

MPM92
 3/9/70
 # users = 23
 MFTN3
 5.9

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1421	5.686	235
	edm	1431	6.012	414
	fortran	1431	5.068	245
	edm	1436	3.509	279
	fortran	1437	4.497	242
	rename	1438	1.082	72
	print	1439	.860	49
	a_prime\$prime	1440	2.809	117
	list	1441	.925	63
	df	1441	1.441	96
	edm	1451	5.756	426
	fortran	1451	4.764	264
	edm	1456	3.485	251
	fortran	1457	3.990	189
	rename	1458	.870	58
	print	1458	.891	62
	b_prime\$prime	1500	2.324	106
	list	1500	.757	45
	df	1501	.773	53

***** 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	49.046 49.813	2347	2978 3031	66	743 .755	7.1	45 45

(	26.203	1168	1577	33	.794	7.7	47	first half)
	23.610	1146	1454	33	.715	6.6	44	second half)

Note : { # processors = 1
 core size = 256 K
 # eligible processes = 3
 t_e = 2

```

rm$inc apt
???????????????? 3:20.2 001100000004 760331011600 6:57.4 016101000002
760331011612      32.7 200140000002 760331015522      89.4 300100000000
760331011636      2:41.4 000100000002 760331011650      34.1 001100000004
760331011662      2:52.3 200100000002 760331011707      2:46.5 200100000002
760331015072      12.5 001100000004 760331013445      2.1 001100000004
760331012002      3:30.2 200100000002 760331015335      6.2 000100000002
760331014562      54.7 000100000002 760331015403      20.4 001100000004
760331014245      1:26.9 001100000004 760331015624      17.8 000100000002
760331015565      65.4 300100000000 760331014700      25.8 001100000004
760331015664      61:74.6 001100000004 760331014171      001100000004
760331015106      32.2 200100000002 760331015430      1:06.6 100100000000
760331015702      99.6 001100000004 760331015536      2.9 300100000000
760331015010      14.0 001100000004 760331015146      51.7 034120000001
760331015602      8.3 001100000004 760331015213      49.0 001100000004
760331015723      10.8 001100000004 000000000000      000000000000

```

QUIT
r 1505 .264 17

fsm -a

Total metering time 0:43:47

```

Deactivations      3499
Ast grace           0:00:31
Used ASTs           238
Free ASTs           0
Held ASTs           121

```

	#	ATB
Faults	122018	21.535 msec.
Steps	521801	5.035 msec.
Ceiling	0	
Laps	2651	0.991 sec.
Skip wired	12264	214.258 msec.
Skip used	331028	7.937 msec.
Skip mod	56458	46.541 msec.
Skip os	33	79626.260 msec.

177 pages, 22 wired.
Average steps 4.276

	DRUM	DSU270	DS10
Left	985	6153	3903
Reads	106409	13707	219
ATB	24.694	191.702	11998.477
Writes	49921	6731	0
ATB	52.636	390.382	
ATB I/O	16.808	128.567	11998.477
% Cpcty	11	38	1
N Errors	1	10	5
F Errors	0	0	0

r 1506 1.908 60

tcm all

Total metering time 0:45:59

Ave queue length(X10) 110
 Max eligible 3
 Te first (seconds) 2
 Te last (seconds) 2
 Tl max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0: 7:32	16 ← big
Multi-prog idle	0: 7:32	16
Non-multi-prog idle	0: 0: 0	0
Zero idle	0: 0: 0	0

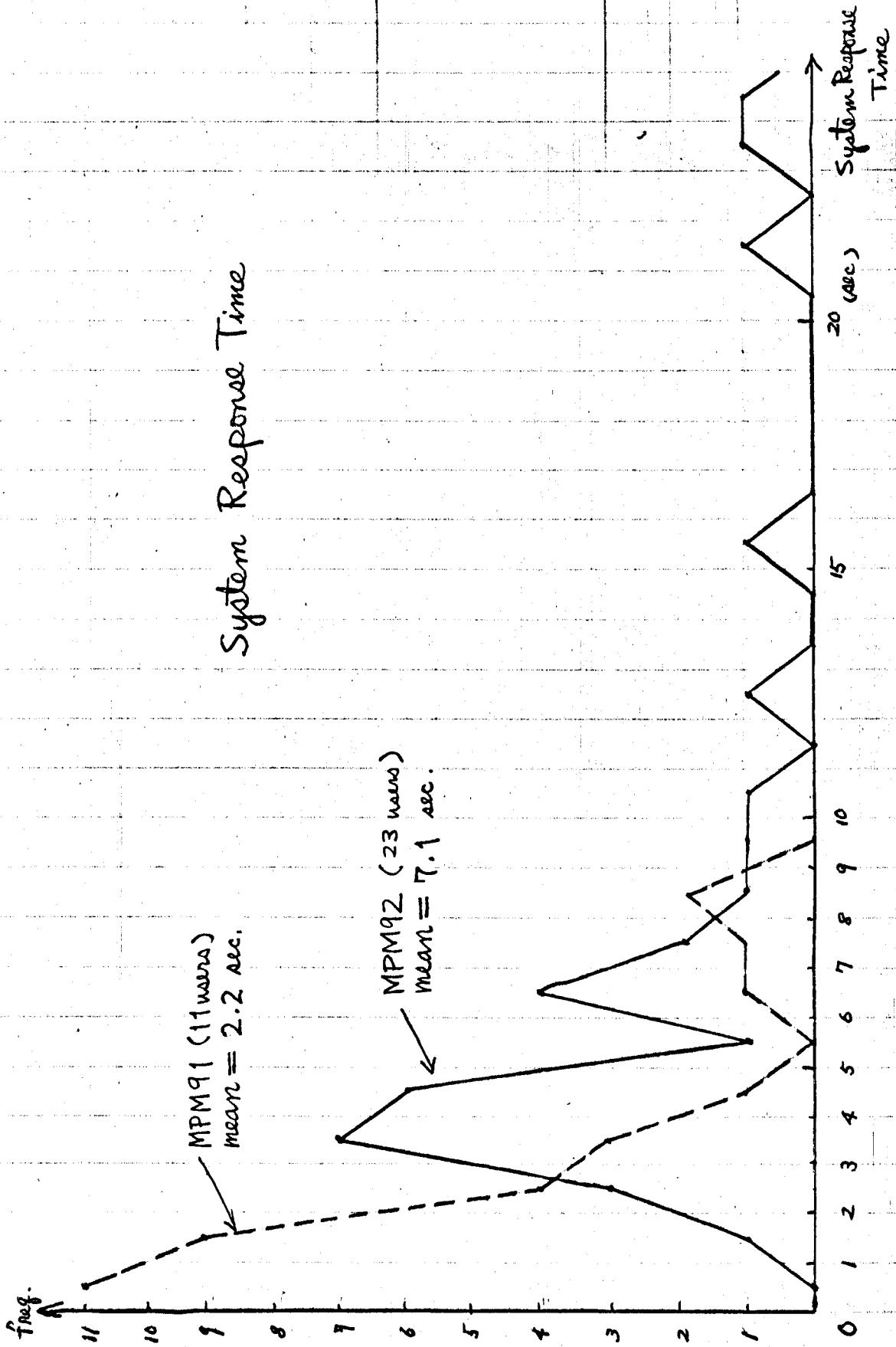
COUNTER	TOTAL	ATB
Loadings	2200	1254
Blocks	1563	1765
Wakeups	1619	1704
Waits	120745	22
Notifies	222612	12
Schedulings	2263	1219
Interactions	1436	1921
Pre-empts	77939	35

