presto/tpch: q09	132826241.52	2989745.99	131932167.75	1343927.48	-0.67	2.25	1.02	0.51918
15	presto/tpch: q16	13637342.50	397818.30	13557423.49	126153.81	-0.59	2.92	0.93	0.64908
4	presto/tpch: q05	36786123.17	826775.21	36590758.18	899684.11	-0.53	2.25	2.46	0.70354
20	presto/tpch: q21	50721156.44	715140.97	50457229.47	761761.28	-0.52	1.41	1.51	0.54992
13	presto/tpch: q14	7522029.53	716834.04	7483677.59	451315.70	-0.51	9.53	6.03	0.91389
19	presto/tpch: q20	30297594.60	1299525.93	30145854.98	1304596.68	-0.50	4.29	4.33	0.84408
0	presto/tpch: q01	25393029.52	360449.53	25335363.00	338215.42	-0.23	1.42	1.33	0.78088
10	presto/tpch: q11	15455694.22	554149.45	15425926.07	1104515.95	-0.19	3.59	7.16	0.95411
12	presto/tpch: q13	56241260.65	150849.09	56409127.45	409062.49	0.30	0.27	0.73	0.36785
1	presto/tpch: q02	13759465.00	1354355.58	13856620.19	1362612.07	0.71	9.84	9.83	0.90387
16	presto/tpch: q17	33611311.71	1472137.80	34158536.47	1672512.80	1.63	4.38	4.90	0.56083
count	22								
mean	-1								

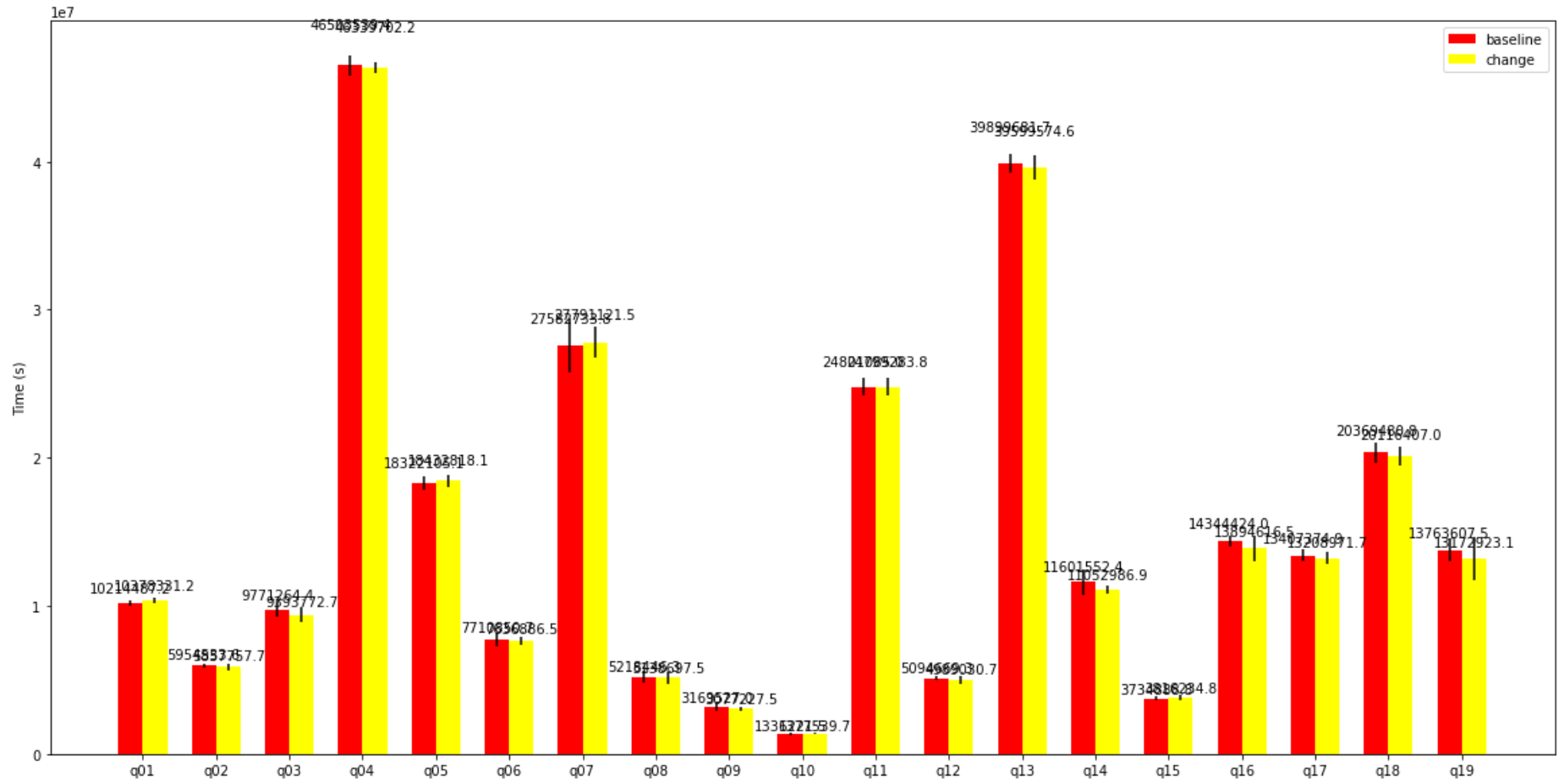
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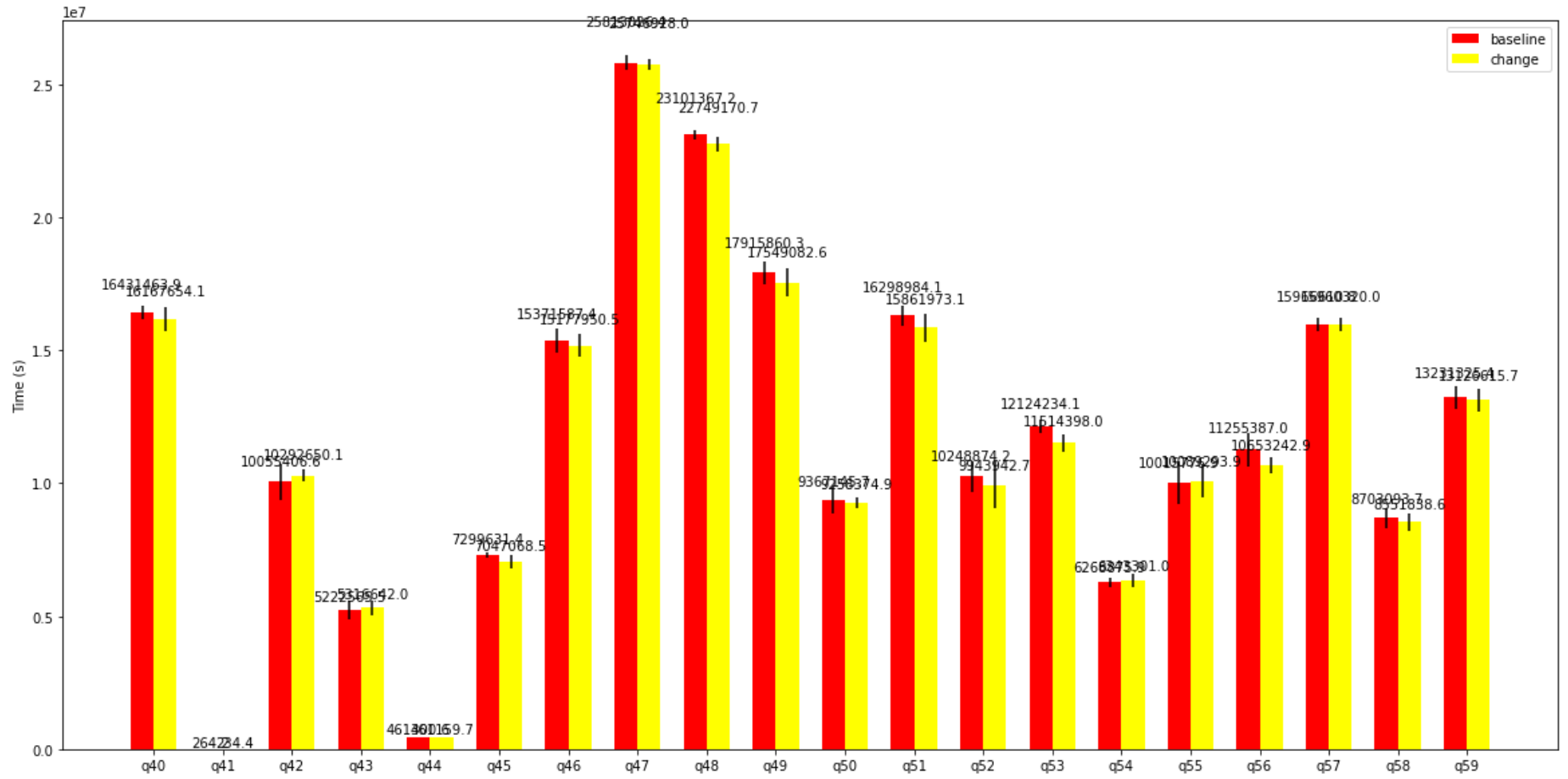
