

The following contains the runtimes of Workloads A-D plus the extra workloads we have created (E, F), repeated 10 times. The runtimes are given in microseconds.

All the workloads were implemented as intended and were repeated 100 times.

Our metadata consisted of one unsigned short (2 bytes = 16 bits) divided into 2 parts: 4 bits were allocated for denoting that the block was free (isFree = 1 or 0), and the rest of the 12 bits were to denote the size of the block. We went with 12 bits because our max size was 4096, and $2^{12} = 4096$.

Run 1

totalA: 539.000000
totalB: 3183.000000
totalC: 593.000000
totalD: 635.000000
totalE: 1666.000000
totalF: 1193.000000
meanA: 5.390000
meanB: 31.830000
meanC: 5.930000
meanD: 6.350000
meanE: 16.660000
meanF: 11.930000

Run 2

totalA: 619.000000
totalB: 3617.000000
totalC: 692.000000
totalD: 690.000000
totalE: 1917.000000
totalF: 1352.000000
meanA: 6.190000
meanB: 36.169998
meanC: 6.920000
meanD: 6.900000
meanE: 19.170000
meanF: 13.520000

Run 3

totalA: 618.000000
totalB: 3595.000000
totalC: 691.000000
totalD: 687.000000
totalE: 1929.000000
totalF: 1336.000000
meanA: 6.180000
meanB: 35.950001
meanC: 6.910000
meanD: 6.870000
meanE: 19.290001
meanF: 13.360000

Run 4

totalA: 448.000000
totalB: 2653.000000
totalC: 518.000000
totalD: 511.000000
totalE: 1393.000000
totalF: 1047.000000
meanA: 4.480000
meanB: 26.530001
meanC: 5.180000
meanD: 5.110000
meanE: 13.930000

meanF: 10.470000

Run 5

totalA: 590.000000
totalB: 3479.000000
totalC: 689.000000
totalD: 693.000000
totalE: 1831.000000
totalF: 1379.000000
meanA: 5.900000
meanB: 34.790001
meanC: 6.890000
meanD: 6.930000
meanE: 18.309999
meanF: 13.790000

Run 6

totalA: 537.000000
totalB: 3088.000000
totalC: 593.000000
totalD: 594.000000
totalE: 1647.000000
totalF: 1166.000000
meanA: 5.370000
meanB: 30.879999
meanC: 5.930000
meanD: 5.940000
meanE: 16.469999
meanF: 11.660000

Run 7

totalA: 621.000000
totalB: 3606.000000
totalC: 674.000000
totalD: 703.000000
totalE: 1924.000000
totalF: 1348.000000
meanA: 6.210000
meanB: 36.060001
meanC: 6.740000
meanD: 7.030000
meanE: 19.240000
meanF: 13.480000

Run 8

totalA: 611.000000
totalB: 3593.000000
totalC: 696.000000
totalD: 696.000000
totalE: 1899.000000
totalF: 1334.000000
meanA: 6.110000
meanB: 35.930000
meanC: 6.960000
meanD: 6.960000
meanE: 18.990000
meanF: 13.340000

Run 9

totalA: 635.000000
totalB: 3634.000000
totalC: 701.000000
totalD: 708.000000
totalE: 1910.000000

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totalF: 1424.000000
meanA: 6.350000
meanB: 36.340000
meanC: 7.010000
meanD: 7.080000
meanE: 19.100000
meanF: 14.240000
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Run 10

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totalA: 616.000000
totalB: 3620.000000
totalC: 682.000000
totalD: 699.000000
totalE: 1910.000000
totalF: 1339.000000
meanA: 6.160000
meanB: 36.200001
meanC: 6.820000
meanD: 6.990000
meanE: 19.100000
meanF: 13.390000
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RUN	TOTAL A	TOTAL B	TOTAL C	TOTAL D	TOTAL E	TOTAL F
1	539	3183	593	635	1666	1193
2	619	3617	792	690	1917	1352
3	618	3595	691	687	1929	1336
4	448	2653	518	511	1393	1047
5	590	3479	689	693	1831	1379
6	537	3088	593	594	1647	1166
7	621	3606	674	703	1924	1348
8	611	3593	696	696	1899	1334
9	635	3634	701	708	1910	1424
10	616	3620	682	699	1910	1339
MEAN	583.4	3406.8	662.9	661.6	1802.6	1291.8
MED	613.5	3594	685.5	691.5	1904.5	1337.5
PER TRIAL						
MEAN	5.834	34.068	6.629	6.616	18.026	12.918

The results vary quite a bit after consecutive trials, but we can see that Workload B has the largest runtime (34.068 usec per trial), trailed by E (18.026 usec) and F (12.918 usec).

We discovered that even though the workloads were random for C and D, their runtimes were similar and smaller than what we expected. As for F, we were surprised to see that using strcpy had a longer runtime.