

ソートベンチマーク

重複なし・乱数データ(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
mmsSort (Half memory)	安定	0.000	0.000	0.009	0.028	0.256	3.428	1.000
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.007	0.024	0.252	3.471	1.013
MatSort(1/5)	安定	0.000	0.001	0.009	0.033	0.291	3.819	1.114
mmSort		0.000	0.000	0.008	0.059	0.284	3.825	1.116
MasSort	安定	0.000	0.000	0.010	0.038	0.297	3.849	1.123
Merge Sort	安定	0.000	0.000	0.008	0.030	0.292	3.990	1.164
Quick Sort (Median of 5)		0.000	0.000	0.005	0.045	0.299	3.998	1.166
Quick Sort (Median of 3)		0.000	0.000	0.004	0.032	0.267	4.006	1.168
Many Pivot Sort		0.000	0.000	0.006	0.049	0.284	4.078	1.190
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.004	0.032	0.279	4.181	1.220
MatMasSort(1/5)	安定	0.000	0.001	0.010	0.040	0.320	4.211	1.228
Arrays.sort	安定	0.000	0.001	0.008	0.039	0.340	4.580	1.336

文字列・重複なし・乱数データ(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
mmsSort (Half memory)	安定	0.000	0.001	0.012	0.075	1.065	15.178	1.000
MasSort	安定	0.000	0.001	0.008	0.081	1.024	15.232	1.004
mmsSort (dual pivot stable Sort)	安定	0.000	0.001	0.018	0.067	1.016	15.535	1.024
mmSort		0.000	0.001	0.008	0.098	1.034	15.619	1.029
MatSort(1/5)	安定	0.000	0.001	0.012	0.079	1.087	15.767	1.039
MatMasSort(1/5)	安定	0.000	0.001	0.013	0.085	1.075	15.804	1.041
Many Pivot Sort		0.000	0.001	0.019	0.084	1.065	15.998	1.054
Quick Sort (3 Way & Median of 5)		0.000	0.001	0.014	0.068	1.057	16.285	1.073
Quick Sort (Median of 5)		0.000	0.001	0.017	0.085	1.125	16.576	1.092
Merge Sort	安定	0.000	0.001	0.014	0.071	1.021	16.612	1.095
Quick Sort (Median of 3)		0.000	0.001	0.008	0.070	1.123	17.058	1.124
Arrays.sort	安定	0.000	0.001	0.012	0.086	1.182	17.435	1.149

乱数データ(重複:10個ずつ)(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.006	0.039	0.237	3.325	1.000
mmsSort (Half memory)	安定	0.000	0.000	0.003	0.033	0.257	3.407	1.025
Many Pivot Sort		0.000	0.000	0.006	0.044	0.282	3.685	1.108
MatSort(1/5)	安定	0.000	0.001	0.004	0.035	0.289	3.702	1.113
MasSort	安定	0.000	0.000	0.009	0.035	0.275	3.721	1.119
mmSort		0.000	0.000	0.006	0.057	0.280	3.777	1.136
Quick Sort (Median of 5)		0.000	0.000	0.003	0.047	0.274	3.903	1.174
Merge Sort	安定	0.000	0.000	0.009	0.031	0.285	3.904	1.174
MatMasSort(1/5)	安定	0.000	0.001	0.010	0.037	0.290	3.947	1.187
Quick Sort (Median of 3)		0.000	0.000	0.003	0.029	0.233	3.970	1.194
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.003	0.062	0.286	4.013	1.207
Arrays.sort	安定	0.000	0.001	0.006	0.035	0.333	4.512	1.357

乱数データ(重複:100個ずつ)(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
mmsSort (Half memory)	安定	(NULL)	0.000	0.002	0.032	0.225	3.004	1.000
MatSort(1/5)	安定	(NULL)	0.000	0.006	0.026	0.231	3.005	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	0.000	0.002	0.024	0.223	3.054	1.017
MasSort	安定	(NULL)	0.000	0.010	0.035	0.240	3.201	1.066
MatMasSort(1/5)	安定	(NULL)	0.000	0.010	0.033	0.244	3.227	1.074
Merge Sort	安定	(NULL)	0.000	0.008	0.027	0.256	3.573	1.190
Quick Sort (3 Way & Median of 5)		(NULL)	0.000	0.002	0.025	0.249	3.598	1.198
mmSort		(NULL)	0.000	0.005	0.051	0.273	3.599	1.198
Arrays.sort	安定	(NULL)	0.001	0.005	0.034	0.253	3.629	1.208
Many Pivot Sort		(NULL)	0.000	0.006	0.047	0.261	3.694	1.230
Quick Sort (Median of 5)		(NULL)	0.000	0.005	0.051	0.263	3.727	1.241
Quick Sort (Median of 3)		(NULL)	0.000	0.002	0.024	0.234	3.745	1.247

## 乱数データ(重複:1000個ずつ)(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	(NULL)	(NULL)	0.004	0.024	0.174	2.320	1.000
MatSort(1/5)	安定	(NULL)	(NULL)	0.002	0.017	0.196	2.597	1.119
mmsSort (Half memory)	安定	(NULL)	(NULL)	0.003	0.025	0.195	2.736	1.179
MatMasSort(1/5)	安定	(NULL)	(NULL)	0.008	0.030	0.215	2.823	1.217
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	0.002	0.018	0.180	2.892	1.246
MasSort	安定	(NULL)	(NULL)	0.008	0.033	0.230	2.969	1.280
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	0.001	0.018	0.210	3.161	1.362
Merge Sort	安定	(NULL)	(NULL)	0.005	0.024	0.232	3.239	1.396
Many Pivot Sort		(NULL)	(NULL)	0.007	0.045	0.242	3.346	1.442
mmSort		(NULL)	(NULL)	0.006	0.057	0.251	3.477	1.499
Quick Sort (Median of 3)		(NULL)	(NULL)	0.002	0.022	0.219	3.577	1.542
Quick Sort (Median of 5)		(NULL)	(NULL)	0.005	0.048	0.246	3.598	1.551

乱数データ(重複:10000個ずつ)(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	(NULL)	(NULL)	(NULL)	0.022	0.131	1.565	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	(NULL)	0.014	0.136	2.232	1.426
MatSort(1/5)	安定	(NULL)	(NULL)	(NULL)	0.016	0.140	2.241	1.432
mmsSort (Half memory)	安定	(NULL)	(NULL)	(NULL)	0.020	0.144	2.294	1.465
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	(NULL)	0.019	0.178	2.522	1.611
MatMasSort(1/5)	安定	(NULL)	(NULL)	(NULL)	0.030	0.203	2.599	1.660
MasSort	安定	(NULL)	(NULL)	(NULL)	0.030	0.210	2.723	1.739
Merge Sort	安定	(NULL)	(NULL)	(NULL)	0.023	0.215	2.994	1.913
mmSort		(NULL)	(NULL)	(NULL)	0.043	0.249	3.277	2.093
Quick Sort (Median of 5)		(NULL)	(NULL)	(NULL)	0.038	0.225	3.349	2.140
Quick Sort (Median of 3)		(NULL)	(NULL)	(NULL)	0.025	0.196	3.384	2.162
Many Pivot Sort		(NULL)	(NULL)	(NULL)	0.043	0.237	3.393	2.167

乱数データ(重複:100000個ずつ)(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.095	1.128	1.000
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	(NULL)	(NULL)	0.110	1.605	1.422
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.089	1.637	1.451
MatSort(1/5)	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.100	1.746	1.547
mmsSort (Half memory)	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.107	1.805	1.600
MatMasSort(1/5)	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.170	2.431	2.155
MasSort	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.179	2.556	2.265
Merge Sort	安定	(NULL)	(NULL)	(NULL)	(NULL)	0.193	2.786	2.470
mmSort		(NULL)	(NULL)	(NULL)	(NULL)	0.241	2.982	2.643
Quick Sort (Median of 3)		(NULL)	(NULL)	(NULL)	(NULL)	0.180	3.029	2.685
Quick Sort (Median of 5)		(NULL)	(NULL)	(NULL)	(NULL)	0.214	3.086	2.736
Many Pivot Sort		(NULL)	(NULL)	(NULL)	(NULL)	0.222	3.120	2.766

乱数データ(重複:1000000個ずつ)(実行時間:秒)

