

MPL-18

TO: Multics Performance Log
FROM: R.J. Feiertag
SUBJECT: Comparison of 4 sec. and 8 sec. time burst
DATE: June 9, 1969

Two runs were made on system 3.0.6 using the FSIM. The runs differed only in that the first used a 4 sec. time burst and the second used an 8 sec. time burst. The result shown on the accompanying sheets shows the expected drop in the number of page faults with a corresponding drop in the number of interrupts.

The total gain in CPU time is 16 sec. out of 277.3 sec. Of this 16 sec., 7.6 sec. can be attributed to fewer page faults and 7.8 sec. is gained in non-fault time. I have not been able to find a satisfactory explanation for this gain in non-fault time. Some of it is due to the fact that some fault time is counted as non-fault time, i.e., the time spent in the FIM and part of the time spent in metering. This could possibly account for 2 or 3 seconds but no more than this.

MPL-18

TO: Multics Performance Log

DATE: 6/6/69

FROM: R.J. Feiertag

SUBJECT: Multics System Performance Certification Record

I Variable settings: operating system

System being certified: 3.0.6

Certifier used: multics_test_f Script used: cert1

Number of processes used: 4

Typewriter output: Yes No Number of lines output: 664

System Segment Table Size: 30k

Number of permanently wired pages:

Maximum number of processes eligible for multiprogramming: 2

Maximum number of processes which may be loaded: 2

Scheduling Quanta, starting with highest-priority queue:

4* 4 8 16
1. 8 2. 8 3. 16 4. 32 5. _____ 6. _____

II Hardware configuration

Amount of Core Memory: 256K

Number of processors: 1

Firehose Drum: Yes No

Disk Yes No

Installation used: MAC

Date of Certification run: 6/5/69

Time of Certification run: 2030 EDT

III Other factors expected to influence measurements:

* Upper numbers are 4 sec. time quantum and
lower numbers are 8 sec. time quantum.

Certification of System: 3.0.6

IV Measurements

a. CPU time breakdown	during process creation	during command sequence	total
1. Time used by subject processes	53.5 sec. 53.5	255.0 245.9	308.5 299.4
2. Time spent loading processes	0.7 0.5	3.0 1.6	3.7 2.1
3. Time spent in file system daemon	2.4 2.5	19.3 13.8	21.7 16.3
4. Idle time due to eligibility control	23.6 23.5	135.4 119.7	159.0 143.2
5. Idle time during page waits	5.5 4.5	2.7 14.5	8.2 19.0
6. True idle time	<u>0</u>	<u>0</u>	<u>0</u>
	85.7	415.4	501.1
Total CPU time charged	84.5	395.5	480.0

b. Breakdown of CPU times used by subject processes

1. Missing-page fault time	9.8 9.7	46.7 39.1	56.5 48.8
2. Missing-segment fault time	2.9 3.0	1.9 2.0	4.8 5.0
3. Linkage fault time	23.3 23.2	16.9 16.8	40.2 40.0
4. Wall crossing fault time	2.5 2.5	4.7 4.5	7.2 7.0
5. Interrupt handling time	2.3 2.4	12.1 11.7	14.4 14.1
6. Non-fault time	11.7 <u>11.7</u>	195.0 <u>187.2</u>	206.7 <u>198.9</u>
	52.5	277.3	329.8
Total	52.5	261.3	313.8

Certification of System:

c. Fault times and number

Process Creation	missing page	missing segment	Linkage	wall crossing	Interrupt
average fault time	6.6 ms	9.6	32.2	1.5	0.8
	6.7	9.8	32.1	1.5	0.9
number of faults	1522	304	724	1672	2799
	1440	304	724	1672	2777

command
sequence

average fault time	7.4 ms	13.9	23.1	1.4	0.9
	7.4	14.1	23.0	1.4	1.0
number of faults	6295	140	732	3296	12502
	5281	140	732	3296	11470

d. Average times seen by a process

1. Average real time for com- 402.9 sec.
pletion of a process: 369.0
2. Average process creation time: 13.4
13.4
3. Average time for execution 63.8
of command sequence: 61.5
4. Time for CTSS to execute 55 sec.
same command sequence.
5. Performance relative to .86
CTSS (#4/#3) .89

V Output of original run may be found in file labeled:VI Comments: