

MPM128
 6/10/71
 #users = 36
 MFTN3
 15.10

***** MULTICS PERFORMANCE ANALYSIS *****

| USER NO | COMMAND | TIME | CPU TIME | NO OF P.F. | 384 K core 1 CPU 2 DS270 channels |
|---------|----------------|------|----------|------------|---|
| 0 | login | 1501 | 2.677 | 0 + 59 | |
| | edm | 1511 | 4.115 | 106 + 191 | |
| | fortran | 1513 | 4.243 | 17 + 193 | |
| | edm | 1518 | 1.916 | 58 + 113 | |
| | fortran | 1519 | 3.577 | 9 + 177 | |
| | rename | 1520 | .947 | 2 + 41 | |
| | print | 1520 | .837 | 3 + 19 | |
| | a_prime\$prime | 1522 | 2.315 | 24 + 64 | |
| | list | 1522 | .530 | 9 + 13 | |
| | df | 1523 | 1.130 | 7 + 53 | |
| | edm | 1532 | 2.906 | 159 + 118 | |
| | fortran | 1533 | 3.129 | 10 + 158 | |
| | edm | 1538 | 2.110 | 90 + 111 | |
| | fortran | 1540 | 3.038 | 7 + 186 | |
| | rename | 1540 | .457 | 2 + 17 | |
| | print | 1541 | .667 | 7 + 17 | |
| | b_prime\$prime | 1542 | 1.455 | 19 + 65 | |
| | list | 1543 | .540 | 5 + 28 | |
| | df | 1544 | .914 | 8 + 29 | |
| | logout | | | + | |

***** SUMMARY *****

| USER NO | TOTAL CPU TIME | TOTAL REAL TIME | TOTAL NO OF P.F. | NO OF INTER-ACTIONS | AVERAGE CPU TIME | AVERAGE RESPONSE TIME | AVERAGE NO OF P.F. |
|---------|----------------|-----------------|------------------|---------------------|------------------|-----------------------|--------------------|
| USER 0 | 34.826 | 2501 | 542 + 1593 | 66 | .527 | 11.3 (7.1) | 8 + 24 |

***** #users

| | | | | | | | | | |
|---|--------|------|-----------|----|------|------------|--------|----|-------------|
| (| 19.610 | 1258 | 235 + 864 | 33 | .594 | 13.1 (6.9) | 7 + 26 | 38 | first half |
| | 15.216 | 1211 | 307 + 729 | 33 | .461 | 10.2 (7.2) | 9 + 22 | 35 | second half |

↑
except "fortran"

The response time was rather long.

tcn -all

Total metering time 0:34:16

Ave queue length 8.58
 Ave eligible 5.29
 Working-set factor .50
 Working-set addend 0
 Te first (seconds) 2
 Te last (seconds) 2
 Ti max (seconds) 8

| IDLE TYPE | TIME | % |
|---------------------|---------|------|
| Total idle | 0:00:22 | 1.11 |
| Multi-prog idle | 0:00:14 | .70 |
| Loading idle | 0:00:06 | .33 |
| Non-multi-prog idle | 0:00:01 | .08 |
| Zero idle | 0:00:00 | 0.00 |

←

| COUNTER | TOTAL | ATB | #/INT |
|--------------|--------|-------------|---------|
| Interactions | 573 | 3.588 sec | |
| Loadings | 2468 | .833 sec | 4.307 |
| Blocks | 2207 | .932 sec | |
| Wakeups | 2232 | .921 sec | |
| Waits | 66003 | 31.151 msec | 115.188 |
| Notifies | 207199 | 9.923 msec | |
| Schedulings | 2522 | .815 sec | 4.401 |
| Pre-empts | 38937 | 52.805 msec | 67.953 |