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ソートベンチマーク

前半ソート済み・後半乱数(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Merge Sort	安定	0.000	0.000	0.004	0.026	0.162	2.085	1.000
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.006	0.051	0.179	2.087	1.001
MasSort	安定	0.000	0.000	0.002	0.027	0.162	2.094	1.004
MatMasSort(1/5)	安定	0.000	0.000	0.007	0.028	0.177	2.203	1.057
mmsSort (Half memory)	安定	0.000	0.000	0.003	0.028	0.198	2.213	1.062
MatSort(1/5)	安定	0.000	0.000	0.006	0.029	0.188	2.358	1.131
Arrays.sort	安定	0.000	0.000	0.003	0.027	0.195	2.375	1.139
Many Pivot Sort		0.000	0.000	0.006	0.048	0.219	2.559	1.228
mmSort		0.000	0.000	0.006	0.052	0.216	2.607	1.251
Quick Sort (Median of 5)		0.000	0.000	0.006	0.046	0.223	2.788	1.337
Quick Sort (Median of 3)		0.000	0.000	0.003	0.024	0.188	2.795	1.341
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.002	0.026	0.220	2.826	1.356

ソート済み(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	0.000	0.000	0.000	0.001	0.007	0.057	1.000
Merge Sort	安定	0.000	0.000	0.000	0.001	0.010	0.079	1.377
MasSort	安定	0.000	0.000	0.000	0.001	0.010	0.093	1.622
MatMasSort(1/5)	安定	0.000	0.000	0.001	0.004	0.020	0.167	2.910
Quick Sort (Median of 3)		0.000	0.000	0.001	0.012	0.076	0.721	12.593
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.001	0.017	0.100	0.799	13.964
Many Pivot Sort		0.000	0.000	0.005	0.033	0.114	0.806	14.085
MatSort(1/5)	安定	0.000	0.000	0.005	0.026	0.098	0.832	14.529
mmsSort (Half memory)	安定	0.000	0.000	0.005	0.029	0.089	0.843	14.730
mmSort		0.000	0.000	0.005	0.028	0.145	0.902	15.764
Quick Sort (Median of 5)		0.000	0.000	0.006	0.033	0.118	0.909	15.872
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.005	0.021	0.099	0.930	16.250

逆順ソート済み(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	0.000	0.000	0.002	0.011	0.042	0.307	1.000
Quick Sort (Median of 3)		0.000	0.000	0.003	0.015	0.073	0.753	2.454
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.001	0.032	0.106	0.821	2.675
Many Pivot Sort		0.000	0.000	0.005	0.034	0.124	0.827	2.697
MatSort(1/5)	安定	0.000	0.000	0.004	0.016	0.098	0.903	2.943
mmSort		0.000	0.000	0.005	0.035	0.149	0.910	2.965
Quick Sort (Median of 5)		0.000	0.000	0.006	0.040	0.138	0.933	3.040
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.004	0.031	0.101	0.963	3.139
mmsSort (Half memory)	安定	0.000	0.000	0.005	0.038	0.121	0.983	3.206
MatMasSort(1/5)	安定	0.000	0.000	0.007	0.021	0.107	1.018	3.317
MasSort	安定	0.000	0.000	0.006	0.026	0.107	1.126	3.672
Merge Sort	安定	0.000	0.000	0.005	0.020	0.109	1.149	3.747

全て同値(実行時間:秒)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	0.000	0.000	0.000	0.001	0.008	0.058	1.000
Quick Sort (3 Way & Median of 5)		0.000	0.000	0.000	0.001	0.007	0.058	1.005
Merge Sort	安定	0.000	0.000	0.000	0.001	0.010	0.077	1.320
MasSort	安定	0.000	0.000	0.000	0.001	0.010	0.091	1.565
mmsSort (dual pivot stable Sort)	安定	0.000	0.000	0.001	0.002	0.015	0.129	2.213
mmsSort (Half memory)	安定	0.000	0.000	0.001	0.002	0.014	0.130	2.239
MatMasSort(1/5)	安定	0.000	0.000	0.001	0.004	0.020	0.162	2.786
MatSort(1/5)	安定	0.000	0.000	0.001	0.004	0.029	0.209	3.593
mmSort		0.000	0.000	0.005	0.023	0.085	0.855	14.707
Many Pivot Sort		0.000	0.000	0.004	0.017	0.085	0.940	16.170
Quick Sort (Median of 5)		0.000	0.000	0.005	0.014	0.081	0.941	16.197
Quick Sort (Median of 3)		0.000	0.000	0.002	0.018	0.086	0.984	16.925

