# 1 No-Load

## k=8 Workpackets

| Input Size | MALMS | MCSTL | STD::SORT | MCSTL Adv | MALMS SU | MCSTL SU |
|---|---|---|---|---|---|---|
| $10^2$ | 0.000994 | 0.000453 | 1.7e-05 | 54.4 | 0.017325 | 0.038022% |
| $10^3$ | 0.000974 | 0.000485 | 6.2e-05 | 50.2 | 0.063861 | 0.128302% |
| $10^4$ | 0.001085 | 0.000643 | 0.000663 | 40.7 | 0.610992 | 1.03039% |
| $10^5$ | 0.002552 | 0.002165 | 0.008015 | 15.1 | 3.140881 | 3.701348% |
| $10^6$ | 0.018766 | 0.018272 | 0.094884 | 2.6 | 5.056264 | 5.192974% |
| $10^7$ | 0.196333 | 0.200469 | 1.106333 | -2.1 | 5.634993 | 5.518728% |
| $10^8$ | 2.204685 | 2.20121 | 12.590393 | 0.2 | 5.710744 | 5.71976% |

## k=24 Workpackets

| Input Size | MALMS | MCSTL | STD::SORT | MCSTL Adv | MALMS SU | MCSTL SU |
|---|---|---|---|---|---|---|
| $10^2$ | 0.001547 | 0.000457 | 1.7e-05 | 70.5 | 0.011037 | 0.03739% |
| $10^3$ | 0.001515 | 0.000484 | 6.2e-05 | 68.1 | 0.040985 | 0.128293% |
| $10^4$ | 0.001436 | 0.000639 | 0.000663 | 55.5 | 0.461362 | 1.03713% |
| $10^5$ | 0.002826 | 0.002165 | 0.008017 | 23.4 | 2.836637 | 3.703059% |
| $10^6$ | 0.019956 | 0.018015 | 0.094884 | 9.7 | 4.754587 | 5.266977% |
| $10^7$ | 0.20746 | 0.201699 | 1.106315 | 2.8 | 5.332675 | 5.484982% |
| $10^8$ | 2.318496 | 2.247306 | 12.59012 | 3.1 | 5.430297 | 5.602317% |

## k=48 Workpackets

| Input Size | MALMS | MCSTL | STD::SORT | MCSTL Adv | MALMS SU | MCSTL SU |
|---|---|---|---|---|---|---|
| $10^2$ | 0.002229 | 0.000457 | 1.7e-05 | 79.5 | 0.007662 | 0.037345% |
| $10^3$ | 0.002156 | 0.000483 | 6.2e-05 | 77.6 | 0.028863 | 0.12879% |
| $10^4$ | 0.00208 | 0.000648 | 0.000664 | 68.9 | 0.319083 | 1.024465% |
| $10^5$ | 0.003271 | 0.002159 | 0.008023 | 34 | 2.452612 | 3.715721% |
| $10^6$ | 0.020881 | 0.018315 | 0.094889 | 12.3 | 4.544351 | 5.180923% |
| $10^7$ | 0.211054 | 0.200839 | 1.106338 | 4.8 | 5.241957 | 5.508575% |
| $10^8$ | 2.345756 | 2.238868 | 12.59019 | 4.6 | 5.36722 | 5.623462% |

**k=100 Workpackets**

| Input Size | MALMS | MCSTL | STD::SORT | MCSTL Adv | MALMS SU | MCSTL SU |
|---|---|---|---|---|---|---|
| $10^2$ | 0.00368 | 0.000461 | 1.7e-05 | 87.5 | 0.004653 | 0.037148% |
| $10^3$ | 0.003747 | 0.000481 | 6.2e-05 | 87.2 | 0.016566 | 0.128974% |
| $10^4$ | 0.003656 | 0.00064 | 0.000663 | 82.5 | 0.181365 | 1.036017% |
| $10^5$ | 0.004559 | 0.002184 | 0.008019 | 52.1 | 1.759035 | 3.670871% |
| $10^6$ | 0.023216 | 0.018305 | 0.094893 | 21.2 | 4.087487 | 5.183982% |
| $10^7$ | 0.220163 | 0.20122 | 1.106362 | 8.6 | 5.025202 | 5.498265% |
| $10^8$ | 2.378789 | 2.228327 | 12.590275 | 6.3 | 5.292724 | 5.650103% |

