

TO: MTB Distribution

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SUBJECT: Multics Performance Test Results as of System 26.4a

Attached is a summary of the results from the performance tests done between July 30, 1975 and September 14, 1975. As you can see, we have continued to make improvements in the performance of the system (including page faults and memory units). Note that on August 18 we started to make runs with no SYST card thus returning 2 pages to the free page pool. This one change resulted in most of the improvement. Also we started running with two disk MPC's for the September 14 test, but no significant performance change was noticed.

Current Status (System 26.4a)

	goal	26.4a values	% to goal
Elapsed Time:	65.2 min	60.8 min	108.2%
Virtual CPU:	2318 sec	2269 sec	102.6%
Total CPU:	3717 sec	3372 sec	111.3%
Page Faults:	362855	464131	65.9%
Memory Units:	25065	34425	54.4%

related MTB's:

- 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

Metering Comparisons for 26.1, 26.2, 26.3, 26.4, 26.4a

System:	26.1	26.1	26.2	26.2	26.2	26.3	26.4	26.4a	26.4a
Date:	07/30/75	08/04/75	08/07/75	08/14/75	08/18/75	08/22/75	08/30/75	09/08/75	09/14/75
Write-through status:	none	none	none	none	none	none	none	none	none
SYST:	2	2	2	2	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,B
External Interlace:	off	off	off	off	off	off	off	off	off
Disk Channels:	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8&2,4
Elapsed Time:	62.6 min	61.8 min	61.8 min	61.4 min	60.4 min	60.6 min	61.5 min	60.8 min	60.8 min
Costs (shift 1):	\$565.91	\$534.91	\$534.70	\$516.89	\$514.91	\$508.11	\$518.20	\$514.01	\$520.49
Costs (shift 2):	\$306.96	\$290.05	\$289.94	\$280.22	\$279.14	\$275.44	\$280.93	\$278.65	\$282.19
Costs (shift 3):	\$201.49	\$190.23	\$190.14	\$183.66	\$182.95	\$180.48	\$184.14	\$182.62	\$184.97
CPU, total:	3459 sec	3387 sec	3405 sec	3383 sec	3349 sec	3356 sec	3377 sec	3378 sec	3372 sec
CPU, virtual:	2266 sec	2261 sec	2268 sec	2270 sec	2265 sec	2267 sec	2268 sec	2268 sec	2269 sec
CPU, good (1):	2451 sec	2424 sec	2435 sec	2436 sec	2431 sec	2433 sec	2445 sec	2424 sec	2428 sec
Memory Units:	38573	35781	35723	34091	33941	33312	34222	33840	34425
Page Faults:	501590	473407	478674	464780	453204	449165	456397	459557	464131

ttm meters:

Page Faults:	23.22%	22.45%	22.52%	22.25%	21.94%	21.99%	22.23%	22.17%	22.01%
Getwork:	2.14%	1.98%	1.98%	1.97%	1.93%	1.95%	1.97%	1.99%	2.01%
Seg Faults:	2.22%	2.36%	2.29%	2.46%	2.46%	2.45%	2.39%	2.40%	2.49%
Bound Faults:	0.41%	0.41%	0.40%	0.40%	0.40%	0.41%	0.41%	0.42%	0.41%
Interrupts:	2.99%	2.91%	2.94%	2.95%	2.84%	2.89%	2.98%	3.00%	3.20%
Idle, zero:	0.56%	0.99%	0.43%	0.58%	0.57%	0.91%	0.96%	0.64%	0.50%
Idle, MP:	2.99%	3.23%	3.43%	2.96%	2.50%	2.22%	2.40%	2.61%	2.69%
Idle, NMP:	0.09%	0.15%	0.18%	0.16%	0.13%	0.10%	0.20%	0.14%	0.06%
Idle, Loading:	0.17%	0.16%	0.17%	0.14%	0.13%	0.15%	0.15%	0.14%	0.13%
Idle, total:	3.81%	4.53%	4.21%	3.84%	3.33%	3.38%	3.71%	3.53%	3.38%
Other (good):	65.21%	65.37%	65.65%	66.13%	67.10%	66.93%	66.31%	66.48%	66.51%

dvm meters:

Bulk Reads:	510273	480065	483468	472578	460447	457912	466265	465720	469306
Bulk Writes:	252571	242086	242425	241848	236040	234876	238530	238059	241279
Bulk ATB I/O:	4.933	5.141	5.117	5.162	5.210	5.255	5.239	5.188	5.144
D191 Reads:	43881	42316	41919	41501	38932	39441	42007	41874	28289
D191 Writes:	40316	39206	38437	38336	36426	36770	38382	38849	23512
D191 ATB I/O:	44.694	45.541	46.225	46.197	48.161	47.775	45.935	45.236	70.571
D191 Avg. Page Wait:	40.099	40.045	42.529	41.229	41.210	41.814	40.821	43.383	35.396
E191 Reads:	-	-	-	-	-	-	-	-	15381
E191 Writes:	-	-	-	-	-	-	-	-	16455
E191 ATB I/O:	-	-	-	-	-	-	-	-	114.828
E191 Avg. Page Wait:	-	-	-	-	-	-	-	-	38.838

Notes:

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

(2) TELAST was changed from 1.0 sec to 2.0 sec on 08/03/75.