| Time | %Int | %Cum | Ave | %T | %CumT |
|------|------|------|-------|------|-------|
| 0.0 | 49 | 49 | .255 | 15 | 15 |
| .5 | 15 | 64 | .707 | 12 | 27 |
| 1.0 | 3 | 67 | 1.260 | 5 | 32 |
| 1.5 | 3 | 71 | 1.882 | 8 | 40 |
| 2.0 | 1 | 72 | 2.371 | 4 | 43 |
| 2.5 | 1 | 73 | 2.879 | 3 | 47 |
| 3.0 | 0 | 73 | 3.446 | 2 | 48 |
| 3.5 | 0 | 74 | 3.920 | 1 | 49 |
| 4.0 | 0 | 74 | 4.381 | 1 | 50 |
| 4.5 | 0 | 74 | 4.978 | 1 | 50 |
| 5.0 | 0 | 74 | 5.623 | 0 | 51 |
| 5.5 | 0 | 74 | 5.984 | 0 | 51 |
| 6.0 | 0 | 74 | 6.482 | 0 | 51 |
| 6.5 | 0 | 74 | 6.816 | 0 | 51 |
| 7.0 | 267 | 100 | 7.340 | 223 | 275 |
| 7.5 | 0 | 100 | 8.177 | -177 | 100 |

something is wrong!

| DEPTH | %PF | TBPF | %GTW | TBS | %CPU |
|-------|------|------|------|------|------|
| 1 | 37.4 | 37.1 | 29.4 | 29.1 | 44.9 |
| 2 | 25.7 | 31.6 | 27.6 | 18.1 | 26.3 |
| 3 | 17.9 | 25.0 | 20.2 | 13.6 | 14.6 |
| 4 | 11.7 | 22.8 | 13.6 | 12.0 | 8.8 |
| 5 | 6.9 | 23.0 | 8.3 | 11.8 | 5.3 |
| 6 | 3.4 | 27.4 | 4.1 | 13.8 | 3.1 |
| 7 | .5 | 0.0 | .5 | 0.0 | .5 |

MTBPF = 31.7 msec.

hmi

Multics 15.10, load 37.0/45.0; 36 users

r 1538 .285 4+14

fsm -all

Total metering time 0:36:38

| | # | ATB | | |
|-----------------|-------|----------|-------|-----|
| Deactivations | 2595 | .847 | sec. | |
| Seg Faults | 4112 | .535 | sec. | |
| Bound Faults | 200 | 10.992 | sec. | |
| Setfaults (all) | 8110 | 271.070 | msec. | |
| Setfaults (acc) | 240 | 9.160 | sec. | |
| Updates | 3964 | 554.586 | msec. | |
| Steps | 6053 | 363.189 | msec. | |
| Skips (ehs) | 1002 | 2.194 | sec. | |
| Skips (inf) | 1501 | 1.465 | sec. | |
| Skips (level) | 695 | 3.163 | sec. | |
| Skips (init) | 0 | 0.000 | sec. | |
| Skips (ring) | 4 | 549.595 | sec. | |
| Skips (lock) | 11 | 199.853 | sec. | |
| Skips (pc) | 2 | 1099.190 | sec. | |
| AST Sizes | 4 | 16 | 64 | 64 |
| Number | 408 | 160 | 90 | 0 |
| Need | 2233 | 344 | 261 | 0 |
| Steps | 4532 | 437 | 463 | 0 |
| Ave Steps | 2.0 | 1.3 | 1.8 | 0.0 |
| Grace (sec) | 197.9 | 804.9 | 427.3 | 0.0 |

| | # | ATB | |
|------------|--------|---------|-------|
| Needc | 109656 | 20.048 | msec. |
| Ceiling | 56 | .654 | min. |
| Laps | 785 | 2.800 | sec. |
| Steps | 305314 | 7.200 | msec. |
| Skip wired | 2466 | 891.476 | msec. |
| Skip used | 162910 | 13.494 | msec. |
| Skip mod | 26165 | 84.020 | msec. |
| Skip os | 4117 | 533.976 | msec. |

31.5 pages, 27 wired.

Average steps 2.784

| | DRUM | DSU270 | DSU170 |
|-------------|--------|---------|----------|
| Left | 1529 | 8849 | 4985 |
| Reads | 91002 | 13181 | 1474 |
| ATB | 24.157 | 166.784 | 1491.438 |
| Writes | 56237 | 7697 | 227 |
| ATB | 39.091 | 285.615 | 9684.494 |
| ATB I/O | 14.931 | 105.296 | 1292.405 |
| % Cpcty | 13 | 49 | 6 |
| Ave Latency | 22.772 | 68.009 | 73.600 |

