

MPM101
 4/2/70
 # users = 23
 MFTN3
 7.16

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1109	2.345	103
	edm	1118	3.583	295
	fortran	1119	3.125	147
	edm	1123	1.431	167
	fortran	1124	2.942	177
	rename	1125	.631	46
	print	1125	.613	31
	a_prime\$prime	1127	1.869	76
	list	1127	.420	28
	df	1128	.634	28
	edm	1137	2.415	264
	fortran	1138	2.414	154
	edm	1142	1.402	153
	fortran	1143	2.349	150
	rename	1143	.391	30
	print	1144	.431	24
	b_prime\$prime	1145	1.363	53
	list	1146	.303	20
	df	1147	.490	20

***** SUMMARY *****

USER NO	TOTAL CPU TIME	TOTAL REAL TIME	TOTAL NO OF P.F.	NO OF INTER-ACTIONS	AVERAGE CPU TIME	AVERAGE WAIT TIME	AVERAGE NO OF P.F.
USER 0	<u>26.859</u>	<u>2216</u>	<u>1868</u>	<u>66</u>	<u>.407</u>	<u>2.9</u>	<u>28</u>

 (15.281 1094 995 33 .463 2.8 30 first half)
 (11.578 1090 873 33 .351 2.9 26 second half)

Note (1) 384 K word core memory
 (2) 2 CPU's

rmfinc apt					
777777777777	2:49.1	000100000004	760712541036	5:43.5	016101000002
760712541037	8:36.6	016202000002	760712542375	54.4	001100000004
760712542735	52:17.9	014100000003	760712541253	1:40.7	001100000004
760712541103	59.8	000100000004	760712541121	1:52.6	001100000004
760712542713	65:97.7	200200000002	760712542616	2.1	001200000004
760712541200	9	001100000004	760712542136	29.2	200100000002
760712542223	5.2	001200000004	760712542167	62:18.6	001200000004
760712541733	8:28.5	001200000004	760712542250	40.4	001200000004
760712542644	63:65.1	001100000004	760712542657	61:96.9	001100000004
760712542432	20.3	001100000004	760712541516	54.9	001100000004
760712542303	98.9	034100000003	760712542536	24.3	001100000004
760712542602	61:64.5	001100000004	760712541626	17.0	001200000004
760712542045	18.2	001200000004	760712542023	23.4	034220000001
760712542413	1.7	001200000004	760712542501	12.7	001100000004
000000000000		000000000000	000000000000		000000000000

QUIT

r 1149 .113 2

fsm -a

Total metering time 0:40:20

Deactivations 1787
 Ast grace 7:20:35
 Used ASTs 346
 Free ASTs 0
 Held ASTs 117

	#	ATB
Faults	66394	36.455 msec.
Steps	272028	8.897 msec.
Ceiling	16	151278.424 msec.
Lans	316	2.966 sec.
Skip wired	4989	485.158 msec.
Skip used	164156	14.744 msec.
Skip mod	36478	66.353 msec.
Skip os	11	220041.344 msec.

298 pages, 23 wired.
 Average steps 4.097

	DRUM	DSU270	DS10
Left	959	7814	4482
Reads	53676	9619	63
ATB	45.093	251.632	38419.917
Writes	31369	5348	0
ATB	77.160	452.590	
ATB I/O	28.460	161.719	38419.917
% Cpctv	7	30	0
M Errors	0	1	1
F Errors	0	0	0

r 1149 1.080 38

com all

Total metering time 0:41:57

Ave queue length(X10) 20
Max eligible 3
Tc first (seconds) 2
Tc last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:17:26	42
Multi-prog idle	0:12:49	31
Non-multi-prog idle	0: 4:13	10
Zero idle	0: 0:23	1

not enough eligible processes

COUNTER	TOTAL	ATB
Loadings	2628	957
Blocks	1576	1537
Makeups	1619	1554
Waits	62922	40
Notifies	140528	17
Schedulings	3197	737
Interactions	1419	1773
Pre-empts	102596	24