ソートベンチマーク  
重複なし・乱数データ(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	538.4	8682.8	120383.4	1534760.2	18640445.5	220246154.7	1.000
Merge Sort	安定	575.3	9122.8	124115.7	1567769.4	19069432.3	223783619.0	1.016
MatMasSort(1/5)	安定	594.3	9410.4	128819.6	1632344.2	19795018.9	232693694.5	1.057
MasSort	安定	585.2	9262.0	127371.4	1620585.9	19805791.5	233968886.9	1.062
mmSort		710.9	10512.6	141814.4	1804584.7	21741477.0	255749785.2	1.161
Many Pivot Sort		789.9	11536.8	152755.4	1908601.1	22356308.7	257429690.8	1.169
mmsSort (Half memory)	安定	751.4	11365.7	151385.7	1868658.7	22381989.9	258466943.2	1.174
MatSort(1/5)	安定	719.9	11478.0	151047.8	1872087.6	22324797.6	258933613.9	1.176
mmsSort (dual pivot stable Sort)	安定	772.4	11633.0	151667.4	1884909.4	22378922.0	259531640.3	1.178
Quick Sort (3 Way & Median of 5)		745.9	10935.7	147093.9	1844559.1	22215759.8	259924298.5	1.180
Quick Sort (Median of 5)		789.9	11750.9	155964.2	1971285.6	23565727.7	274894927.9	1.248
Quick Sort (Median of 3)		765.3	11849.5	158404.6	2011851.6	24192679.1	283374055.2	1.287

文字列・重複なし・乱数データ(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	538.4	8682.8	120383.4	1534760.2	18640445.5	220246154.7	1.000
Merge Sort	安定	575.3	9122.8	124115.7	1567769.4	19069432.3	223783619.0	1.016
MatMasSort(1/5)	安定	594.3	9410.4	128819.6	1632344.2	19795018.9	232693694.5	1.057
MasSort	安定	585.2	9262.0	127371.4	1620585.9	19805791.5	233968886.9	1.062
mmSort		710.9	10512.6	141814.4	1804584.7	21741477.0	255749785.2	1.161
Many Pivot Sort		789.9	11536.8	152755.4	1908601.1	22356308.7	257429690.8	1.169
mmsSort (Half memory)	安定	751.4	11365.7	151385.7	1868658.7	22381989.9	258466943.2	1.174
MatSort(1/5)	安定	719.9	11478.0	151047.8	1872087.6	22324797.6	258933613.9	1.176
mmsSort (dual pivot stable Sort)	安定	772.4	11633.0	151667.4	1884909.4	22378922.0	259531640.3	1.178
Quick Sort (3 Way & Median of 5)		745.9	10935.7	147093.9	1844559.1	22215759.8	259924298.5	1.180
Quick Sort (Median of 5)		789.9	11750.9	155964.2	1971285.6	23565727.7	274894927.9	1.248
Quick Sort (Median of 3)		765.3	11849.5	158404.6	2011851.6	24192679.1	283374055.2	1.287

乱数データ(重複:10)(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Quick Sort (3 Way & Median of 5)		369.8	6786.7	103935.8	1425684.5	17973821.4	216611382.6	1.000
Arrays.sort	安定	532.5	8677.3	120387.1	1534761.0	18640446.6	220246159.4	1.017
Merge Sort	安定	566.9	9116.9	124103.2	1567764.1	19069428.1	223783615.5	1.033
MasSort	安定	530.0	8776.0	122640.5	1573617.9	19337151.0	229283496.1	1.059
mmsSort (dual pivot stable Sort)	安定	500.1	8920.6	123512.9	1595981.0	19529194.2	230384965.0	1.064
MatMasSort(1/5)	安定	599.7	9487.7	129642.8	1640909.4	19879874.4	233537962.0	1.078
mmSort		555.3	9286.6	129267.9	1680866.8	20541484.2	243247439.1	1.123
Many Pivot Sort		640.1	10194.2	138966.7	1766960.6	20957675.0	243335423.3	1.123
mmsSort (Half memory)	安定	610.1	10085.4	136253.7	1730349.1	20873141.9	244107390.2	1.127
MatSort(1/5)	安定	677.9	11096.5	147453.6	1834074.7	21967524.1	255056643.1	1.177
Quick Sort (Median of 5)		640.1	10439.9	142456.1	1815721.0	22119842.6	261429914.3	1.207
Quick Sort (Median of 3)		615.2	10409.4	146049.8	1853520.6	22762240.7	268129054.9	1.238