# 2 Dyn Load

**MALMS-I** MALMS using the Information which cores are blocked

**MALMS-NI** MALMS NOT using the Information which cores are blocked

**50s cylce**

### 2.0.1 k=24 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.002544 | 0.003281 | 0.072934 | 136.966436 | 162.734538 | 80.495225 | 22.4% | -2766.5% |
| $10^3$ | 0.001999 | 0.005684 | 0.077644 | 138.023214 | 174.153631 | 90.734793 | 64.8% | -3784.5% |
| $10^4$ | 0.002526 | 0.0032 | 0.053478 | 171.903959 | 229.99275 | 101.438942 | 21.1% | -2017.1% |
| $10^5$ | 0.005201 | 0.006258 | 0.088121 | 117.042973 | 134.281039 | 90.37523 | 16.9% | -1594.3% |
| $10^6$ | 0.030381 | 0.027309 | 0.084466 | 75.344414 | 73.134461 | 72.092031 | -11.2% | -178% |
| $10^7$ | 0.276646 | 0.277657 | 0.406723 | 79.191493 | 79.126657 | 86.814325 | 0.4% | -47% |
| $10^8$ | 2.995804 | 2.982364 | 3.47877 | 79.84146 | 81.942599 | 85.34863 | -0.5% | -16.1% |

## 50s cylce

### 2.0.2 k=48 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.003872 | 0.005093 | 0.075142 | 136.927354 | 160.614738 | 90.980788 | 24% | -1840.5% |
| $10^3$ | 0.004016 | 0.006495 | 0.078319 | 152.139051 | 192.63462 | 104.220047 | 38.2% | -1849.9% |
| $10^4$ | 0.005171 | 0.007191 | 0.062666 | 159.898472 | 232.241361 | 99.953094 | 28.1% | -1111.9% |
| $10^5$ | 0.005922 | 0.005993 | 0.035735 | 123.425298 | 121.104634 | 110.986512 | 1.2% | -503.4% |
| $10^6$ | 0.027964 | 0.026406 | 0.039914 | 72.562761 | 68.832496 | 89.519248 | -5.9% | -42.7% |
| $10^7$ | 0.269137 | 0.265058 | 0.413506 | 76.841238 | 80.008816 | 87.494736 | -1.5% | -53.6% |
| $10^8$ | 2.993925 | 3.01459 | 3.6496 | 83.697591 | 82.004014 | 86.490093 | 0.7% | -21.9% |

## 50s cylce

### 2.0.3 k=100 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.004899 | 0.007012 | 0.073728 | 163.133321 | 149.704307 | 96.637326 | 30.1% | -1405% |
| $10^3$ | 0.005534 | 0.005688 | 0.07438 | 137.792787 | 136.492317 | 92.097004 | 2.7% | -1244% |
| $10^4$ | 0.007215 | 0.007326 | 0.065588 | 149.209225 | 158.819783 | 90.787211 | 1.5% | -809% |
| $10^5$ | 0.00839 | 0.007998 | 0.039586 | 131.539908 | 113.284357 | 100.615479 | -4.9% | -371.8% |
| $10^6$ | 0.030044 | 0.028057 | 0.060544 | 80.645023 | 66.705506 | 78.723578 | -7.1% | -101.5% |
| $10^7$ | 0.267033 | 0.259993 | 0.393169 | 79.648316 | 78.659906 | 91.106582 | -2.7% | -47.2% |
| $10^8$ | 2.83326 | 2.837642 | 3.684733 | 79.662364 | 81.013312 | 87.587766 | 0.2% | -30.1% |

## 100s cylce

### 2.0.4 k=24 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.001798 | 0.00198 | 0.017738 | 170.438525 | 147.966318 | 84.614978 | 9.2% | -886.4% |
| $10^3$ | 0.001922 | 0.003049 | 0.033629 | 147.597326 | 137.816327 | 87.207982 | 37% | -1649.8% |
| $10^4$ | 0.002244 | 0.003237 | 0.034956 | 136.09131 | 180.123586 | 87.426506 | 30.7% | -1457.7% |
| $10^5$ | 0.004157 | 0.004013 | 0.035034 | 110.479806 | 104.339348 | 85.549641 | -3.6% | -742.7% |
| $10^6$ | 0.029074 | 0.02932 | 0.083712 | 74.463042 | 72.752836 | 79.338509 | 0.8% | -187.9% |
| $10^7$ | 0.27658 | 0.270803 | 0.397718 | 76.635839 | 77.69574 | 83.024884 | -2.1% | -43.8% |
| $10^8$ | 2.955115 | 2.973758 | 3.37297 | 83.025865 | 81.694702 | 87.618551 | 0.6% | -14.1% |