Time	%Int	%Cum	Ave
0.0	71	71	191
0.5	15	86	705
1.0	5	91	1250
1.5	3	94	1763
2.0	2	96	2276
2.5	1	97	2886
3.0	0	97	3322
3.5	0	97	3783
4.0	0	97	4343
4.5	0	97	4917
5.0	0	97	5432
5.5	0	97	5932
6.0	0	97	6413
6.5	0	97	7042
7.0	0	97	7465
7.5	2	99	7930

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	35	41	29	28	23
2	37	85	31	53	49
3	28	64	39	26	28

} ?

r 1151 1.331 42

MPM102
 5/4/70
 # users = 27
 MFTN3
 7.3b

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1417	1.803	76
	edm	1426	3.305	265
	fortran	1427	2.815	180
	edm	1431	1.438	115
	fortran	1432	2.412	118
	rename	1433	.947	49
	print	1433	.580	20
	a_prime\$prime	1435	2.095	81
	list	1435	(.494	30
	df	1436	.624	31
	edm	1445	2.400	232
	fortran	1446	1.998	135
	edm	1450	1.369	119
	fortran	1451	2.138	137
	rename	1452	.335	31
	print	1452	.409	20
	b_prime\$prime	1454	1.520	73
	list	1454	.367	29
	df	1455	.503	38
	logout			

384 K core
 1 CPU
 e_{max} = 3

***** 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	25.749	2248	1703	66	.390	4.1	25

(	14.710	1118	889	33	.446	4.7	26	first half
	11.039	1097	814	33	.335	3.4	24	second half

```

rm$inc apt
7777777777777 6:44.0 000100000004 761414353121 8:06.3 016101000002
761414353127 34.6 001100000004 761414357626 9.7 001100000004
761414357313 3.5 100100000000 761414357372 61:67.1 001100000004
761414353171 1:17.8 000100000004 761414353201 2.1 000100000004
761414353211 2:20.2 001100000004 761414357614 7 001100000004
761414356523 6.3 100100000000 761414357323 65:17.9 001100000004
PP8 761414357004 27.9 300100000000 761414355103 33.9 001100000004
761414357471 61:18.5 001100000004 761414356604 1:06.0 001100000004
761414357555 5.9 001100000004 761414356234 9.3 001100000004
761414357357 1.2 100100000000 761414357452 7.8 300100000000
761414355431 1:17.8 001100000004 761414357405 61:05.0 300100000000
761414356727 28.7 034120000001 761414357216 70.1 100100000000
761414357143 94.1 001100000004 761414357512 4 001100000004
761414357344 1:07.3 001100000004 761414357021 79.1 100100000000
761414355414 16.4 001100000004 761414356553 54.9 001100000004
761414357671 71.7 100100000000 761414356567 2:24.9 001100000004
000000000000 000000000000 000000000000 000000000000
    
```

QUIT
r 1458 .156 8

fsm -all

Total metering time 0:14:00 ← measured only for 14 min. towards the end of the experiment

Deactivations 468
 Ast. grace -4:06:58 ← not correct
 Used ASTs 352
 Free ASTs 0
 Held ASTs 109
 Seg. Faults 1015

	#	ATB
Needs	19311	43.540 msec.
Steps	75369	11.156 msec.
Laps	222	3.787 sec.
Skip wired	340	2472.924 msec.
Skip used	45194	18.604 msec.
Skip mod	10524	79.893 msec.