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25%     -2
50%     -1
75%     -0
max      17
Name: % change. dtype: float64
    
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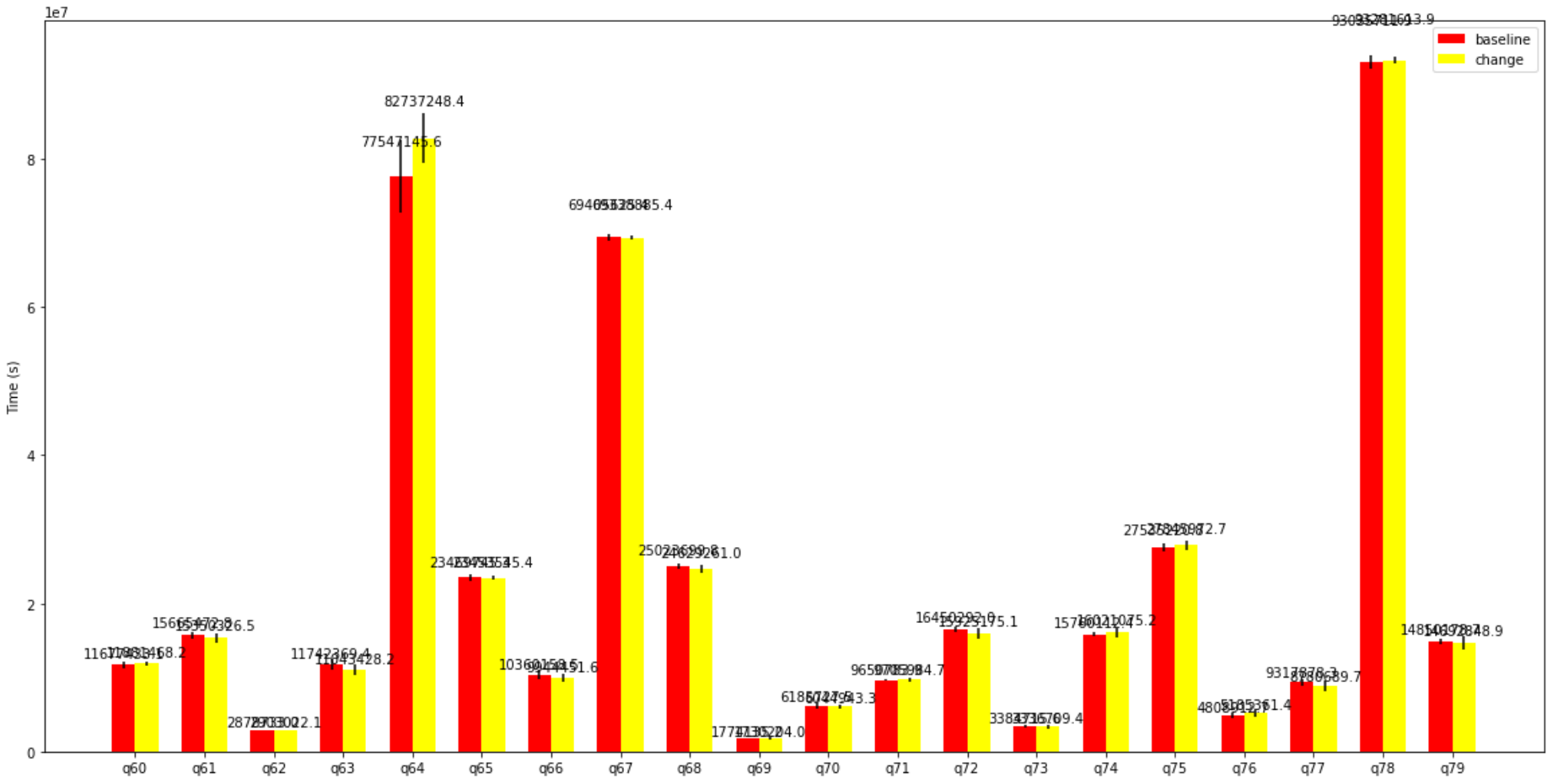
## TPC-DS Comparison (Peak memory)

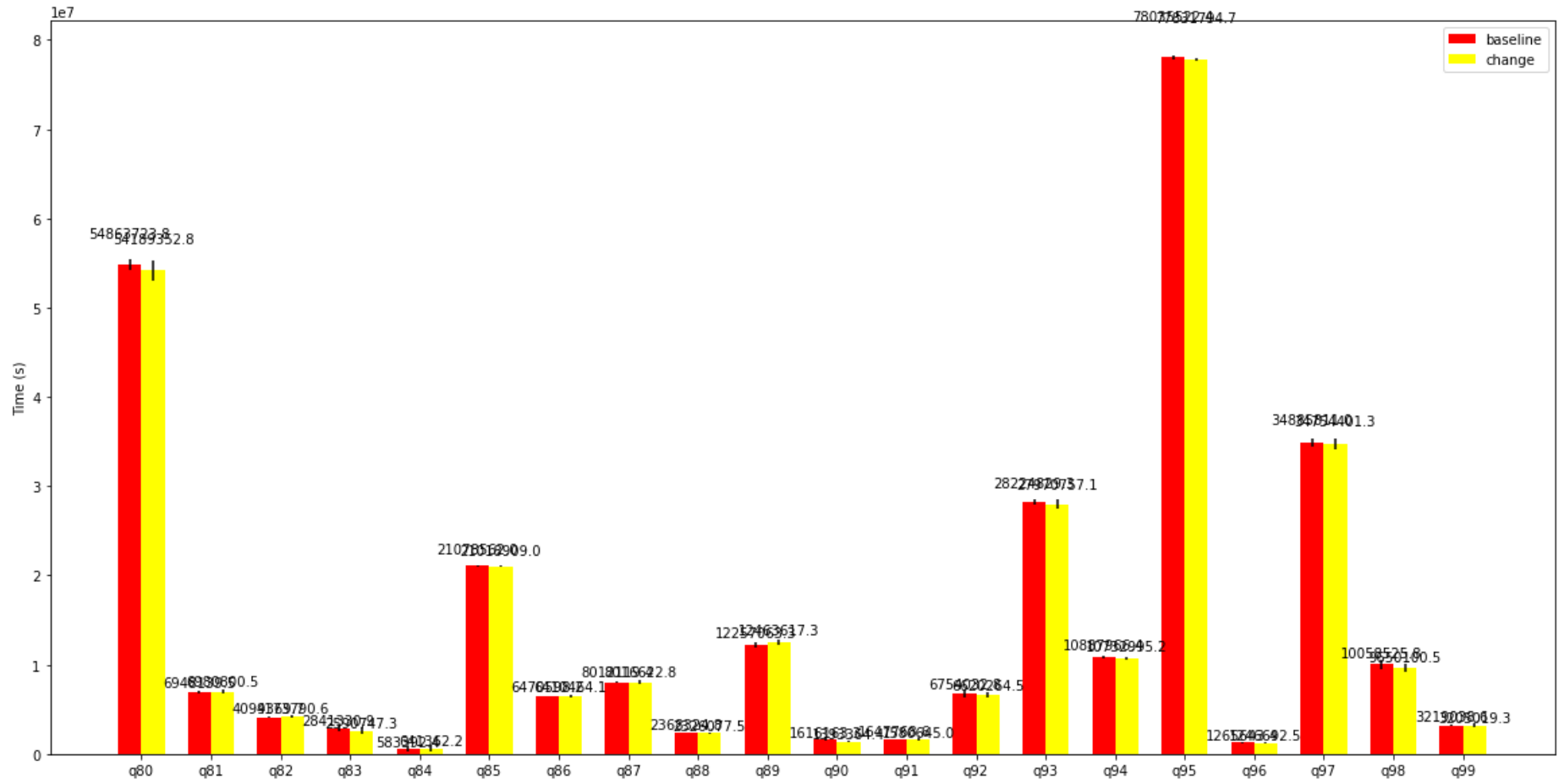


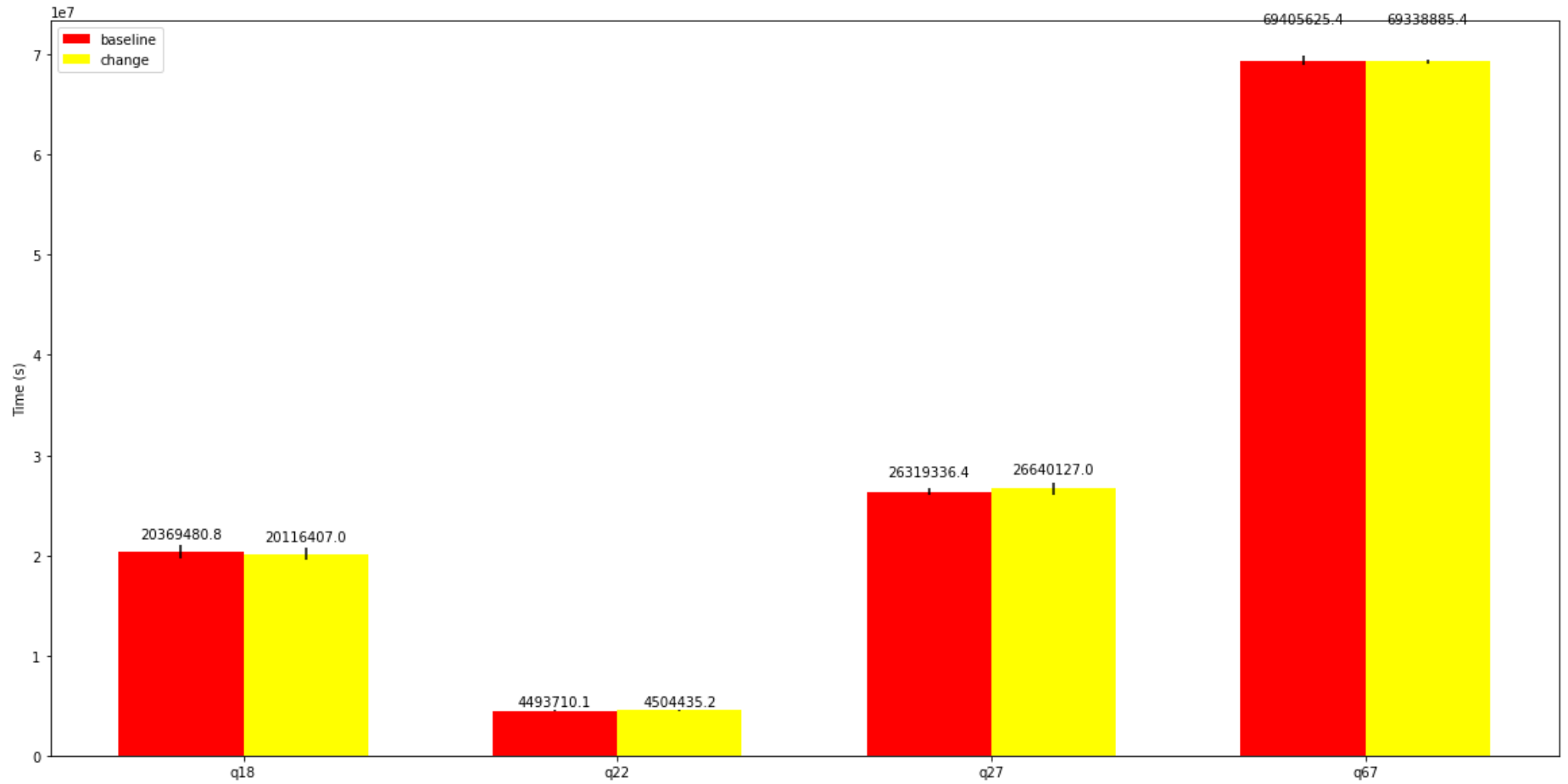












	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>89</b>	presto/tpcds: q90	1616163.30	159221.39	1393364.41	53794.98	-13.79	9.85	3.86	0.00876
<b>40</b>	presto/tpcds: q41	264.21	265.88	234.38	110.69	-11.29	100.63	47.22	0.80486
<b>33</b>	presto/tpcds: q34	3508759.84	93030.59	3199071.49	205192.79	-8.83	2.65	6.41	0.00716

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
82	presto/tpcds:q83	2841330.93	247961.04	2590747.32	328268.52	-8.82	8.73	12.67	0.16656
34	presto/tpcds:q35	4047916.51	60478.98	3795276.17	245852.70	-6.24	1.49	6.48	0.03460
62	presto/tpcds:q63	11742369.44	731580.16	11043428.21	682513.91	-5.95	6.23	6.18	0.11784
76	presto/tpcds:q77	9317878.26	455299.55	8780689.66	738128.62	-5.77	4.89	8.41	0.16016