Time	%Int	%Cum	Ave
0.0	64	64	277
0.5	18	82	728
1.0	8	90	1246
1.5	4	94	1734
2.0	1	95	2326
2.5	1	96	2857
3.0	0	96	3317
3.5	1	97	3864
4.0	1	98	4382
4.5	0	98	4813
5.0	0	98	5409
5.5	0	98	5783
6.0	0	98	6375
6.5	0	98	7034
7.0	0	98	7538
7.5	1	99	7908

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	41	19	38	15	43
2	33	19	35	14	35
3	25	17	26	12	22

r 1508 2.169 66

System Response Time



file

MPM93
3/9/70
users = 19
MFTN3
5.9

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	2210	6.166	317
	edm	2220	5.503	408
	fortran	2220	5.608	259
	edm	2225	2.970	215
	fortran	2226	5.113	236
	rename	2227	1.034	80
	print	2227	.839	59
	a_prime\$prime	2229	2.630	107
	list	2229	.813	54
	df	2230	1.457	114
	edm	2239	4.813	350
	fortran	2240	3.848	219
	edm	2245	2.586	185
	fortran	2245	4.480	253
	rename	2246	.576	43
	print	2247	.810	49
	b_prime\$prime	2248	1.759	79
	list	2249	.650	45
	df	2250	.782	57

***** 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	45.480 46.271	2299	2755 2812	66	.889 .701	5.8	41 42

	(25.967	1140	1532	33	.787	6.3	46 first half
	20.304	1127	1280	33	.615	5.4	38 second half

Note : { # processors = 1
 core size = 256 K
 # eligible process = 3
 te = 2

MPM93

rm\$inc apt

????????????

760331022410	2:37.3	000100000004	760331011600
760331022130	5:18.3	001100000004	760331016620
760331020360	28.7	100100000000	760331023200
760331023414		000100000004	760331022460
760331022243	13.2	001100000004	760331017473
760331023540	58.9	000100000004	760331023366
760331023455	42.9	034100000002	760331022216
760331016746	61:70.9	001100000004	760331021615
760331023164		100100000000	760331022256
760331015106	38.7	074120000001	760331023524
760331023300		100100000000	760331017676
750331016467	64.4	001100000004	760331022531
750331022000		100100000000	760331020375
750331017146	2:29.8	001100000004	760331016733
750331023247		300100000000	760331022756
	49.5	100100000000	000000000000

7:25.0	016101000002
	100100000000
45.4	001100000004
38.9	001100000004
	100100000000
24.3	001100000004
9.7	001100000004
	001100000004
4:49.8	001100000004
61:04.3	001100000004
	300100000000
1:20.4	001100000004
2:30.9	001100000004
	300100000000
3.3	001100000004
	000000000000

QUIT

r 2251 .203 14

fsm -a

Total metering time 0:42:15

Deactivations	1701
Ast grace	0:01:20
Used ASTs	242
Free ASTs	10
Held ASTs	93

	#	ATB
Faults	100122	25.319 msec.
Steps	444872	5.698 msec.
Ceiling	0	
Laps	2270	1.116 sec.
Skip wired	9743	260.187 msec.
Skip used	288858	8.775 msec.
Skip mod	46144	54.936 msec.
Skip os	5	507001.929 msec.

177 pages, 19 wired.
Average steps 4.443

	DRUM	DSU270	DS10
Left	1454	6162	3903
Reads	88458	9846	8
ATB	28.657	257.465	316876.205
Writes	41164	5220	0
ATB	61.583	485.634	
ATB I/O	19.556	168.260	316876.205
% Cpcty	10	29	0
N Errors	2	12	7
F Errors	0	0	0

r 2252 1.162 27

tcn all

Total metering time 0:43:54

Ave queue length(X10)	12
Max eligible	3
Te first (seconds)	2
Te last (seconds)	2
Ti max (seconds)	8

IDLE TYPE	TIME	%
Total idle	0: 9:50	22
Multi-prog idle	0: 4:18	10
Non-multi-prog idle	0: 3: 3	7
Zero idle	0: 2:28	6

COUNTER	TOTAL	ATB
Loadings	1974	1334
Blocks	1452	1814
Wakeups	1434!	1837
Waits	95492	27
Notifies	172946	15
Schedulings	2106	1250
Interactions	1348	1954
Pre-empts	65953	39

Time	%Int	%Cum	Ave
0.0	73	73	238
0.5	14	87	728
1.0	6	93	1235
1.5	2	95	1753
2.0	1	96	2265
2.5	0	96	2938
3.0	0	96	3371
3.5	0	96	3865
4.0	1	97	4342
4.5	0	97	4884
5.0	0	97	5460
5.5	0	97	6045
6.0	0	97	6587
6.5	0	97	6656
7.0	0	97	7289
7.5	1	98	8000