300 pages, 19 wired.
 Average steps 3.903

	DRUM	DSU270	DS10
Left	972	4178	7680
Reads	16308	1987	0
ATB	51.557	423.148	0.000
Writes	9377	1255	0
ATB	89.666	669.956	0.000
ATB I/O	32.735	259.344	0.000
% Cpty	6	19	0
N Errors	0	0	0
F Errors	0	0	0

r 1459 1.136 36

tcn -all

Total metering time 0:15:32 ← measured only for 15 min. towards the end of the experiment

Ave. queue length 2.24
 Max eligible 3
 Te first (seconds) 2
 Te last (seconds) 2
 Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:04:47	30.81
Multi-prog idle	0:00:53	5.79
Non-multi-prog idle	0:01:17	8.34
Zero idle	0:02:35	16.68

COUNTER	TOTAL	ATB	#/INT
Interactions	549	1.698 sec	
Loadings	788	1.183 sec	1.435
Blocks	624	1.494 sec	
Wakeups	613	1.521 sec	
Waits	19672	47.390 msec	35.832
Notifies	45573	20.456 msec	
Schedulings	829	1.125 sec	1.510
Pre-empts	24171	38.569 msec	44.027

Time	%Int	%Cum	Ave	%T	%CumT
0.0	83	93	.181	13	13
.5	8	91	.744	5	18
1.0	2	94	1.299	3	21
1.5	3	97	1.835	4	25
2.0	1	98	2.387	2	27
2.5	1	98	2.803	1	28
3.0	1	99	3.274	2	30
3.5	0	99	3.968	1	31
4.0	0	99	4.194	0	31
4.5	0	99	5.104	1	31
5.0	0	99	5.243	0	31
5.5	0	99	6.235	1	32
6.0	0	99	6.292	1	33
6.5	0	99	6.816	0	33
7.0	0	99	7.340	0	33
7.5	1	100	8.132	63	100

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	55.7	39.5	45.0	28.4	65.4
2	29.5	30.0	36.0	14.2	26.4
3	16.1	19.8	20.2	9.1	9.7

r 1501 1.627 36

MPM104
 5/22/70
 # users = 27
 MFTN3
 7.4 a
 256 K core
 1 CPU

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1419	1.861	108
	edm	1429	4.221	388
	fortran	1429	3.394	229
	edm	1434	1.791	174
	fortran	1435	3.099	270
	rename	1436	.685	55
	print	1436	.840	60
	a_prime\$prime	1438	2.225	121
	list	1439	.531	34
	df	1439	1.078	72
	edm	1448	2.915	323
	fortran	1449	2.301	179
	edm	1454	1.714	191
	fortran	1455	2.465	220
	rename	1456	.425	39
	print	1456	.417	25
	b_prime\$prime	1458	1.600	91
	list	1458	.401	43
	df	1459	.569	67
	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	30.671	2343	2581	66	.464	6.1	39

	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.	#users	
(	17.864	1159	1403	33	.542	6.1	42	29	first half
	12.671	1151	1178	33	.384	6.2	35	24	second half

Note: The average response time was pretty ~~fast~~ short.

```

racing ant
7777777777777777 2:40.2 200100000002 761667574040 9:45.7 016101000002
761667577460 64:82.4 001100000004 761667574054 1:20.1 200100000002
761667574064 2:06.8 001100000004 761667577301 16.1 001100000004
761667576115 1:24.2 000100000002 761667576357 10.4 100100000000
761667576417 2.9 300100000000 761667574155 1:40.0 200100000002
761667577037 30.4 200100000002 761667576475 4.2 300100000000
761667574230 2:06.7 001100000004 761667576327 16.3 200100000002
761667577412 64:97.5 200100000002 761667577513 63:78.8 001100000004
PDP8- 761667577024 30.9 100100000000 761667577377 61:75.5 000100000002
761667575464 27.9 001100000004 761667576546 2.1 100100000000
761667574457 39.7 100100000000 761667574566 41.8 001100000004
761667577502 61:04.2 001100000004 761667577232 58.5 001100000004
761667575513 16.7 001100000004 761667577011 1:41.9 001100000004
761667577271 61.1 100100000000 761667576601 39.9 001100000004
761667577627 67.1 001100000004 761667576562 1:18.4 000100000002
761667576445 3.9 100100000000 761667576032 36.0 100100000000
761667577562 1.3 001100000004 761667576755 35.8 074120000001
761667577141 19.3 300100000000 000000000000 00
    
```

QUIT
r 1502 .253 26

fsm -all

Total metering time 0:43:41

```

Deactivations 3253
Ast grace 1:59:35
Used ASTs 327
Free ASTs 0
Held ASTs 109
Seg Faults 4862
    
```

	#	ATB
Needs	125869	20.828 msec.
Steps	531594	4.931 msec.
Ceiling	2	21.847 min.
Laps	2765	.948 sec.
Skip wired	6815	384.633 msec.
Skip used	334896	7.829 msec.
Skip mod	64040	40.937 msec.
Skip os	74	35427.268 msec.