乱数データ(重複:100)(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Quick Sort (3 Way & Median of 5)		(NULL)	3063.4	63648.8	1000169.2	13896746.7	174990452.5	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	4796.8	85051.3	1220020.2	15657428.4	192785242.2	1.102
mmsSort (Half memory)	安定	(NULL)	5663.6	93873.6	1298508.4	16675306.2	201827299.8	1.153
Arrays.sort	安定	(NULL)	6840.6	103229.2	1368014.9	16933559.8	205187237.7	1.173
MatSort(1/5)	安定	(NULL)	6809.8	104377.9	1411553.8	17726946.5	212735010.6	1.216
MasSort	安定	(NULL)	7383.1	109610.1	1444297.3	18043742.9	216352600.0	1.236
MatMasSort(1/5)	安定	(NULL)	7976.1	115293.0	1498489.2	18457054.5	219311032.5	1.253
Many Pivot Sort		(NULL)	8194.0	118965.2	1565107.9	18934448.0	223223831.6	1.276
Merge Sort	安定	(NULL)	8920.8	123888.1	1567565.4	19069241.0	223783417.0	1.279
mmSort		(NULL)	7554.8	112663.8	1514958.4	18945641.4	225782390.7	1.290
Quick Sort (Median of 5)		(NULL)	8330.6	121378.2	1607515.0	20210315.8	240513058.4	1.374
Quick Sort (Median of 3)		(NULL)	8419.5	126343.7	1661482.9	20541439.2	249409920.8	1.425

乱数データ(重複:1000)(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	31274.4	634832.5	10136555.4	137581827.6	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	48494.3	845612.0	11893821.4	155249131.8	1.128
mmsSort (Half memory)	安定	(NULL)	(NULL)	56882.5	941994.0	12999751.8	165256485.0	1.201
MatSort(1/5)	安定	(NULL)	(NULL)	63431.2	1008814.9	13694838.8	172619578.8	1.255
Arrays.sort	安定	(NULL)	(NULL)	71563.1	1059121.2	13922759.7	173006866.1	1.257
MasSort	安定	(NULL)	(NULL)	94170.6	1303979.6	16655338.6	202484042.2	1.472
MatMasSort(1/5)	安定	(NULL)	(NULL)	97571.0	1333696.9	16823244.8	202985874.0	1.475
Many Pivot Sort		(NULL)	(NULL)	112561.0	1499707.1	18314588.8	216849593.2	1.576
mmSort		(NULL)	(NULL)	108225.4	1453306.5	18391470.9	221436389.3	1.609
Merge Sort	安定	(NULL)	(NULL)	120345.9	1564139.9	19065922.3	223780004.0	1.627
Quick Sort (Median of 5)		(NULL)	(NULL)	114807.1	1558419.2	19363741.9	232914152.4	1.693
Quick Sort (Median of 3)		(NULL)	(NULL)	116683.6	1569445.9	19786382.3	239919438.9	1.744

