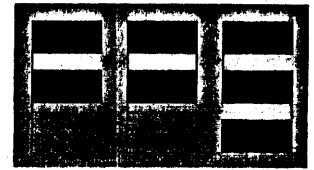


AP-120B FLOATING POINT ARRAY PROCESSOR  
FFT Times in milliseconds



FLOATING POINT  
SYSTEMS, INC.

FAST AP-120B MEMORY (167 NS CYCLE)

	POINTS	BIT- REVERSE	FFT TIME	TOTAL TIME (MEMORY SIZE)		BENCHMARK PROBLEM	
				N	2N	TIME	THRUPUT (KHZ)
R E A L	64.	3.84	0.14	0.18	0.14	0.33	195.60
	128.	0.00	0.27	0.35	0.27	0.63	204.29
	256.	0.10	0.58	0.74	0.58	1.36	188.06
	512.	0.30	1.20	1.50	1.20	2.78	184.45
	1024.	0.60	2.70	3.30	2.70	6.17	165.93
	2048.	1.20	5.61	6.81	5.61	12.75	160.59
	4096.	2.40	12.56	14.95	12.56	29.20	145.25
	8192.	4.79	26.89	30.89	26.89	58.28	140.57
	16384.	9.56	57.63	67.19	57.63	127.56	128.44
	32768.	19.12	119.30	138.42	119.30	262.92	124.63
C O M P L E X	64.	0.00	0.20	0.20	0.20	0.50	128.14
	128.	0.16	0.47	0.62	0.47	1.13	113.57
	256.	0.30	0.97	1.28	0.97	2.33	110.00
	512.	0.60	2.26	2.86	2.26	5.29	96.71
	1024.	1.20	4.75	5.95	4.75	11.82	92.93
	2048.	2.40	10.83	13.23	10.83	24.75	82.74
	4096.	4.78	22.66	27.44	22.66	51.48	79.69
	8192.	9.56	50.76	60.33	50.76	113.83	71.97
	16384.	19.12	105.58	124.70	105.58	235.48	63.59
	32768.	38.24	233.88	271.32	233.88	515.24	63.60

STANDARD AP-120B MEMORY (333 NS CYCLE)

	POINTS	BIT- REVERSE	FFT TIME	TOTAL TIME (MEMORY SIZE)		BENCHMARK PROBLEM	
				N	2N	TIME	THRUPUT (KHZ)
R E A L	64.	0.06	0.20	0.27	0.20	0.52	124.24
	128.	0.12	0.38	0.50	0.38	0.97	131.66
	256.	0.23	0.90	1.13	0.90	2.22	115.11
	512.	0.45	1.76	2.22	1.76	4.38	116.90
	1024.	0.90	4.18	5.08	4.18	10.07	101.73
	2048.	1.80	8.32	10.12	8.32	20.85	102.13
	4096.	3.59	19.37	22.96	19.37	45.54	83.93
	8192.	7.17	38.69	45.86	38.69	91.00	90.82
	16384.	14.34	88.36	102.70	88.36	204.00	80.31
	32768.	28.68	176.68	205.35	176.68	407.91	80.33
C O M P L E X	64.	0.12	0.28	0.40	0.28	0.78	82.00
	128.	0.23	0.72	0.95	0.72	1.36	68.85
	256.	0.45	1.41	1.86	1.41	3.67	63.76
	512.	0.90	3.43	4.38	3.48	9.67	59.88
	1024.	1.80	6.93	8.73	6.93	17.27	59.28
	2048.	3.59	16.60	20.19	16.60	40.01	51.19
	4096.	7.17	33.16	40.33	33.16	79.94	51.24
	8192.	14.34	77.31	91.66	77.31	181.90	45.23
	16384.	28.68	154.59	193.27	154.59	363.73	45.84
	32768.	57.35	353.29	410.64	353.29	815.74	40.17

NOTE 1 : BY DOUBLING MEMORY SIZE, BIT-REVERSE IS HIDDEN IN FFT PROCESSING TIME.  
NOTE 2 : BENCHMARK PROBLEM CONSISTS OF FFT, COMPLEX VECTOR MULTIPLY (FILTER),  
INVERSE FFT, PLUS I/O TIME. TIMES EFFECTIVE AS OF JUNE 1, 1976.

COMPLEX FFTS ON THE AP-120B

TRANSFORM SIZE	BUFFER SIZE	TIME IN MILLISECONDS (INCLUDES BIT-REVERSE)	
		FAST MEMORY	STANDARD MEMORY
64.	256.	0.20	0.28
64.	128.	0.28	0.40
128.	512.	0.47	0.72
128.	256.	0.62	0.95
256.	1024.	0.97	1.41
256.	512.	1.28	1.86
512.	2048.	2.26	3.48
512.	1024.	2.86	4.38
1024.	4096.	4.75	6.93
1024.	2048.	5.95	8.73
2048.	8192.	10.83	16.60
2048.	4096.	13.23	20.19
4096.	16384.	22.66	33.16
4096.	8192.	27.44	40.33
8192.	32768.	50.76	77.31
8192.	16384.	60.33	91.66
16384.	65536.	105.58	154.59
16384.	32768.	124.70	183.27
32768.	131072.	233.08	353.29
32768.	65536.	271.32	410.64

REAL FFTS ON THE AP-120B

TRANSFORM SIZE	BUFFER SIZE	TIME IN MILLISECONDS (INCLUDES BIT-REVERSE)	
		FAST MEMORY	STANDARD MEMORY
64.	128.	0.14	0.20
64.	64.	0.18	0.27
128.	256.	0.27	0.38
128.	128.	0.35	0.50
256.	512.	0.58	0.90
256.	256.	0.74	1.13
512.	1024.	1.20	1.76
512.	512.	1.50	2.22
1024.	2048.	2.70	4.18
1024.	1024.	3.30	5.08
2048.	4096.	5.61	8.32
2048.	2048.	6.81	10.12
4096.	8192.	12.56	19.37
4096.	4096.	14.95	22.96
8192.	16384.	26.09	38.69
8192.	8192.	30.88	45.86
16384.	32768.	57.63	88.36
16384.	16384.	67.19	102.70
32768.	65536.	119.30	176.68
32768.	32768.	138.42	205.35