r 1539 2.407 13+36

hmu;ttm -all

Multics 15.10, load 38.0/45.0; 37 users

Total metering time 0:39:09

| | % | AVE |
|-----------------|-------|-----------|
| Page Faults | 7.65 | 2351.794 |
| Drum interrupts | 3.55 | 1370.480 |
| Getwork | 6.66 | 1231.570 |
| Seg Faults | 2.98 | 15451.869 |
| Bound Faults | .39 | 43457.137 |
| Interrupts | 6.95 | 3039.390 |
| Gate faults | 4.27 | 3670.000 |
| MP Idle | .78 | |
| Loading idle | .34 | |
| NMP Idle | .08 | |
| Zero idle | 0.00 | |
| Other | 66.34 | ← |

MTBPF (in real time) = 30.7 max.

r 1541 1.487 6+44

ppmt -all;intm2-a## -all

Total metering time 0:39:56

| | |
|------------------------|-------|
| Working-set factor | .50 |
| Working-set addend | 0 |
| Min-eligible | 2 |
| Max-eligible | 6 |
| % bad pre-paging | 25.53 |
| Drum faults/pre-paging | 1.02 |
| % drum priority moves | 12.63 |
| % misses | 2.00 |
| Ave post size | 35.94 |
| Ave purge size | 14.05 |
| % purged | 39.09 |
| Ave pre size | 21.4 |
| re-pagings | 12.56 |
| % pre-paged | 58.63 |
| Thrashing percentage | 6.70 |
| Ave post in core | 29.15 |
| Ave working-set size | 13.31 |
| Ave used in quantum | 30.51 |
| Pre-page time | 22.17 |
| Post-purge time | 20.84 |
| Calls | 2877 |

Total metering time 0:40:01

| | ATB lock | loop % | loop time |
|-----------|----------|--------|-----------|
| ptl | 11.6 ms. | 0.00 | 0.000 ms. |
| tcl | 6.0 ms. | 0.00 | 0.000 ms. |
| all locks | | 0.00 | |

r 1541 1.520 6+45

hmu

Multics 15.10, load 39.0/45.0; 38 users

r 1543 .251 5+10

pcd

```

cpu a 4
gioc a 2 0 7 11 13 } 1 CPU , 384 K core
mem c 200 on
mem d 200 on
mem e 200 on
clock a 0 25 edt 4
drum 0 7700 1 4 5 6
d170 0 105340 a 3 8. 102030405 607
d270 0 60650 a 27 10. 1201130214 3150416
part mult 0 7700 0 57650 0 104340 0 0
part salv 0 0 57650 1000 0 0 0 0
part dump 0 0 0 0 104340 1000 0 0
scind 400000 20 20 100
sst 16. 408. 160. 90. 0.
int 27 30 31 32 37
ops 9. 250. 1000.
ttyb
tty a 60 3 1200.
tty a 70 3 1200.
tty a 100 32. 133.
tty a 200 32. 133.
tty a 400 14. 110.
tty a 300 24. 150.
intk 77 mult

```

r 1543 1.394 7+11

```

total metering time 2.70 hr, .10507500e+03 terminal hr
min output buffer 578 chars, 38 sec.
ave output buffer 1152 chars, 76 sec.
ATB output blocks 45 1759 sec.
ATB status .174 6.756 sec.
% status queued 4.0%
ATB quit 18.3 712.4 sec.
ATB dialups 65.7 2555.9 sec.
ATB cycle 1.5 57.5 sec.
output buffer eff. 87%
ave interrupt time 4.355 ms. 2.6%
max interrupt time 125.462 ms.

```

| | total | 1050 | 2741 | M37 | T300 | ARDS | 2741 | M35 |
|--------------|-------|------|------|------|------|------|------|-----|
| cur # dialed | 39 | 1 | 19 | 15 | 0 | 1 | 2 | 1 |
| ave # dialed | 38.9 | .6 | 23.3 | 11.8 | 0.0 | 1.3 | 1.1 | .7 |
| input rate | 2.1 | .8 | .3 | .2 | 0.0 | .2 | .2 | .4 |
| output rate | 29.5 | 1.9 | 4.4 | 3.3 | 0.0 | 11.1 | 4.0 | 4.8 |

r 1544 1.282 3+41

hmu

Multics 15.10, load 38.0/45.0; 37 users

r 1545 .190 3+9