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	48	22	42	19	51
2	32	22	36	14	33
3	20	17	22	11	16

r 2254 1.446 40

rn\$inc apt
7777777777777
760331022410
760331022130
760331020360
760331023414
760331022243
760331024141
760331023455
760331016746
760331023164
760331015106
760331023706
760331016467
760331022000
760331017146
760331023247
000000000000
QUIT
r 7 .082 1

2:14.9 000100000004 760331011600
001100000004 760331016620
100100000000 760331023200
000100000004 760331022460
1:10.5 001100000004 760331017473
39.1 000100000004 760331024107
62:65.2 100100000000 760331022216
5:10.3 014100000002 760331021615
100100000000 760331023575
300100000000 760331023743
100100000000 760331017676
47.8 034120000001 760331023724
100100000000 760331020375
100100000000 760331016733
300100000000 760331022756
100100000000 000000000000
000000000000 000000000000

23:05.2 016101000002
100100000000
100100000000
3.0 001100000004
100100000000
61:68.9 300100000000
31.1 001100000004
2.4 300100000000
001100000004
14.0 100100000000
300100000000
32.3 001100000004
001100000004
300100000000
100100000000
000000000000
000000000000

fsm -a

Total metering time 0:40:42

Deactivations 239
Ast grace 0:07:29
Used ASTs 251
Free ASTs 15
Held ASTs 65

	#	ATB
Faults	20805	117.387 msec.
Steps	88886	27.476 msec.
Ceiling	0	
Laps	448	5.451 sec.
Skip wired	1923	1270.022 msec.
Skip used	56159	43.488 msec.
Skip mod	9999	244.249 msec.
Skip os	0	msec.

17" pages, 16 wired.
Average steps 4.272

	DRUM	DSU270	DS10
Left	1857	6140	3903
Reads	17860	1964	7
ATB	136.744	1243.509	348893.366
Writes	9242	1078	0
ATB	264.255	2265.541	
ATB I/O	90.113	802.844	348893.366
% Cpcty	2	6	0
N Errors	2	12	7
F Errors	0	0	0

r 8 .980 8

tcm all

Total metering time 0:42:16

Ave queue length(X10) 10
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:25:34	61
Multi-prog idle	0: 0: 4	0
Non-multi-prog idle	0: 4:50	11
Zero idle	0:20:39	49

COUNTER	TOTAL	ATB
Loadings	1242	2042
Blocks	1102	2301
Wakeups	1095	2316
Waits	18880	134
Notifies	42445	59
Schedulings	1429	1774
Interactions	1039	2441
Pre-empts	18837	134

Time	%Int	%Cum	Ave
0.0	81	81	148
0.5	10	91	713
1.0	3	94	1244
1.5	1	95	1738
2.0	0	95	2451
2.5	1	96	2874
3.0	1	97	3255
3.5	0	97	3835
4.0	0	97	4369
4.5	0	97	4959
5.0	0	97	5610
5.5	1	98	5837
6.0	0	98	6476
6.5	0	98	6878
7.0	0	98	7365
7.5	1	99	7978

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	83	53	68	48	84
2	15	52	28	20	14
3	2	36	4	13	1

r 10 1.415 39

MPM95
 3/10/70
 # users = 25
 MFTN3
 5.9

***** (MULTICS PERFORMANCE ANALYSIS) *****

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1414	4.748	175
	edm	1424	5.025	342
	fortran	1425	5.196	259
	edm	1430	3.423	231
	fortran	1431	5.735	313
	rename	1431	1.217	79
	print	1432	1.319	105
	a_prime\$prime	1433	3.127	135
	list	1434	.808	51
	df	1435	1.056	56
	edm	1444	5.178	345
	fortran	1445	4.051	193
	edm	1450	3.732	256
	fortran	1451	4.480	241
	rename	1451	.863	64
	print	1452	1.115	76
	b_prime\$prime	1453	2.438	104
	list	1454	.863	69
	df	1455	.931	48

***** 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.
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USER 0	49.526 50.557	2363	2919 2967	66	751 .767	7.8	44 44
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(26.906	1173	1571	33	.816	8.3	47	first half
	23.651	1158	1396	33	.716	7.3	42	second half

Note : {

- # processors = 1
- core size = 256 K
- # eligible processes = 3
- t_c = 2

```

rm$inc apt
777777777777 32:33.2 000100000004 760342024364 211:29.3 016101000002
760342030432 7:09.2 000100000002 760342024416 11:51.4 000100000004
760342026333 49:57.2 200100000002 760342031702 18.4 001100000004
760342031253 31.1 001100000004 760342031131 2:00.5 001100000004
760342031512 29.7 200100000002 760342031345 27.8 034120000001
760342024642 15:29.5 001100000004 760342032054 12.2 001100000004
760342026026 10:23.8 000100000002 760342030563 4:48.4 001100000004
760342031552 23.2 001100000004 760342031665 28.5 200100000002
760342031600 24.0 001100000004 760342031376 54.4 001100000004
760342031774 11.5 001100000004 760342031744 37.1 234100000002
760342027730 7:57.6 200100000002 760342032017 17.7 000100000002
760342030444 2:52.8 000100000002 760342031425 27.1 001100000004
760342031623 26.3 001100000004 760342031533 1:19.2 001100000004
760342030722 1:08.3 001100000004 760342030303 7:41.3 000100000002
760342031231 31.9 001100000004 760342031732 32.7 000100000002
760342032042 9.0 200100000002 000000000000 000000000000
000000000000 000000000000 000000000000 000000000000
000000000000 000000000000 000000000000 000000000000QUIT
r 1457 .355 23

```

rsm -a

Total metering time 0:43:03

```

Deactivations 3727
Ast grace 0:00:25
Used ASTs 234
Free ASTs 0
Held ASTs 129

```

	#	ATB
Faults	92409	27.959 msec.
Steps	405877	6.365 msec.
Ceiling	0	
Laps	2041	1.265 sec.
Skip wired	9042	285.741 msec.
Skip used	256392	10.077 msec.
Skip mod	47996	53.830 msec.
Skip os	38	67991.362 msec.