## 100s cylce

### 2.0.5   k=48 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---------|----------|-------|---------------|----------------|-------------|-------------|-----------|
| $10^2$ | 0.004961 | 0.003584 | 0.04746 | 160.316838 | 156.301211 | 103.633671 | -38.4% | -856.7% |
| $10^3$ | 0.002677 | 0.004526 | 0.075757 | 132.775092 | 135.153535 | 84.466691 | 40.9% | -2729.8% |
| $10^4$ | 0.002968 | 0.004275 | 0.057237 | 132.509569 | 129.984024 | 86.296472 | 30.6% | -1828.6% |
| $10^5$ | 0.004289 | 0.004312 | 0.046197 | 109.82576 | 98.382931 | 85.820438 | 0.5% | -977.1% |
| $10^6$ | 0.026005 | 0.027368 | 0.074379 | 72.756938 | 65.79001 | 81.214839 | 5% | -186% |
| $10^7$ | 0.266798 | 0.26058 | 0.393724 | 92.126659 | 79.524906 | 83.209891 | -2.4% | -47.6% |
| $10^8$ | 2.982358 | 3.00007 | 3.452598 | 82.357401 | 81.822491 | 85.889282 | 0.6% | -15.8% |

## 100s cylce

### 2.0.6   k=100 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---------|----------|-------|---------------|----------------|-------------|-------------|-----------|
| $10^2$ | 0.003747 | 0.004832 | 0.062148 | 120.865932 | 121.088779 | 84.072987 | 22.5% | -1558.8% |
| $10^3$ | 0.003751 | 0.004219 | 0.059324 | 120.244334 | 123.095471 | 87.092624 | 11.1% | -1481.7% |
| $10^4$ | 0.003586 | 0.004236 | 0.063355 | 117.081918 | 118.123693 | 80.276489 | 15.3% | -1666.5% |
| $10^5$ | 0.006673 | 0.006338 | 0.03657 | 104.128814 | 90.70639 | 87.229961 | -5.3% | -448% |
| $10^6$ | 0.029118 | 0.02934 | 0.04308 | 82.684461 | 72.812089 | 88.72031 | 0.8% | -47.9% |
| $10^7$ | 0.264932 | 0.259483 | 0.390799 | 80.128633 | 79.390647 | 82.577909 | -2.1% | -47.5% |
| $10^8$ | 2.819575 | 2.833703 | 3.301622 | 81.0721 | 81.595319 | 86.456008 | 0.5% | -17.1% |

## 500s cylce

### 2.0.7   k=24 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---------|----------|-------|---------------|----------------|-------------|-------------|-----------|
| $10^2$ | 0.00259 | 0.002402 | 0.082547 | 403.504557 | 328.632322 | 101.63487 | -7.8% | -3087.7% |
| $10^3$ | 0.002326 | 0.00433 | 0.068685 | 545.14322 | 307.252159 | 103.517226 | 46.3% | -2853.2% |
| $10^4$ | 0.006239 | 0.002696 | 0.032038 | 221.376382 | 466.563195 | 113.118164 | -131.4% | -413.5% |
| $10^5$ | 0.006598 | 0.005032 | 0.017007 | 151.538555 | 165.480642 | 125.443478 | -31.1% | -157.7% |
| $10^6$ | 0.02828 | 0.032075 | 0.060147 | 79.839871 | 80.734565 | 91.885871 | 11.8% | -112.7% |
| $10^7$ | 0.275783 | 0.278632 | 0.383215 | 79.460805 | 90.979189 | 79.268199 | 1% | -39% |
| $10^8$ | 2.968075 | 2.961485 | 3.193164 | 81.85691 | 80.722813 | 83.630393 | -0.2% | -7.6% |

## 500s cylce

### 2.0.8  k=48 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.006887 | 0.006121 | 0.072614 | 185.005924 | 175.135657 | 104.104301 | -12.5% | -954.4% |
| $10^3$ | 0.004923 | 0.00656 | 0.058455 | 230.84654 | 191.105911 | 103.875974 | 25% | -1087.4% |
| $10^4$ | 0.006996 | 0.004198 | 0.056758 | 175.267745 | 192.555741 | 107.819321 | -66.7% | -711.3% |
| $10^5$ | 0.007643 | 0.007293 | 0.075164 | 161.545763 | 146.529145 | 102.888651 | -4.8% | -883.5% |
| $10^6$ | 0.029719 | 0.031752 | 0.090826 | 96.255424 | 80.814187 | 118.414912 | 6.4% | -205.6% |
| $10^7$ | 0.264783 | 0.261527 | 0.377825 | 80.118413 | 96.565833 | 82.553458 | -1.2% | -42.7% |
| $10^8$ | 2.996695 | 2.988689 | 3.219716 | 80.457658 | 80.237467 | 87.087463 | -0.3% | -7.4% |