31	presto/tpcds:q32	5513224.85	336809.55	5199643.58	436625.45	-5.69	6.11	8.40	0.19383
55	presto/tpcds:q56	11255387.04	608211.49	10653242.93	304367.64	-5.35	5.40	2.86	0.05529
52	presto/tpcds:q53	12124234.13	257435.41	11514398.01	324901.49	-5.03	2.12	2.82	0.00482
13	presto/tpcds:q14	11601552.40	878670.08	11052986.89	270689.07	-4.73	7.57	2.45	0.17459
18	presto/tpcds:q19	13763607.48	783952.19	13172923.10	1469895.24	-4.29	5.70	11.16	0.40546
90	presto/tpcds:q91	1647768.59	8150.71	1580644.99	128109.35	-4.07	0.49	8.10	0.22916
97	presto/tpcds:q98	10058525.79	548296.09	9650100.50	501091.23	-4.06	5.45	5.19	0.20775
65	presto/tpcds:q66	10360158.50	689783.16	9944451.59	546392.78	-4.01	6.66	5.49	0.27410
2	presto/tpcds:q03	9771264.37	466712.82	9393772.66	516851.03	-3.86	4.78	5.50	0.21376
25	presto/tpcds:q26	15046748.16	562687.57	14517574.32	1283610.60	-3.52	3.74	8.84	0.37682
44	presto/tpcds:q45	7299631.43	118909.38	7047068.48	241194.50	-3.46	1.63	3.42	0.04421

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
71	presto/tpcds:q72	16450292.02	385237.14	15925175.11	643185.21	-3.19	2.34	4.04	0.11699
