

TO: MTB Distribution
FROM: Roger A. Roach
DATE: March 8, 1976
SUBJECT: Multics Performance Test Results as of System 28.0

Attached is a summary of the results from the performance tests done between January 18, 1976 and February 25, 1976. As you can see, we have lost much of the gains documented in the previous set of tests. Also part of this lost in performance is due to the fact that we are currently running with "DEBG DIRW" to protect the hierarchy until NSS is debugged.

Current Status (System 28.0)

| | 27.6 values | 28.0 values | % change |
|---------------|-------------|-------------|----------|
| Elapsed Time: | 54.8 min | 58.0 min | 5.8% |
| Virtual CPU: | 2114 sec | 2153 sec | 1.8% |
| Total CPU: | 3048 sec | 3201 sec | 5.0% |
| Page Faults: | 431752 | 471476 | 9.2% |
| Memory Units: | 33941 | 32904 | - 3.1% |

related MTB's:

MTB-252 Multics Performance Test Results as of System 27.6
MTB-245 Multics Performance Test Results as of System 27.1
MTB-223 Multics Performance Test Results as of System 26.4a
MTB-218 Multics Performance Test Results as of System 26.1
MTB-208 Multics Performance Test Results as of System 25.7
MTB-174 Multics Performance Test Results (System 25.2)
MTB-146 Backup Performance Gains
MTB-132 Multics Performance Test Results (System 24.1c)
MTB-126 Revision of Multics Performance Tests
MTB-087 Multics Performance Goals for 1974

Multics Project internal working documentation. Not to be reproduced or distributed outside the Multics Project.