177 pages, 22 wired.
Average steps 4.392

	DRUM	DSU270	DS10
Left	705	5669	3740
Reads	80232	10051	179
ATB	32.202	257.056	14433.920
Writes	41983	6225	11
ATB	61.540	415.047	234879.253
ATB I/O	21.140	158.741	13598.272
% Cpcty	9	31	1
N Errors	3	5	0
F Errors	0	0	0

r 1458 1.882 94

tcn all

Total metering time 0:44:39

Ave queue length(X10) 127
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

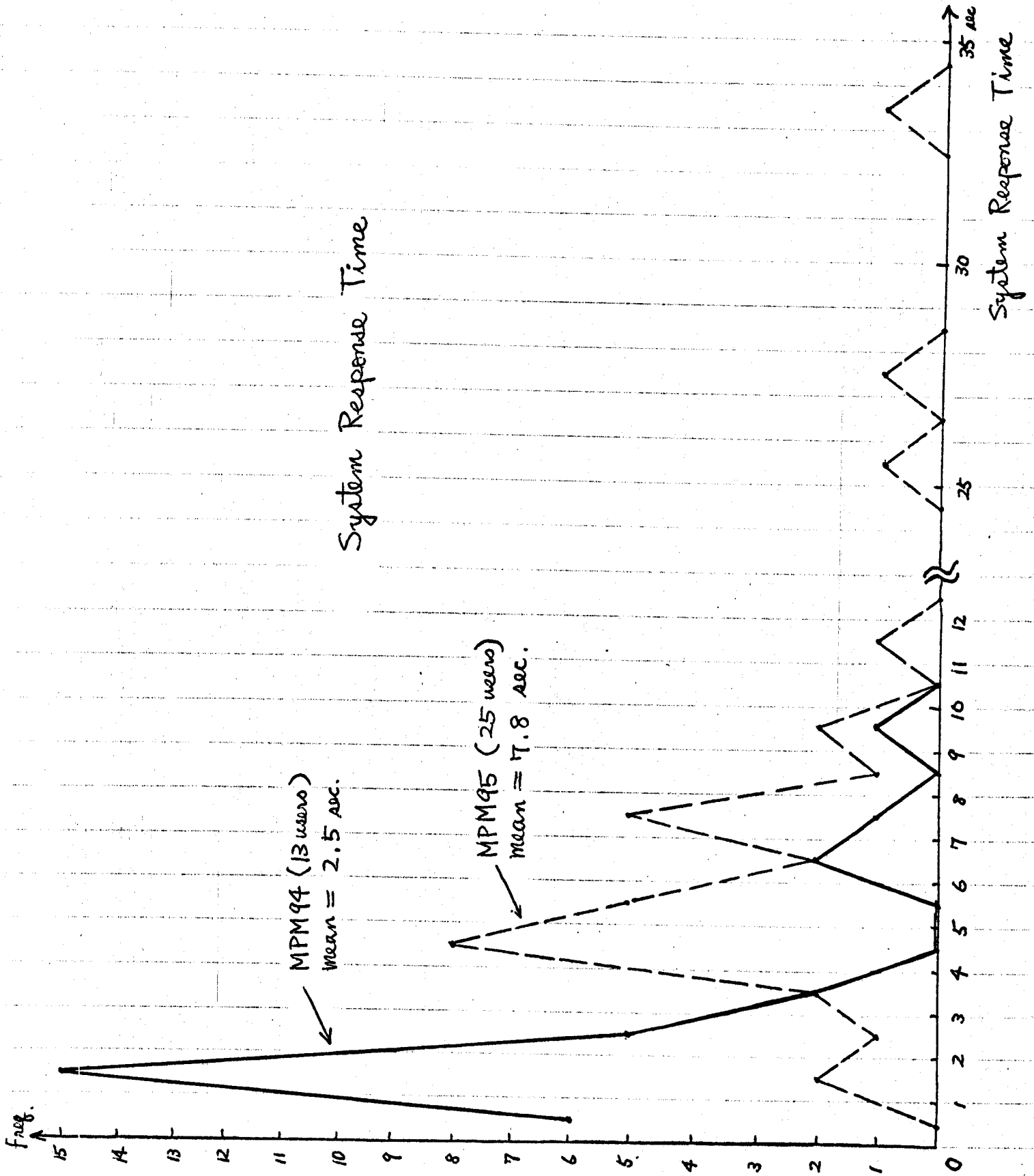
IDLE TYPE	TIME	%
Total idle	0: 4:48	11
Multi-prog idle	0: 4:48	11
Non-multi-prog idle	0: 0: 0	0
Zero idle	0: 0: 0	0

COUNTER	TOTAL	ATB
Loadings	2011	1332
Blocks	1282	2089
Wakeups	1290	2077
Waits	90760	29
Notifies	181678	14
Schedulings	2110	1269
Interactions	1184	2262
Pre-empts	61960	43

Time	%Int	%Cum	Ave
0.0	65	65	279
0.5	19	84	735
1.0	6	90	1215
1.5	3	93	1771
2.0	1	94	2350
2.5	1	95	2703
3.0	1	96	3307
3.5	1	97	3806
4.0	0	97	4475
4.5	0	97	4895
5.0	0	97	5205
5.5	0	97	5806
6.0	0	97	6449
6.5	0	97	6956
7.0	0	97	7478
7.5	1	98	7971