15	presto/tpcds:q16	14344424.00	367200.16	13894616.52	861037.76	-3.14	2.56	6.20	0.26643
51	presto/tpcds:q52	10248874.18	587618.34	9943942.68	864045.24	-2.98	5.73	8.69	0.49107
8	presto/tpcds:q09	3169526.98	311194.86	3077227.55	136941.06	-2.91	9.82	4.45	0.52111
50	presto/tpcds:q51	16298984.12	397486.89	15861973.13	525932.57	-2.68	2.44	3.32	0.13549
68	presto/tpcds:q69	1774135.16	61810.40	1730204.05	164243.51	-2.48	3.48	9.49	0.55344
69	presto/tpcds:q70	6185727.48	383570.19	6044943.29	326865.57	-2.28	6.20	5.41	0.50934
11	presto/tpcds:q12	5094669.28	142154.27	4989030.69	244986.49	-2.07	2.79	4.91	0.38244
48	presto/tpcds:q49	17915860.31	423366.49	17549082.56	536695.52	-2.05	2.36	3.06	0.21810
60	presto/tpcds:q61	15665472.85	459416.92	15350326.47	635454.19	-2.01	2.93	4.14	0.34811
91	presto/tpcds:q92	6754032.76	408983.16	6620264.49	267653.51	-1.98	6.06	4.04	0.51780
24	presto/tpcds:q25	17387813.87	665295.79	17076233.62	772367.56	-1.79	3.83	4.52	0.47129
87	presto/tpcds:q88	2368324.81	50853.47	2326077.47	107262.34	-1.78	2.15	4.61	0.40378
57	presto/tpcds:q58	8703093.70	380992.43	8551838.60	328884.46	-1.74	4.38	3.85	0.47857