174 pages, 19 wired.
Average steps 4.224

	DRUM	DSU270	DS10
Left	1169	2596	0
Reads	111137	11371	0
ATB	23.589	230.553	0.000
Writes	57530	6610	0
ATB	45.570	396.614	0.000
ATB I/O	15.543	145.799	0.000
% Crcty	12	34	0
N Errors	0	0	0
F Errors	0	0	0

← pretty high

r 1502 1.198 29

tom -all

Total metering time 0:45:31

Ave queue length 6.90
 Max eligible 3
 Tc first (seconds) 2
 Tc last (seconds) 2
 Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:10:38	23.38
Multi-prog idle	0:10:38	23.38
Non-multi-prog idle	0:00:00	0.00
Zero idle	0:00:00	0.00

} ← highly saturated

COUNTER	TOTAL	ATB	#/INT
Interactions	2174	1.256 sec	
Loadings	2816	.970 sec	1.295
Flocks	2389	1.143 sec	
Wakeups	2398	1.139 sec	
Waits	121236	22.529 msec	55.766
Notifies	233425	11.701 msec	
Schedulings	2883	.946 sec	1.328
Pre-empts	141967	19.239 msec	65.302

Time	%Int	%Cum	Ave	%T	%CumT
0.0	77	77	.205	16	16
.5	12	89	.748	10	26
1.0	6	95	1.286	8	33
1.5	2	97	1.777	4	37
2.0	1	98	2.315	2	39
2.5	1	98	2.881	2	41
3.0	1	99	3.452	2	43
3.5	0	99	3.982	1	44
4.0	0	99	4.522	1	44
4.5	0	99	5.047	2	46
5.0	0	100	5.489	1	47
5.5	0	100	5.846	0	48
6.0	0	100	6.527	0	48
6.5	0	100	6.816	0	48
7.0	0	100	7.340	0	48
7.5	0	100	8.111	49	100

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	41.8	21.4	36.0	15.9	51.1
2	32.5	17.6	36.4	10.0	32.8
3	26.8	11.2	28.7	6.7	17.5

r 1505 1.806 57

MPM105
users = 14
7/12/70
MFTN 3
8.5

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

256 K core
1 CPU

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.	
0	login	2100	1.813	0	71
	edm	2110	3.072	277	109
	fortran	2110	2.848	0	137
	edm	2115	1.215	50	79
	fortran	2115	2.523	0	184
	rename	2116	.668	4	56
	print	2117	.764	8	58
	a_prime\$prime	2118	2.194	42	98
	list	2119	.452	6	23
	df	2119	.637	6	43
	edm	2128	2.166	242	81
	fortran	2129	1.946	6	116
	edm	2133	1.235	144	39
	fortran	2134	1.985	6	151
	rename	2135	.452	7	41
	print	2135	.447	5	23
	b_prime\$prime	2137	1.206	37	34
	list	2137	.336	6	23
	df	2138	.430	6	31
	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	24.576	2208	852+1326	66	.372	2.2	12+20

****:***** # users

(	14.373	1085	393+787	33	.436	2.1	11+23	13 first half
)	10.203	1090	459+539	33	.309	2.3	13+16	15 second half

```

rm$inc apt
7777777777777777 1:03.4 000100000004 762702312544 27:25.4 016111000002
762702312552 1:02.3 000100000004 762702320051 8.7 001100000004
762702312610 33.4 001100000004 762702312623 25.9 200100000002
PDP 8 → 762702317627 24.8 300100000000 762702317512 22.5 034130000001
762702316636 001100000004 762702317757 9.4 001100000004
762702317342 20.4 001100000004 762702320070 1 001100000004
762702317700 36.9 000100000004 762702317126 9.2 001100000004
762702317052 55.5 001100000004 762702315775 37.5 001100000004
762702317740 1:28.8 001100000004 762702320027 6.3 001100000004
762702320040 8.1 001100000004 000000000000 000000000000