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	47	28	39	24	51
2	32	27	37	16	33
3	21	19	24	12	16

r 1500 1.850 63

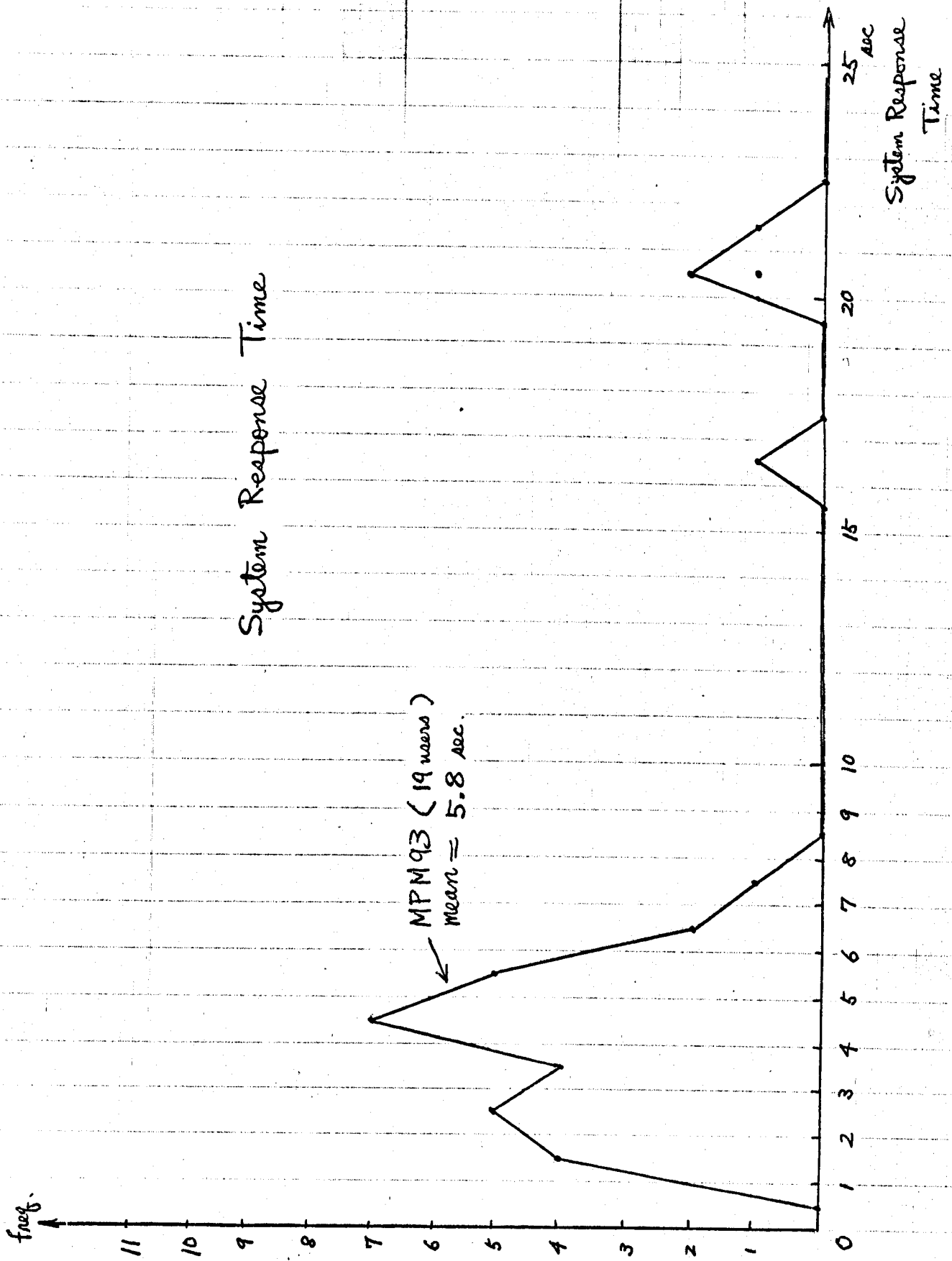


System Response Time

MPM94 (13 users)
mean = 2.5 sec.

MPM95 (25 users)
mean = 17.8 sec.

System Response Time



file

MPM96
3/24/70
users = 21
MFTN3
7.0

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	2224	2.512	192
	edm	2233	3.713	471
	fortran	2234	3.813	386
	edm	2238	2.019	320
	fortran	2239	3.363	333
	rename	2240	.865	105
	print	2240	.625	43
	a_prime\$prime	2242	2.098	139
	list	2243	.505	43
	df	2243	.842	95
	edm	2252	2.799	451
	fortran	2253	2.452	215
	edm	2258	1.962	266
	fortran	2259	2.721	265
	rename	2259	.609	76
	print	2300	.490	47
	b_prime\$prime	2301	1.748	122
	list	2302	.489	64
	df	2303	.702	54

***** 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	31.815	2322	3495	66	.482	6.2	52

(	17,843	1153	1935	33	.541	7.0	58	first half
)	13,972	1136	1560	33	.423	5.5	47	second half

Note : (1) A new command loop was installed. ✓
 (2) A fast page-fault handler was installed. ✓

MPM96

rmjnc ant	3:02.3	000100000004	760564756357	10:46.0	016101000002
????????????	37.3	001100000004	760564756377	49.7	001100000004
760564756365	2:17.3	000100000002	760564757435	8.7	000100000004
760564756411	1.4	001100000004	760564757172	7.5	001100000004
760564757254	7:08.3	001100000004	760564756477	1:58.7	200100000002
760564756463	1:01.1	001100000004	760564757542	19.2	001100000004
760564756513	3.4	001100000004	760564756743	9.0	001100000004
760564756560	45.7	001100000004	760564757020	31.0	034120000001
760564756615	19.8	001100000004	760564756660	2:35.4	000100000002
760564757576	32.4	001100000004	760564757061	31.7	001100000004 ← PDP8
760564757032	25.8	001100000004	760564757347	51.3	001100000004
760564757514	32.3	001100000004	760564757310	37.1	001100000004
760564757131	7.2	100100000000	760564757642	27.2	000100000002
760564757620		000000000000	000000000000		000000000000
000000000000					

QUIT

r 2306 5.573 244

fsm -a

Total metering time 0:43:43

Deactivations	2631
Ast grace	0:01:03
Used ASTs	327
Free ASTs	0
Held ASTs	113

	#	ATB
Faults	131943	19.882 msec.
Steps	657150	3.992 msec.
Ceiling	2	1311706.281 msec.
Laps	3168	0.828 sec.
Skip wired	13682	191.741 msec.
Skip used	384982	6.814 msec.
Skip mod	63204	41.507 msec.
Skip os	135	19432.685 msec.