28	presto/tpcds:q29	12453810.21	498723.78	12249855.34	569973.04	-1.64	4.00	4.65	0.52438

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
1	presto/tpcds: q02	5954533.56	114820.30	5857757.67	208555.98	-1.63	1.93	3.56	0.34288
39	presto/tpcds: q40	16431463.88	260439.10	16167654.07	447879.26	-1.61	1.59	2.77	0.24072
67	presto/tpcds: q68	25023699.84	359976.97	24629260.96	538278.58	-1.58	1.44	2.19	0.16655
7	presto/tpcds: q08	5218446.26	431887.94	5138697.50	397310.91	-1.53	8.28	7.73	0.74610
47	presto/tpcds: q48	23101367.22	193628.18	22749170.69	262464.89	-1.52	0.84	1.15	0.02452
95	presto/tpcds: q96	1265643.36	61092.67	1246692.54	127821.09	-1.50	4.83	10.25	0.74992
16	presto/tpcds: q17	13407374.85	376855.13	13208971.68	406784.22	-1.48	2.81	3.08	0.40137
93	presto/tpcds: q94	10887966.43	186351.91	10732995.19	168182.42	-1.42	1.71	1.57	0.16142
72	presto/tpcds: q73	3384715.65	205501.03	3336709.41	201816.39	-1.42	6.07	6.05	0.69169
45	presto/tpcds: q46	15371587.44	452978.79	15177950.53	426395.93	-1.26	2.95	2.81	0.46340
17	presto/tpcds: q18	20369480.85	690425.25	20116407.03	629982.12	-1.24	3.39	3.13	0.52217
79	presto/tpcds: q80	54863723.81	632752.36	54189352.83	1141402.39	-1.23	1.15	2.11	0.23430
