

TO: MTB Distribution
 FROM: Roger A. Roach
 DATE: November 3, 1975
 SUBJECT: Multics Performance Test Results as of System 27.1

Attached is a summary of the results from the performance tests done between September 14, 1975 and October 27, 1975. The summary of the results has been changed to show the percentage change between systems rather than a "percentage to goal". As you can see we have experienced a slight degradation with system 27.0. On October 24 we increased the size of the SST by 5 pages and this seemed to have a positive effect and probably would have had much the same effect on previous systems. Therefore we should be careful not to treat it as a remedy to a performance degradation.

Current Status (System 27.1)

	26.4a values	27.1 values	% change
Elapsed Time:	60.8 min	61.3 min	+0.82%
Virtual CPU:	2269 sec	2247 sec	-0.97%
Total CPU:	3372 sec	3366 sec	-0.18%
Page Faults:	464131	498671	+7.44%
Memory Units:	34425	35936	+4.39%

related MTB's:

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 26.4a, 26.5, 27.0, 27.0a, 27.0b, 27.1

System:	26.4a	26.5	26.5	27.0	27.0a	27.0b	27.0b	27.1	27.1 (2)
Date:	09/14/75	09/13/75	09/22/75	09/25/75	10/02/75	10/06/75	10/20/75	10/23/75	10/27/75
Write-through status:	none	none	none	none	none	none	none	none	none
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,B	A,B	A,B	A,B	A,B	A,B	A,B	A,B	A,E
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:	60.8 min	61.0 min	60.8 min	62.6 min	61.3 min	61.9 min	61.8 min	62.0 min	61.3 min
Costs (shift 1):	\$520.49	\$515.83	\$527.83	\$528.81	\$519.96	\$518.41	\$532.63	\$537.63	\$535.75
Costs (shift 2):	\$282.19	\$279.64	\$286.19	\$286.71	\$281.88	\$281.05	\$288.80	\$291.53	\$290.53
Costs (shift 3):	\$184.97	\$183.27	\$187.64	\$187.98	\$184.76	\$184.21	\$189.37	\$191.20	\$190.56
CPU, total:	3372 sec	3401 sec	3375 sec	3440 sec	3427 sec	3410 sec	3397 sec	3418 sec	3366 sec
CPU, virtual:	2269 sec	2275 sec	2272 sec	2279 sec	2280 sec	2270 sec	2277 sec	2272 sec	2247 sec
CPU, good (1):	2428 sec	2433 sec	2438 sec	2456 sec	2438 sec	2436 sec	2425 sec	2414 sec	2409 sec
Memory Units:	34425	33965	35075	35126	34312	34231	35481	35965	35936
Page Faults:	464131	468246	461698	483157	477927	472358	487011	502067	498671

tfm meters:

Page Faults:	22.01%	22.17%	22.10%	22.51%	22.35%	22.29%	22.62%	22.91%	22.84%
Getwork:	2.01%	2.04%	2.07%	2.08%	2.05%	2.10%	2.15%	2.15%	2.10%
Seg Faults:	2.49%	2.45%	2.44%	2.36%	2.49%	2.46%	2.45%	2.49%	1.97%
Bound Faults:	0.41%	0.42%	0.41%	0.40%	0.40%	0.39%	0.40%	0.42%	0.34%
Interrupts:	3.20%	3.30%	3.11%	3.21%	3.20%	3.37%	3.33%	3.23%	3.6%
Idle, zero:	0.56%	0.49%	0.20%	0.73%	0.69%	0.92%	0.20%	0.63%	0.46%
Idle, MP:	2.69%	2.38%	2.64%	2.92%	2.22%	2.58%	3.06%	2.94%	3.35%
Idle, NMP:	0.06%	0.12%	0.08%	0.17%	0.13%	0.16%	0.18%	0.11%	0.23%
Idle, Loading:	0.13%	0.16%	0.12%	0.18%	0.13%	0.15%	0.16%	0.17%	0.15%
Idle, total:	3.38%	3.15%	3.04%	4.00%	3.17%	3.81%	3.60%	3.85%	4.19%
Other (good):	66.51%	66.48%	66.82%	65.43%	66.33%	65.60%	65.46%	64.95%	65.50%

dvm meters:

Bulk Reads:	469306	473683	467088	490871	480750	480526	496399	509764	506509
Bulk Writes:	241279	244873	236820	252661	249725	250069	256771	261202	254385
Bulk ATB I/O:	5.144	5.101	5.190	5.058	5.039	5.094	4.926	4.829	4.838
D191 Reads:	28289	32243	27055	38947	32296	30608	37009	36646	36098
D191 Writes:	23512	27470	22751	31938	27264	25313	30079	30339	30674
D191 ATB I/O:	70.571	61.393	73.350	53.705	61.809	66.555	55.302	55.582	55.138
D191 Avg. Page Wait:	35.396	40.854	37.617	44.390	40.129	39.133	40.368	43.813	43.477
E191 Reads:	15381	12508	15607	8007	11692	15494	10564	9864	7326
E191 Writes:	16455	12581	16011	8910	12733	16331	11898	11201	8650
E191 ATB I/O:	114.828	140.518	115.545	222.351	150.722	116.947	165.173	176.747	230.453
E191 Avg. Page Wait:	38.838	34.642	41.770	28.783	34.897	40.405	39.373	32.880	29.110

Notes:

(1) Based on Elapsed Time * percentage good (tfm meters)

(2) The SST was increased from 31 pages to 36 pages on 10/24/75.