## 500s cylce

### 2.0.9  k=100 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.003682 | 0.009268 | 0.07657 | 250.955923 | 179.593021 | 100.75451 | 60.3% | -1979.5% |
| $10^3$ | 0.00716 | 0.009067 | 0.057533 | 182.537235 | 185.648543 | 106.75437 | 21% | -703.5% |
| $10^4$ | 0.007488 | 0.008629 | 0.061462 | 159.441409 | 181.774489 | 103.427122 | 13.2% | -720.8% |
| $10^5$ | 0.008486 | 0.007571 | 0.07799 | 138.307457 | 141.394429 | 101.618141 | -12.1% | -819% |
| $10^6$ | 0.031542 | 0.038774 | 0.047886 | 101.933618 | 84.613048 | 90.748536 | 18.7% | -51.8% |
| $10^7$ | 0.271556 | 0.268342 | 0.401847 | 81.521659 | 79.41364 | 90.252889 | -1.2% | -48% |
| $10^8$ | 2.826086 | 2.795487 | 3.260346 | 79.119277 | 76.753221 | 87.686805 | -1.1% | -15.4% |

## 1000s cylce

### 2.0.10  k=24 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---|---|---|---|---|---|---|---|
| $10^2$ | 0.00317 | 0.002155 | 0.052542 | 236.254361 | 355.750209 | 89.079536 | -47.1% | -1557.3% |
| $10^3$ | 0.002553 | 0.004646 | 0.042818 | 235.345333 | 201.648868 | 100.729334 | 45.1% | -1577.2% |
| $10^4$ | 0.003296 | 0.00433 | 0.030231 | 201.724002 | 205.552925 | 106.81905 | 23.9% | -817.1% |
| $10^5$ | 0.009911 | 0.007985 | 0.028502 | 137.07394 | 146.2485 | 106.081773 | -24.1% | -187.6% |
| $10^6$ | 0.03166 | 0.035787 | 0.079787 | 95.688738 | 87.47981 | 94.431635 | 11.5% | -152% |
| $10^7$ | 0.286126 | 0.276242 | 0.380775 | 78.943778 | 79.189093 | 80.296387 | -3.6% | -33.1% |
| $10^8$ | 2.962981 | 2.966227 | 3.19448 | 82.546046 | 81.305472 | 85.377989 | 0.1% | -7.8% |

**1000s cylce**

### 2.0.11    k=48 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---------|----------|-------|---------------|----------------|-------------|-------------|-----------|
| $10^2$ | 0.003775 | 0.004388 | 0.059024 | 310.991337 | 245.481416 | 105.606343 | 14% | -1463.6% |
| $10^3$ | 0.004059 | 0.006452 | 0.050584 | 241.141717 | 238.814669 | 105.233847 | 37.1% | -1146.3% |
| $10^4$ | 0.004665 | 0.005469 | 0.03075 | 214.550751 | 224.641277 | 106.252667 | 14.7% | -559.2% |
| $10^5$ | 0.0085 | 0.00829 | 0.023342 | 146.100633 | 143.346493 | 108.28131 | -2.5% | -174.6% |
| $10^6$ | 0.032816 | 0.036847 | 0.068619 | 101.387023 | 93.094217 | 94.70307 | 10.9% | -109.1% |
| $10^7$ | 0.269484 | 0.265617 | 0.397691 | 81.298283 | 81.582535 | 84.659435 | -1.5% | -47.6% |
| $10^8$ | 2.990161 | 2.996746 | 3.201858 | 80.263812 | 80.477303 | 85.909929 | 0.2% | -7.1% |

**1000s cylce**

### 2.0.12    k=100 Workpackets

| N | MALMS-I | MALMS-NI | MCSTL | Loops MALMS-I | Loops MALMS-NI | Loops MCSTL | MALMS-I Adv | MCSTL Adv |
|---|---------|----------|-------|---------------|----------------|-------------|-------------|-----------|
| $10^2$ | 0.005784 | 0.008059 | 0.037172 | 151.661549 | 150.613336 | 99.224376 | 28.2% | -542.6% |
| $10^3$ | 0.007102 | 0.007375 | 0.042713 | 145.536333 | 201.249688 | 104.195931 | 3.7% | -501.4% |
| $10^4$ | 0.005984 | 0.008398 | 0.045971 | 147.18988 | 156.078844 | 107.467314 | 28.7% | -668.2% |
| $10^5$ | 0.008987 | 0.011452 | 0.037885 | 128.939147 | 140.538837 | 105.785702 | 21.5% | -321.5% |
| $10^6$ | 0.034398 | 0.038594 | 0.084375 | 106.268317 | 85.992989 | 119.323616 | 10.9% | -145.3% |
| $10^7$ | 0.264989 | 0.265816 | 0.385705 | 82.209291 | 79.356342 | 81.004402 | 0.3% | -45.6% |
| $10^8$ | 2.808545 | 2.780178 | 3.154664 | 78.578017 | 77.372264 | 85.731257 | -1% | -12.3% |