## アルゴリズム

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	(NULL)	303073.4	6457732.8	100761343.4	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	(NULL)	499308.5	8260019.7	119039330.4	1.181
mmsSort (Half memory)	安定	(NULL)	(NULL)	(NULL)	560590.1	9362951.2	128831765.0	1.279
MatSort(1/5)	安定	(NULL)	(NULL)	(NULL)	638249.3	9893431.7	134858496.9	1.338
Arrays.sort	安定	(NULL)	(NULL)	(NULL)	717469.1	10586559.6	139428624.4	1.384
MasSort	安定	(NULL)	(NULL)	(NULL)	1142496.8	15237024.4	188500198.6	1.871
MatMasSort(1/5)	安定	(NULL)	(NULL)	(NULL)	1168991.9	15357999.3	188522176.3	1.871
Many Pivot Sort		(NULL)	(NULL)	(NULL)	1465443.1	17979173.8	213373028.4	2.118
mmSort		(NULL)	(NULL)	(NULL)	1427113.3	18043564.5	216732763.9	2.151
Merge Sort	安定	(NULL)	(NULL)	(NULL)	1514952.3	19017686.9	223730793.3	2.220
Quick Sort (Median of 5)		(NULL)	(NULL)	(NULL)	1486953.5	18830510.7	226163912.3	2.245
Quick Sort (Median of 3)		(NULL)	(NULL)	(NULL)	1514218.2	19076877.1	234356579.1	2.326

## アルゴリズム

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Quick Sort (3 Way & Median of 5)		(NULL)	(NULL)	(NULL)	(NULL)	3120073.0	63380734.4	1.000
mmsSort (dual pivot stable Sort)	安定	(NULL)	(NULL)	(NULL)	(NULL)	4750289.1	82763075.0	1.306
mmsSort (Half memory)	安定	(NULL)	(NULL)	(NULL)	(NULL)	5620406.2	92091567.5	1.453
MatSort(1/5)	安定	(NULL)	(NULL)	(NULL)	(NULL)	6320631.6	98503032.4	1.554
Arrays.sort	安定	(NULL)	(NULL)	(NULL)	(NULL)	7134625.9	106256721.5	1.676
MatMasSort(1/5)	安定	(NULL)	(NULL)	(NULL)	(NULL)	13688000.1	174202648.3	2.749
MasSort	安定	(NULL)	(NULL)	(NULL)	(NULL)	13563721.2	174242424.0	2.749
Many Pivot Sort		(NULL)	(NULL)	(NULL)	(NULL)	17760146.2	211287798.8	3.334
mmSort		(NULL)	(NULL)	(NULL)	(NULL)	17545292.6	212848037.8	3.358
Quick Sort (Median of 5)		(NULL)	(NULL)	(NULL)	(NULL)	18182390.0	219917217.3	3.470
Quick Sort (Median of 3)		(NULL)	(NULL)	(NULL)	(NULL)	18213826.4	222635897.5	3.513
Merge Sort	安定	(NULL)	(NULL)	(NULL)	(NULL)	18383366.5	223089467.0	3.520

## アルゴリズム

[illegible]

ソートベンチマーク  
前半ソート済み・後半乱数(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	363.7	5333.5	70190.7	867362.9	10320330.0	120123319.2	1.000
Merge Sort	安定	385.5	5555.5	72044.8	884070.6	10535065.9	121891310.4	1.015
MasSort	安定	398.8	5800.2	75752.3	934353.9	11051641.5	127599655.5	1.062
MatMasSort(1/5)	安定	465.1	6340.9	81011.5	977379.7	11560503.0	133418518.2	1.111
Quick Sort (3 Way & Median of 5)		365.8	6708.6	103350.0	1409065.1	17867911.8	214629284.0	1.787
mmsSort (dual pivot stable Sort)	安定	489.8	8582.1	120833.0	1549641.3	18958407.0	224452470.3	1.869
mmsSort (Half memory)	安定	573.2	9436.2	128555.9	1631873.6	19833532.3	232822191.7	1.938
MatSort(1/5)	安定	556.0	9748.8	132166.4	1664106.2	20115639.6	235771383.2	1.963
mmSort		527.9	9225.9	129233.1	1651333.3	20185507.1	237845964.5	1.980
Many Pivot Sort		605.5	10028.8	136242.8	1721557.7	20607562.3	239644060.3	1.995
Quick Sort (Median of 5)		605.5	10168.9	140423.7	1793265.2	21765595.4	255752628.9	2.129
Quick Sort (Median of 3)		631.5	10462.5	145015.8	1861695.1	22719692.0	270782064.1	2.254