```

QUIT

r 2141 3.537 61+57

fsm -all

Total metering time 0:41:00

```

Deactivations 167
Ast grace 0:31:46
Used ASTs 368
Frge ASTs 1
Held ASTs 82
Seg Faults 805

```

	#	ATB
Needs	32990	74.592 msec.
Steps	110753	22.219 msec.
Ceiling	10	4.101 min.
Laps	463	5.315 sec.
Skip wired	1702	1445.816 msec.
Skip used	71247	34.539 msec.
Skip mod	4652	528.972 msec.
Skip os	162	15189.989 msec.

171 pages, 22 wired.

Average steps 3.357

	DRUM	DSU270	DSU170
Left	1837	2442	0
Reads	28098	3167	0
ATB	87.578	777.006	0.000
Writes	23972	1538	0
ATB	102.652	1599.986	0.000
ATB I/O	47.259	523.013	0.000
% Cpcty	4	9	0
N Errors	0	0	0
F Errors	0	0	0

r 2142 1.088 21+15

tcm -all

Total metering time 0:42:57

Ave queue length 1.43
 Ave eligible 1.42
 Pre-page factor 8
 Te first (seconds) 2
 Te last (seconds) 2
 Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:29:59	69.82
Multi-prog idle	0:00:01	.05
Non-multi-prog idle	0:10:53	25.34
Zero idle	0:19:05	44.43

COUNTER	TOTAL	ATB	#/INT
Interactions	1186	2.173 sec	
Loadings	1367	1.886 sec	1.153
Blocks	1291	1.997 sec	
Wakeups	1244	2.072 sec	
Waits	21862	117.903 msec	18.433
Notifies	73360	35.136 msec	
Schedulings	1476	1.746 sec	1.245
Pre-empts	35478	72.654 msec	29.914

Time	%Int	%Cum	Ave	%T	%CumT
0.0	84	84	.147	19	19
.5	10	94	.746	11	30
1.0	1	95	1.293	3	33
1.5	1	97	1.900	4	37
2.0	1	98	2.392	3	40
2.5	1	98	2.986	3	43
3.0	0	98	3.351	1	44
3.5	0	99	3.971	2	46
4.0	0	99	4.509	2	48
4.5	0	99	4.924	2	49
5.0	0	99	5.474	1	50
5.5	0	99	6.221	1	51
6.0	0	99	6.291	0	51
6.5	0	99	6.816	0	51
7.0	0	99	7.340	0	51
7.5	1	100	8.133	41	100

DEPTH	%PF	TBPF	%TW	TBS	%CPU
1	74.4	37.4	68.2	24.9	78.2
2	20.9	32.4	25.4	16.2	19.1
3	5.2	23.3	6.6	11.1	3.6
4	1.3	24.6	1.7	10.1	1.1
5	.6	19.7	.6	11.1	.5

r 2144 1.683 37+11

MPM106
 #users=38
 7/14/70
 MFTN3
 8.5

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.	
0	login	1508	3.057	7	310
	edm	1517	5.161	287	327
	fortran	1520	5.616	34	532
	edm	1525	2.360	76	206
	fortran	1526	3.516	51	301
	rename	1527	1.034	2	114
	print	1527	.873	6	54
	a_prime\$prime	1529	3.223	25	248
	list	1529	.542	8	41
	df	1530	1.400	2	176
	edm	1539	3.764	174	235
	fortran	1543	4.256	26	445
	edm	1547	2.466	90	234
	fortran	1550	3.619	11	333
	rename	1551	.673	7	69
	print	1551	.790	8	71
	b_prime\$prime	1552	3.223	25	248
	list	1553	.542	8	41
	df	1554	.792	2	88
	logout				

256 K core
 1 CPU

} reproduced

***** 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	43.850	2709	842+3763	66	.665	15.8	12+57

****:*****# users

(	23.725	1292	491+1999	33	.718	14.9	14+60	38 first half
	20.125	1385	351+1764	33	.610	16.7	10+53	38 second half

Note: The responses to "fortran"s were exceptionally slow, ranging from 22 to 130 seconds. The response times to other commands ranged from 1.7 to 16.6 sec.