49	presto/tpcds: q50	9367145.72	517019.07	9258374.90	199778.65	-1.16	5.52	2.16	0.64108
78	presto/tpcds: q79	14850178.75	361930.60	14692848.90	950438.50	-1.06	2.44	6.47	0.71266
5	presto/tpcds: q06	7710850.65	457108.47	7636886.50	282802.26	-0.96	5.93	3.70	0.74304
85	presto/tpcds: q86	6470598.22	67326.89	6410464.10	144616.34	-0.93	1.04	2.26	0.37755



	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
92	presto/tpcds:q93	28224829.25	356428.25	27970757.11	565241.50	-0.90	1.26	2.02	0.37362
58	presto/tpcds:q59	13231325.36	426347.38	13126615.71	439368.50	-0.79	3.22	3.35	0.68412
12	presto/tpcds:q13	39899681.75	622892.39	39599574.61	834498.95	-0.75	1.56	2.11	0.49635
38	presto/tpcds:q39	9152655.54	50142.33	9090826.72	27699.23	-0.68	0.55	0.30	0.02457
22	presto/tpcds:q23	55472139.05	453165.62	55097744.36	1188184.86	-0.67	0.82	2.16	0.48733
98	presto/tpcds:q99	3219038.65	148196.81	3205019.31	175938.72	-0.44	4.60	5.49	0.88430
19	presto/tpcds:q20	2854007.29	138095.47	2842623.15	236899.28	-0.40	4.84	8.33	0.92101
29	presto/tpcds:q30	3700677.14	253062.50	3686672.27	90252.00	-0.38	6.84	2.45	0.90093