172 pages, 28 wired.
Average steps 4.980

	DRUM	DSU270	DS10
Left	899	9930	3434
Reads	115956	11105	197
ATB	22.624	236.237	13316.815
Writes	55942	7295	41
ATB	46.895	359.617	63985.672
ATB I/O	15.261	142.576	11022.741
% Crcty	13	35	1
N Errors	0	0	0
F Errors	0	0	0

r 2307 1.268 51

tcm all

Total metering time 0:45:30

Ave queue length(X10) 68
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:11:45	26
Multi-prog idle	0:10:45	24
Non-multi-prog idle	0: 0:59	2
Zero idle	0: 0: 0	0

COUNTER	TOTAL	ATB
Loadings	2602	1049
Blocks	2091	1306
Wakeuprs	2107	1296
Waits	129379	21
Notifies	236786	11
Schedulings	2669	1023
Interactions	1922	1420
Pre-emptrs	155555	17

Time %Int %Cum Ave

0.0	81	81	191
0.5	10	91	703
1.0	4	95	1192
1.5	1	96	1743
2.0	1	97	2362
2.5	1	98	2727
3.0	1	99	3319
3.5	0	99	3924
4.0	0	99	4530
4.5	0	99	4968
5.0	0	99	5384
5.5	0	99	5820
6.0	0	99	6144
6.5	0	99	6771
7.0	0	99	7434
7.5	0	99	7909

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	43	17	36	13	47
2	32	16	36	9	34
3	25	11	28	6	19

r 2310 1.998 90

MPM97
 3/25/70
 # users = 28
 MFTN3
 6.0

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1643	3.842	184
	edm	1652	6.434	436
	fortran	1653	5.268	220
	edm	1658	3.124	231
	fortran	1659	5.042	260
	rename	1700	1.390	93
	print	1700	.957	46
	a_prime\$prime	1702	2.892	120
	list	1703	.889	51
	df	1703	1.417	94
	edm	1712	4.869	357
	fortran	1713	3.806	204
	edm	1718	3.105	221
	fortran	1720	4.766	269
	rename	1720	7.665	47
	print	1721	.694	32
	b_prime\$prime	1722	2.014	74
	list	1723	.680	34
	df	1724	.827	50

***** 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	48.839	2416	2839	66	.739	9.3	43

(	27.413	1196	1551	33	.830	9.5	47	first half
)	21.426	1188	1288	33	.649	9.0	39	second half

MPM97

```

rm$inc apt
777777777777 2:33.8 000100000004 760574357051 5:55.0 016101000002
760574357061 1:24.1 000100000002 760574360365 52.4 001100000004
760574357105 1:27.0 200100000002 760574357555 10.4 001100000004
PD78 -> 760574360314 1.8 + 47.0 300100000000 760574357144 56.3 234100000002
760574357156 1:12.4 200100000002 760574357172 2:47.1 000100000004
760574357663 2:17.0 100100000000 760574357232 1:05.1 000100000002
760574357250 13.6 100100000000 760574357263 2:43.5 000100000002
760574360750 6 001100000004 760574360173 37.1 001100000004
760574357367 1:42.9 014100000002 760574357407 18.1 001100000004
760574360427 48.0 300100000000 760574360014 100100000000
760574361034 20.7 000100000002 760574361216 15.6 000100000002
760574361021 27.0 001100000004 760574361142 13.3 001100000004
760574360326 38.0 034120000001 760574357776 22.0 300100000000
760574361061 29.1 001100000004 760574360072 300100000000
760574361163 85.6 001100000004 760574357737 100100000000
760574361250 9.4 001100000004 760574361073 16.1 001100000004
760574360301 1:56.8 300100000000 760574360105 35.2 200100000002
760574360117 35.0 001100000004 760574360460 38.2 034100000002
000000000000 000000000000 000000000000 000000000000
000000000000 000000000000 000000000000 000000000000
r 1728 5.124 129

```

fsm -a

Total metering time 0:42:10

```

Deactivations 2353
Ast grace 0:01:03
Used ASTs 320
Free ASTs 0
Held ASTs 125

```

	#	ATB
Faults	114440	22.113 msec.
Steps	497820	5.083 msec.
Ceiling	7	361525.138 msec.
Laps	2606	0.971 sec.
Skip wired	12000	210.889 msec.
Skip used	315262	8.027 msec.
Skip mod	56033	45.164 msec.
Skip os	85	29772.658 msec.

171 pages, 22 wired.
Average steps 4.350

	DRUM	DSU270	DS10
Left	986	9732	3528
Reads	102116	9368	553
ATB	24.782	270.140	4576.267
Writes	50309	5912	96
ATB	50.302	428.057	26361.208
ATB I/O	16.602	165.620	3899.346
% Crcty	12	30	5
N Errors	0	2	0
F Errors	0	0	0

r 1730 1.3774 377

tcm all

Total metering time 0:44: 9

Ave queue length(X10) 117
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0: 6: 5	14
Multi-prog idle	0: 6: 5	14
Non-multi-prog idle	0: 0: 0	0
Zero idle	0: 0: 0	0

COUNTER	TOTAL	ATB
Loadings	2399	1104
Blocks	1936	1368
Wakeups	1939	1366
Waits	110719	23
Notifies	209866	12
Schedulings	2481	1067
Interactions	1730	1531
Pre-empts	69824	37

Time	%Int	%Cum	Ave
0.0	62	62	281
0.5	18	80	717
1.0	9	89	1249
1.5	5	94	1730
2.0	1	95	2325
2.5	1	96	2776
3.0	1	97	3362
3.5	1	98	3892
4.0	0	98	4259
4.5	1	99	4872
5.0	0	99	5364
5.5	0	99	5730
6.0	0	99	6344
6.5	0	99	6909
7.0	0	99	7458
7.5	0	99	7913

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	43	22	38	18	47
2	33	21	36	14	34
3	24	16	25	11	19

r 1732 1.825 50

MPM98
3/27/70
users = 28

MFTN3

6.0

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1132	2.772	72
	edm	1141	4.780	279
	fortran	1142	4.780	169
	edm	1147	2.210	142
	fortran	1148	4.708	214
	rename	1149	.926	46
	print	1149	.911	42
	a_prime\$prime	1151	2.261	75
	list	1151	.718	30
	df	1152	.999	54
	edm	1201	3.374	239
	fortran	1202	3.244	120
	edm	1206	1.843	124
	fortran	1207	3.649	168
	rename	1208	.481	33
	print	1208	.485	21
	b_prime\$prime	1210	1.621	72
	list	1210	.347	19
	df	1211	.578	32