6.1 sec. } except "fortran"
 5.1 sec.

```

start
777777777777 1:26.8 034110000002 762727716726 3:59.9 016111000002
762727720205 53.9 034110000002 762727716742 22.3 001100000004
762727720335 1.2 000100000002 762727716766 4 000100000004
762727720424 77.9 001100000004 762727717007 17.6 001100000004
762727717020 16.0 000100000002 762727717534 5.1 300100000000
762727717057 30.3 200100000002 762727717075 1:00.3 001100000004
762727717106 41.8 000100000002 762727720474 61:04.4 001100000004
762727717715 15.9 001100000004 762727717155 11.6 001100000004
762727717171 17.3 001100000004 762727717204 10.7 001100000004
762727717220 1:58.4 214110000002 762727717235 1:30.2 034110000003
762727717245 18.4 001100000004 762727720116 50.7 200100000002
762727720164 26.0 074130000001 762727717320 11.7 200100000002
762727720220 25.3 001100000004 762727717364 13.8 001100000004
762727717411 23.7 001100000004 762727720126 5.7 001100000004
762727720414 64.9 200100000002 762727717444 3.6 001100000004
762727717457 19.2 001100000004 762727720066 39.6 034110000002
762727717506 56.2 001100000004 762727720444 88.4 200100000002
762727720104 11.3 001100000004 762727720434 73.1 001100000004
762727717632 12.1 001100000004 762727720040 25.3 001100000004
762727720364 5.9 001100000004 762727720030 5.2 001100000004
r 1533 1.510 13+76

```

fsm -all

Total metering time 0:30:27

```

Deactivations 3609
Ast grace 0:00:27
Used ASTs 323
Free ASTs 0
Held ASTs 174
Seg Faults 4469

```

	#	ATB
Needc	127666	14.313 msec.
Steps	539091	3.390 msec.
Ceiling	2	15.227 min.
Laps	2774	.659 sec.
Skip wired	10072	181.421 msec.
Skip used	362104	5.046 msec.
Skip mod	37918	48.190 msec.
Skip os	1331	1372.858 msec.

171 pages, 24 wired.
Average steps 4.223

	DRUM	DSU270	DSU170
Left	618	12115	0
Reads	114496	11380	0
ATB	15.959	160.569	0.000
Writes	62457	6559	0
ATB	29.257	278.500	0.000
ATB I/O	10.326	101.860	0.000
% Cncty	19	49	0
N Errors	0	0	0
F Errors	0	0	0

r 1537 1.413 13439

tcm -all

Total metering time 0:28:12

Ave queue length 13.18
 Ave eligible 4.25
 Pre-merge factor 8
 Te first (seconds) 2
 Te last (seconds) 2
 Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:04:35	16.26
Multi-prog idle	0:04:35	16.25
Non-multi-prog idle	0:00:00	.01
Zero idle	0:00:00	0.00

COUNTER	TOTAL	ATB	#/INT
Interactions	1537	1.101 sec	
Loadings	1917	.883 sec	1.247
Blocks	1734	.976 sec	
Wakeups	1727	.980 sec	
Waits	90992	18.604 msec	59.201
Notifies	208654	8.113 msec	
Schedulings	2010	.842 sec	1.308
Pre-empts	76534	22.119 msec	49.794