96	presto/tpcds:q97	34885810.97	475404.72	34754401.29	559092.26	-0.38	1.36	1.61	0.67027
3	presto/tpcds:q04	46503539.44	659226.52	46339702.22	363099.68	-0.35	1.42	0.78	0.60552
84	presto/tpcds:q85	21078562.02	81488.30	21018908.97	106863.64	-0.28	0.39	0.51	0.30242
94	presto/tpcds:q95	78035522.42	207854.78	77831794.70	193492.00	-0.26	0.27	0.25	0.10938
46	presto/tpcds:q47	25813026.42	281697.29	25746928.02	191927.35	-0.26	1.09	0.75	0.64500
30	presto/tpcds:q31	9757766.46	83105.73	9736704.38	171037.18	-0.22	0.85	1.76	0.79167
66	presto/tpcds:q67	69405625.44	481060.49	69338885.44	221288.91	-0.10	0.69	0.32	0.76386

	query	baseline mean	baseline std.dev	change mean	change std.dev	% change	baseline std.dev %	change std.dev %	p-value
<b>64</b>	presto/tpcds: q65	23469745.32	390946.33	23453545.38	313511.83	-0.07	1.67	1.34	0.93845
<b>56</b>	presto/tpcds: q57	15966610.76	261579.28	15960319.98	257646.60	-0.04	1.64	1.61	0.96735
<b>43</b>	presto/tpcds: q44	461300.59	416.85	461159.74	380.67	-0.03	0.09	0.08	0.55471
<b>27</b>	presto/tpcds: q28	126189.06	2231.42	126157.28	1812.88	-0.03	1.77	1.44	0.97893