***** 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	27.837 37.915	1879 2293	1879 1879	66	535 .575	5.4	27 28

	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
(22.293	1152	1051	33	.676	6.8	31 first half	30	
15.622	1108	828	33	.473	4.1	25 second half	25	

Note (1) The core size was 384 K words.

rm\$inc apt 777777777777	1:40.7	001100000004	760616130562	4:00.6	016101000002
760616132407	26.1	001100000004	760616130602	1:06.4	001100000004
760616132215		100100000000	760616132513	1:04.0	001100000004
760616130640	3:44.9	001100000004	760616133204	85.2	001100000004
760616132072	1:36.3	001100000004	760616130704	5:06.3	000100000004
760616130722	1:03.7	001100000004	760616130734	2:00.4	000100000004
760616132713	62:76.4	100100000000	760616130765	3:35.6	001100000004
760616132540	1:57.3	001100000004	760616131032	37.0	001100000004
760616131452	30.8	001100000004	760616131064	23.7	001100000004
760616132154	1:08.6	001100000004	760616131773	26.1	001100000004
760616131207	6	001100000004	760616132612	37.2	001100000004 ← PDPS
760616132572	28.8	034120000001	760616133157	62:64.0	001100000004
760616132044	13.9	001100000004	760616132305	28.6	100100000000
760616133056	86.5	001100000004	760616131526	6.9	100100000000
760616131643	1:36.1	001100000004	760616131723		001100000004
760616131735	6	100100000000	760616132233	14.1	100100000000
760616132726	6.7	300100000000	760616133171	61:78.5	001100000004
000000000000		000000000000	000000000000		000000000000

QUIP
r 1214 .214 9

fsm -a

Total metering time 0:42:56

Deactivations 1327
Ast grace 0:01:58
Used ASTs 361
Free ASTs 0
Held ASTs 121

	#	ATB
Faults	69912	36.852 msec.
Steps	262732	9.806 msec.
Ceiling	0	
Laps	760	3.390 sec.
Skip wired	2938	876.927 msec.
Skip used	151203	17.039 msec.
Skip mod	38676	66.615 msec.
Skip os	3	853804.461 msec.

296 pages, 22 wired.
Average steps 3.758

	DRUM	DSU270	DS10
Left	1168	9502	3334
Reads	60421	7116	62
ATB	42.641	362.059	41555.054
Writes	35234	4256	11
ATB	73.122	605.360	234219.398
ATB I/O	26.934	226.557	35293.334
% Cncty	7	22	0
N Errors	25	0	0
F Errors	0	0	0

r 1215 1.195 29

tcm all

Total metering time 0:44:29

Ave queue length(X10) 33
 Max eligible 3
 Te first (seconds) 2
 Te last (seconds) 2
 Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0: 4:46	11
Multi-prog idle	0: 2:33	6
Non-multi-prog idle	0: 0:58	2
Zero idle	0: 1:14	3

with 28 users

COUNTER	TOTAL	ATB
Loadings	3092	863
Blocks	2524	1057
Wakeups	2521	1058
Waits	63775	41
Notifies	138001	19
Schedulings	3162	844
Interactions	2358	1132
Pre-empts	44246	60

Time	%Int	%Cum	Ave
0.0	78	78	208
0.5	11	89	718
1.0	4	93	1239
1.5	2	95	1781
2.0	1	96	2270
2.5	1	97	2746
3.0	1	98	3315
3.5	0	98	3864
4.0	0	98	4287
4.5	0	98	4838
5.0	0	98	5355
5.5	0	98	6067
6.0	0	98	6223
6.5	0	98	6708
7.0	0	98	7450
7.5	1	99	7903

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	51	44	42	37	62
2	31	32	37	18	27
3	17	24	21	14	11

r 1217 1.566 39

MPM99
 3/29/70
 # users = 8~9
 MFTN3
 7.0a

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1722	1.900	80
	edm	1731	3.087	328
	fortran	1732	3.008	193
	edm	1736	1.457	241
	fortran	1737	2.851	260
	rename	1738	.632	56
	print	1738	.591	44
	a_prime\$prime	1740	1.938	135
	list	1740	.388	24
	df	1741	.637	63
	edm	1750	1.574	151
	fortran	1750	1.920	144
	edm	1755	.944	92
	fortran	1756	2.070	158
	rename	1756	.320	39
	print	1757	.358	27
	b_prime\$prime	1758	1.133	57
	list	1759	.281	27
	df	1800	.455	50

***** 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	25.100 23.644	2087 2155	2087 2089	66	254 .358	2.2	50 31

(	14.589	1088	1344	33	.442	2.8	40	first half
	9.055	1034	745	33	.274	1.6	22	second half

MPM99

rn\$inc apt					
7777777777777	46.0	000100000004	760641004603	28:31.6	016101000002
760641004611	1:47.6	001100000004	760641004630	12.9	000100000004
760641004644	34.9	000100000004	760641006264		300100000000
760641007546	81.5	001100000004	760641007317	9.4	001100000004
760641007357	21.3	034120000001	760641007414	8.3	001100000004
760641007641	72.1	001100000004	760641007276		300100000000
760641007235	2:15.4	001100000004	760641006405		100100000000
000000000000		000000000000	000000000000		000000000000
000000000000		000000000000	000000000000		000000000000

QUIT

r 1801 3.304 51

?sm -a

Total metering time 0:39:40

Deactivations	84
Ast grace	-6:-7:-20
Used ASTs	348
Free ASTs	7
Held ASTs	57

	#	ATB
Faults	20776	114.563 msec.
Steps	94501	25.186 msec.
Ceiling	0	
Laps	506	4.703 sec.
Skip wired	2592	918.274 msec.
Skip used	62330	38.186 msec.
Skip mod	8803	270.381 msec.
Skip os	0	msec.