Time	%Int	%Cum	Ave	%T	%CumT
0.0	79	79	.224	19	19
.5	12	91	.740	10	29
1.0	5	96	1.287	6	35
1.5	2	97	1.784	4	39
2.0	0	98	2.340	1	39
2.5	1	99	2.912	2	42
3.0	1	99	3.326	3	45
3.5	0	99	3.890	1	45
4.0	0	100	4.556	1	46
4.5	0	100	4.719	0	46
5.0	0	100	5.618	2	48
5.5	0	100	5.877	0	48
6.0	0	100	6.472	0	48
6.5	0	100	6.816	0	48
7.0	0	100	7.340	0	48
7.5	0	100	7.864	52	100

DEPTH	%PF	TIME	%OTW	TRB	%CPU
1	31.0	16.3	20.5	12.1	31.4
2	27.2	16.0	27.2	10.0	27.2
3	20.8	15.1	22.7	9.4	20.9
4	14.6	15.0	16.8	9.0	14.0
5	6.7	15.9	7.7	8.0	6.0
6	1.7	14.6	1.9	8.3	1.6
7	.6	17.8	.6	9.8	.6

r 1650 2.280 12+00

file

MPM107
 #users = 35
 7/21/70
 MFTN3
 8.7

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1532	2.415	39 + 103
	edm	1542	3.897	226 + 224
	fortran	1542	3.645	33 + 295
	edm	1547	1.633	137 + 102
	fortran	1548	3.213	62 + 248
	rename	1549	.664	9 + 56
	print	1550	.791	6 + 51
	a_prime\$prime	1551	2.359	43 + 129
	list	1552	.604	3 + 42
	df	1553	.887	7 + 87
	edm	1602	2.825	233 + 160
	fortran	1603	2.279	34 + 183
	edm	1607	1.543	151 + 86
	fortran	1608	2.787	39 + 208
	rename	1609	.425	3 + 38
	print	1609	.565	7 + 56
	b_prime\$prime	1611	1.641	35 + 83
	list	1611	.375	6 + 34
	df	1612	.466	2 + 36
	logout			+

256 Kcore
 1 CPU
 Pre-page factor = 16

***** 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	30.604	2333	1036 + 2118	66	.463	6.1	15+ 32

							#users
(	17.698	1170	526 + 1234	33	.536	7.3	15+ 37 37 first half
	12.906	1131	510 + 884	33	.391	4.9	15+ 26 34 second half

5.4 sec.
 3.2 sec. } except 'fortran'

Note: A "quit" key was not usable on the 8.7 system. This might have contributed to the good system response observed above, as well as the increased value of pre-page factor.

MPM107

```

mSinc apt
7777777777777 2:53.8 001100000004 763035663543 10:55.5 010111000002
763035660043 33.8 300100000000 763035663557 1:30.2 200100000002
763035663570 1:52.3 200100000002 763035663600 2:01.1 200100000002
763035670104 61:12.7 014110000002 763035663636 8.0 001100000004
763035663647 12.3 001100000004 763035667661 10.7 001100000004
763035664500 6.8 001100000004 763035666264 14.0 001100000004
7630356635745 1:05.7 001100000004 763035663762 39.7 000100000002
763035667721 17.6 000100000002 763035670032 80.3 000100000002
763035664026 24.0 001100000004 763035670013 66.2 001100000004
763035667306 65.2 001100000004 763035664511 13.6 001100000004
763035667140 1:41.0 001100000004 763035667056 31.6 001100000004
763035664503 11.7 300100000000 763035667607 21.8 001100000004
7630356634306 13.6 001100000004 763035667540 7.8 001100000004
763035667113 37.2 000100000004 763035667232 55.3 001100000004
763035667046 29.1 034130000001 763035666732 18.6 001100000004
763035667364 8.9 100100000000 763035666654 1:06.4 001100000004
763035670046 79.3 001100000004 763035667437 30.8 001100000004
763035666620 1:22.0 001100000004 763035667671 9.1 001100000004
763035665212 8.2 001100000004 763035667462 12.8 001100000004
763035670130 1.8 000100000002 763035665641 28.9 001100000004
r 1615 4.196 102+113
  
```

fsn -all

Total metering time 0:46:32

```

Deactivations 3917
Ast grace 0:00:40
Used ASTs 326
Free ASTs 0
Held ASTs 161
Seg Faults 5535
  
```

	#	ATB
Needs	165017	16.925 msec.
Steps	550211	5.076 msec.
Ceiling	51	.913 min.
Laps	2658	1.051 sec.
Skip wired	7781	358.940 msec.
Skip used	333376	8.373 msec.
Skip mod	37972	73.552 msec.
Skip os	6065	460.496 msec.