<b>10</b>	presto/tpcds: q11	24801085.04	582969.91	24799283.84	607517.14	-0.01	2.35	2.45	0.99592
<b>86</b>	presto/tpcds: q87	8012119.36	103430.69	8016622.80	207292.99	0.06	1.29	2.59	0.96296
<b>21</b>	presto/tpcds: q22	4493710.09	11584.49	4504435.16	13438.02	0.24	0.26	0.30	0.16949
<b>77</b>	presto/tpcds: q78	93035711.94	882127.33	93281613.89	488761.58	0.26	0.95	0.52	0.56361
<b>80</b>	presto/tpcds: q81	6948139.49	123698.70	6980800.52	282665.65	0.47	1.78	4.05	0.80067
<b>70</b>	presto/tpcds: q71	9650783.88	108452.17	9705984.68	306825.96	0.57	1.12	3.16	0.68656
<b>32</b>	presto/tpcds: q33	11285369.02	587960.69	11350550.57	654826.21	0.58	5.21	5.77	0.85966
<b>20</b>	presto/tpcds: q21	4130388.45	90294.18	4154569.21	117805.00	0.59	2.19	2.84	0.69824
<b>37</b>	presto/tpcds: q38	8169285.88	378045.64	8217208.13	348417.31	0.59	4.63	4.24	0.82399
<b>4</b>	presto/tpcds: q05	18322105.07	457124.62	18432818.13	374959.29	0.60	2.49	2.03	0.65627
<b>54</b>	presto/tpcds: q55	10015776.94	814417.35	10089293.88	632568.81	0.73	8.13	6.27	0.86486
<b>6</b>	presto/tpcds: q07	27582733.84	1782646.62	27791121.54	1059319.27	0.76	6.46	3.81	0.81054