172 pages, 16 wired.
Average steps 4.548

	DRUM	DSU270	DS10
Left	1909	9704	3367
Reads	18061	1489	1
ATB	131.784	1598.501	2380168.771
Writes	8069	823	0
ATB	294.976	2892.064	
ATB I/O	91.089	1029.484	2380168.771
% Cpcty	2	4	0
N Errors	0	0	0
F Errors	0	0	0

r 1802 .918 19

tcm all

Total metering time 0:41:11

Ave queue length(X10) 10
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	0:30:49	75
Multi-prog idle	0: 0:13	1
Non-multi-prog idle	0: 4:55	12
Zero idle	0:25:40	62

COUNTER	TOTAL	ATB
Loadings	1044	2367
Blocks	959	2576
Wakeups	948	2606
Waits	19342	127
Notifies	39774	62
Schedulings	1154	2141
Interactions	900	2745
Pre-empts	32959	74

Time	%Int	%Cum	Ave
0.0	87	87	106
0.5	5	92	718
1.0	1	93	1204
1.5	1	94	1826
2.0	1	95	2254
2.5	1	96	2842
3.0	0	96	3156
3.5	0	96	3695
4.0	0	96	4338
4.5	0	96	5118
5.0	1	97	5364
5.5	0	97	5774
6.0	0	97	6144
6.5	0	97	6656
7.0	0	97	7306
7.5	1	98	7893

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	77	34	71	22	83
2	18	26	24	12	15
3	4	15	5	7	2

r 1804 1.111 21

MPM100
 3/30/70
 # users = 21
 MFTN3
 7.0a

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

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1442	2.528	193
	edm	1451	3.890	463
	fortran	1452	3.483	291
	edm	1457	1.818	264
	fortran	1458	3.054	288
	rename	1459	.858	96
	print	1459	.867	99
	a_prime\$prime	1501	2.030	124
	list	1501	.571	77
	df	1502	.699	74
	edm	1511	2.778	427
	fortran	1512	2.111	179
	edm	1516	1.579	232
	fortran	1517	2.058	147
	rename	1518	.449	73
	print	1518	.346	19
	b_prime\$prime	1520	1.365	81
	list	1520	.275	28
	df	1521	.490	51

***** 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	<u>28,721</u>	<u>2298</u>	<u>3013</u>	66	<u>.436</u>	<u>5.2</u>	<u>45</u>

(	17.270	1167	1776	33	.523	6.5	53	first half)
	11.451	1098	1237	33	.347	3.8	37	second half	

MPM100

```

rm:inc apt
???????????????? 18:52.1 000100000004 760654013054 211:32.9 016101000002
760654013165 29:42.0 214100000002 760654013074 10:36.2 200100000002
760654017536 47.0 001100000004 760654013215 16:25.6 000100000004
PPIS→ 760654020102 30.8 001100000004 760654020272 8.9 001100000004
760654013710 50.9 100100000000 760654020026 50.7 001100000004
760654020304 1:18.1 001100000004 760654014777 1:10.8 100100000000
760654020357 25.6 001100000004 760654020465 14.8 001100000004
760654020144 18.7 001100000004 760654020013 1:21.5 001100000004
760654016255 4:22.8 001100000004 760654017330 45.7 014100000002
760654020525 5.4 034120000001 760654017663 2:23.4 001100000004
760654020200 1:17.8 200100000002 760654020477 8.5 001100000004
760654020440 8.7 200140000002 760654014561 1:00.5 300100000000
760654020423 16.1 001100000004 760654017522 1:57.6 001100000004
760654016642 16.3 001100000004 760654017073 1:19.4 100100000000
000000000000 000000000000 000000000000 000000000000
  
```

QUIT

r 1523 .218 23

fsm -a

Total metering time 6:04:38

```

Deactivations      8768
Ast grace          -6:-5:-56
Used ASTs           331
Free ASTs           0
Held ASTs           105
  
```

	#	ATB
Faults	674062	32.457 msec.
Steps	3044905	7.185 msec.
Ceiling	72	303869.109 msec.
Laps	16278	1.344 sec.
Skip wired	90087	242.860 msec.
Skip used	1972940	11.089 msec.
Skip mod	306881	71.293 msec.
Skip os	935	23399.546 msec.

172 pages, 22 wired.
Average steps 4.517

	DRUM	DSU270	DS10
Left	1288	8867	3850
Reads	588340	62590	3313
ATB	37.186	349.553	6603.856
Writes	270796	36634	302
ATB	80.793	597.220	72445.615
ATB I/O	25.465	220.496	6052.164
% Cpcy	7	22	3
N Errors	1	3	3
F Errors	0	0	0

r 1524 1.652 124

tcm all

Total metering time 6: 2:48

Ave queue length(X10) 63
Max eligible 3
Te first (seconds) 2
Te last (seconds) 2
Ti max (seconds) 8

IDLE TYPE	TIME	%
Total idle	2:12: 8	36
Multi-prog idle	0:43:22	12
Non-multi-prog idle	0:30:55	9
Zero idle	0:57: 9	16

COUNTER	TOTAL	ATB
Loadings	16607	1310
Blocks	13214	1647
Wakeups	13170	1652
Waits	639479	34
Notifies	1176794	18
Schedulings	17704	1229
Interactions	11981	1816
Pre-empts	817819	26

Time %Int %Cum Ave

0.0	82	82	152
0.5	9	91	728
1.0	3	94	1254
1.5	2	96	1795
2.0	1	97	2327
2.5	1	98	2780
3.0	0	98	3336
3.5	0	98	3785
4.0	0	98	4375
4.5	0	98	4876
5.0	0	98	5347
5.5	0	98	5871
6.0	0	98	6246
6.5	0	98	6981
7.0	0	98	7433
7.5	1	99	7924

DEPTH	%PF	TBPF	%GTW	TBS	%CPU
1	50	25	41	18	58
2	30	21	35	11	29
3	20	14	24	7	13

r 1526 1.512 86

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	3.586	295
	fortran	1119	3.125	147
	edm	1123	1.481	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	.481	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.
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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>
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(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

rm\$inc apt					
7777777777777	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

fsn -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
% Cncty	7	30	0
N Errors	0	1	1
F Errors	0	0	0

r 1149 1.020 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
 Tl 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	1597
Wakeups	1619	1554
Waits	62922	40
Notifies	140528	17
Schedulings	3197	787
Interactions	1419	1773
Pre-empt	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