174 pages, 24 wired.
Average steps 3.334

	DRUM	DSU270	DSU170
Left	741	1687	0
Reads	145377	15502	0
ATB	19.211	180.164	0.000
Writes	81237	10431	0
ATB	34.359	267.751	0.000
ATB I/O	12.322	107.697	0.000
% Crcty	16	46	0
N Errors	0	0	0
M Errors	0	0	0

top -all

Total metering time 0:48:29

Ave queue length	10.95	
Ave eligible	3.06	←-----} Note
Pre-page factor	16	←-----} Note
Tc first (seconds)	2	
Tc last (seconds)	2	
Ti max (seconds)	8	

IDLE TYPE	TIME	%
Total idle	0:12:50	26.49
Multi-prog idle	0:12:44	26.27
Non-multi-prog idle	0:00:06	.22
Zero idle	0:00:00	0.00

COUNTER	TOTAL	ATB	#/INT
Interactions	2670	1.090 sec	
Loadings	3350	.869 sec	1.255
Blocks	2866	1.015 sec	
Wakeup	2911	1.000 sec	
Waits	115414	25.213 msec	43.226
Notifies	313643	9.278 msec	
Schedulings	3402	.855 sec	1.274
Pre-empts	133773	21.753 msec	50.102

Time	%Int	%Cum	Ave	%T	%CumT
0.0	83	83	.185	19	19
.5	10	93	.732	9	28
1.0	3	96	1.246	5	33
1.5	1	98	1.778	3	36
2.0	1	99	2.394	3	39
2.5	0	99	2.794	1	40
3.0	0	99	3.410	1	41
3.5	0	99	3.935	1	42
4.0	0	99	4.331	0	42
4.5	0	99	5.078	0	43
5.0	0	100	5.562	1	43
5.5	0	100	5.882	1	44
6.0	0	100	6.291	0	44
6.5	0	100	6.896	0	44
7.0	0	100	7.563	1	45
7.5	0	100	8.088	52	100

DEPTH	FRP	TBPF	%CPU	TBS	%CPU
1	43.4	18.5	36.7	14.0	43.4
2	33.2	19.1	35.7	11.3	34.1
3	19.4	18.2	22.5	9.9	19.1
4	5.8	16.4	6.7	8.9	5.2
5	.7	18.7	.8	8.6	.8

r 1619 2.211 28+61

hmu

P0(20, 20), P1(12, 12), P2(5, 6); Total: 37 users, 35 max.

r 1619 .251 8+10

>uid>m>w>o>ppm

Total metering time 0:49:53

Ave pre-page time 17.679

Ave post_purge time 19.454

Pre-page calls 3426

Post-purge calls 3426

Ave pre-pagings 14.881

Ave post-purgings 16.665

Ave pre-page size 31.737

Pre-page factor 16

% pre-paging needed 46.890 ←

Ave misses 1.806

Thrashing index 4.807

r 1620 .639 6+12

>uid>m>w>o>ttm

Total metering time 0:49:39

	%	AVE
Page Faults	7.05	1785.737
Drum interrupts	4.22	1154.986
Getwork	8.30	945.217
Seg Faults	2.54	12504.244
Interrupts	4.88	3362.797
Gate faults	5.52	3670.000
MP Idle	26.25	
NMP Idle	.22	
Zero idle	0.00	
Other	41.01 ←	

r 1621 1.061 2+51

hmu

P0(20, 20), P1(11, 12), P2(5, 6); Total: 36 users, 35 max.

r 1621 .231 7+14