Metering Comparisons for 27.5, 27.6, 27.6b, 27.6c, 27.6cs, 28.0, 28.0

| System: | 27.6 | 27.5 (2) | 27.6 (3) | 27.6b | 27.6c | 27.6c | 27.6cs | 28.0 | 28.0 |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date: | 01/18/76 | 01/22/76 | 01/22/76 | 01/26/76 | 02/02/76 | 02/05/76 | 02/14/76 | 02/23/76 | 02/25/76 |
| Write-through status: | none | none | none | none | none | none | none | none | dirw |
| SYST: | none | none | none | none | none | none | none | none | none |
| CPU: | A | A | A | A | A | A | A | A | A |
| Cache | on | on | on | on | on | on | on | on | on |
| Memories: | A,8 | A,8 | A,8 | A,8 | A,8 | A,8 | A,8 | A,8 | A,8 |
| External Interlace: | off | off | off | off | off | off | off | off | off |
| Disk Channels: | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 | 2,8&2,4 |
| Elapsed Time: | 54.8 min | 55.5 min | 56.6 min | 55.5 min | 54.9 min | 54.9 min | 56.0 min | 57.1 min | 58.0 min |
| Costs (shift 1): | \$505.46 | \$521.81 | \$532.83 | \$505.73 | \$501.71 | \$510.64 | \$515.47 | \$490.93 | \$496.48 |
| Costs (shift 2): | \$274.10 | \$283.02 | \$289.02 | \$274.25 | \$272.06 | \$276.93 | \$279.57 | \$266.20 | \$269.18 |
| Costs (shift 3): | \$179.80 | \$185.73 | \$189.72 | \$179.90 | \$178.43 | \$181.68 | \$183.45 | \$174.57 | \$176.46 |
| CPU, total: | 3048 sec | 3110 sec | 3134 sec | 3069 sec | 3050 sec | 3078 sec | 3090 sec | 3163 sec | 3201 sec |
| CPU, virtual: | 2114 sec | 2122 sec | 2130 sec | 2115 sec | 2117 sec | 2116 sec | 2108 sec | 2088 sec | 2153 sec |
| CPU, good (1): | 2247 sec | 2251 sec | 2279 sec | 2254 sec | 2257 sec | 2251 sec | 2278 sec | 2219 sec | 2293 sec |
| Memory Units: | 33941 | 35382 | 36337 | 33959 | 33583 | 34398 | 34883 | 32767 | 32904 |
| Page Faults: | 431752 | 457342 | 462645 | 435296 | 428683 | 442354 | 447992 | 475322 | 471476 |
| tfm meters: | | | | | | | | | |
| Page Faults: | 21.31% | 22.10% | 22.16% | 21.42% | 21.18% | 21.75% | 22.15% | 22.53% | 21.76% |
| Getwork: | 2.04% | 2.01% | 2.04% | 2.07% | 2.04% | 2.07% | 2.12% | 2.30% | 2.22% |
| Seg Faults: | 2.05% | 1.99% | 2.17% | 1.92% | 1.98% | 1.94% | 2.01% | 2.59% | 2.58% |
| Bound Faults: | 0.21% | 0.21% | 0.26% | 0.20% | 0.20% | 0.22% | 0.20% | 0.22% | 0.22% |
| Interrupts: | 2.64% | 2.60% | 2.70% | 2.68% | 2.65% | 2.65% | 2.87% | 3.85% | 3.63% |
| Idle, zero: | 0.93% | 1.24% | 1.37% | 1.40% | 1.20% | 0.46% | 0.53% | 0.58% | 0.69% |
| Idle, MP: | 2.18% | 1.87% | 1.73% | 2.20% | 1.86% | 2.30% | 2.07% | 2.97% | 2.76% |
| Idle, NMP: | 0.15% | 0.22% | 0.35% | 0.26% | 0.25% | 0.14% | 0.13% | 0.14% | 0.17% |
| Idle, Loading: | 0.10% | 0.10% | 0.11% | 0.13% | 0.10% | 0.11% | 0.11% | 0.10% | 0.13% |
| Idle, total: | 3.36% | 3.44% | 3.55% | 3.99% | 3.41% | 3.01% | 2.84% | 3.79% | 3.75% |
| Other (good): | 68.39% | 67.64% | 67.11% | 67.72% | 68.56% | 68.34% | 67.82% | 64.72% | 65.85% |
| dvm meters: | | | | | | | | | |
| Bulk Reads: | 440559 | 464121 | 476861 | 445580 | 439979 | 449533 | 470649 | 480266 | 478834 |
| Bulk Writes: | 214739 | 219368 | 231232 | 216976 | 214086 | 217857 | 226926 | 226163 | 253817 |
| Bulk ATB I/O: | 5.023 | 4.878 | 5.811 | 5.033 | 5.041 | 4.936 | 4.822 | 4.860 | 4.760 |
| D191 Reads: | 19202 | 18442 | 20123 | 23780 | 19084 | 24397 | 21422 | 25940 | 24965 |
| D191 Writes: | 17569 | 17162 | 18488 | 21511 | 17784 | 21750 | 19185 | 23371 | 22373 |
| D191 ATB I/O: | 89.514 | 93.642 | 88.121 | 73.635 | 89.445 | 71.391 | 82.840 | 69.624 | 73.676 |
| D191 Avg. Page Wait: | 37.671 | 35.840 | 38.200 | 43.627 | 36.661 | 43.159 | 38.589 | 38.550 | 38.219 |
| E191 Reads: | 13836 | 13995 | 14661 | 10731 | 13812 | 9512 | 14637 | 12432 | 11263 |
| E191 Writes: | 13486 | 13542 | 14334 | 11018 | 13521 | 9749 | 14309 | 10297 | 9439 |
| E191 ATB I/O: | 120.471 | 121.075 | 117.345 | 153.342 | 120.648 | 171.045 | 115.852 | 151.052 | 168.470 |
| E191 Avg. Page Wait: | 41.633 | 34.434 | 35.639 | 29.143 | 38.073 | 35.779 | 38.192 | 34.645 | 35.450 |

Notes:

- (1) Based on Elapsed Time * percentage good (tfm meters)
- (2) Test ran with 7 extra pages used on TTYB card
- (3) Test ran without previously shutting down system