ソート済み(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	99.0	999.0	9999.0	99999.0	999999.0	9999999.0	1.000
Merge Sort	安定	99.0	999.0	9999.0	99999.0	999999.0	9999999.0	1.000
MasSort	安定	118.0	1267.0	13201.0	137559.0	1189223.0	10136712.0	1.014
MatMasSort(1/5)	安定	264.0	2654.0	27204.0	261584.0	2714264.0	28028384.0	2.803
Quick Sort (3 Way & Median of 5)		317.0	6281.0	93556.0	1282023.0	16187089.0	193365904.0	19.337
mmsSort (Half memory)	安定	325.0	7165.0	105081.0	1357919.0	17179901.0	205463195.0	20.546
MatSort(1/5)	安定	329.0	6774.0	108454.0	1410024.0	17179909.0	207801164.0	20.780
Quick Sort (Median of 3)		443.0	7993.0	112733.0	1466133.0	17989253.0	212514213.0	21.251
mmsSort (dual pivot stable Sort)	安定	391.0	8297.0	115019.0	1458001.0	18180258.0	215463371.0	21.546
Many Pivot Sort		535.0	8963.0	124008.0	1612242.0	19076864.0	224646910.0	22.465
mmSort		516.0	8328.0	121732.0	1590835.0	19529753.0	232743309.0	23.274
Quick Sort (Median of 5)		535.0	9453.0	132326.0	1701864.0	20839611.0	246234844.0	24.623

逆順ソート済み(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Arrays.sort	安定	411.0	4338.0	41215.0	421964.0	4306436.0	41249953.0	1.000
MatMasSort(1/5)	安定	334.0	4175.0	57059.0	683179.0	8322705.0	97993859.0	2.376
MasSort	安定	369.0	5149.0	65653.0	792635.0	9263783.0	105935654.0	2.568
Merge Sort	安定	396.0	5730.0	74614.0	907446.0	10738262.0	124135094.0	3.009
Quick Sort (3 Way & Median of 5)		316.0	6280.0	93555.0	1282022.0	16187088.0	193365903.0	4.688
MatSort(1/5)	安定	264.0	6840.0	99359.0	1318839.0	16784790.0	198811124.0	4.820
Quick Sort (Median of 3)		421.0	7971.0	112711.0	1466111.0	17989231.0	212514191.0	5.152
mmsSort (Half memory)	安定	416.0	8330.0	117018.0	1528426.0	18381500.0	215870190.0	5.233
mmsSort (dual pivot stable Sort)	安定	462.0	8718.0	122012.0	1578263.0	18880785.0	220870176.0	5.354
Many Pivot Sort		512.0	9035.0	124127.0	1612205.0	19076939.0	224647180.0	5.446
mmSort		485.0	8482.0	120034.0	1556424.0	19418648.0	230854215.0	5.596
Quick Sort (Median of 5)		512.0	9396.0	132588.0	1701320.0	20815054.0	246200776.0	5.969

全て同値(比較回数)

アルゴリズム	安定	100	1000	10000	100000	1000000	10000000	RATIO
Merge Sort		99.0	999.0	9999.0	99999.0	999999.0	9999999.0	1.000
Arrays.sort	安定	99.0	999.0	9999.0	99999.0	999999.0	9999999.0	1.000
Quick Sort (3 Way & Median of 5)		105.0	1005.0	10005.0	100005.0	1000005.0	10000005.0	1.000
mmsSort (dual pivot stable Sort)	安定	105.0	1011.0	10011.0	100011.0	1000011.0	10000011.0	1.000
mmsSort (Half memory)	安定	111.0	1023.0	10023.0	100023.0	1000023.0	10000023.0	1.000
MasSort	安定	118.0	1267.0	13201.0	137559.0	1189223.0	10136712.0	1.014
MatSort(1/5)	安定	289.0	2639.0	26059.0	260059.0	2600059.0	26000059.0	2.600
MatMasSort(1/5)	安定	264.0	2654.0	27204.0	261584.0	2714264.0	28028384.0	2.803
mmSort		399.0	6983.0	99935.0	1395551.0	16979967.0	199862911.0	19.986
Many Pivot Sort		437.0	7308.0	112284.0	1443840.0	17354823.0	209118505.0	20.912
Quick Sort (Median of 5)		437.0	7345.0	112745.0	1445049.0	17360441.0	209938041.0	20.994
Quick Sort (Median of 3)		427.0	7283.0	114747.0	1436443.0	17307515.0	215067003.0	21.507