

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
101	1	01		JOB	1401 FORTRAN SNAPSHOT ROUTINE								
102			*										
103			*		THIS IS GARY MOKOTOFFS V3M4 PHASE 59ABC. IT IS ALWAYS USED AS								
104			*		CARD IMAGES BECAUSE IT'S USED TO PUNCH THE CONDENSED DECK.								
105			*		IT'S NOT LOADED AS PART OF THE COMPILER.								
106			*										
107				EXT00	SNAPSH, LOADNX, CDOVLY					MACRO			
108				SNAPSH EQU	333			0333		GEN			
109				PHASLD EQU	381			0381		GEN			
110				SNAPEX EQU	564			0564		GEN			
111				LOADNX EQU	700			0700		GEN			
112				CDOVLY EQU	700			0700		GEN			
113				TPREAD EQU	704			0704		GEN			
114				TPERR EQU	728			0728		GEN			
115				EXT03	START, TOP OF PHASE 4					MACRO			
116				BEGIN3 EQU	838			0838		GEN			
117				TOP3 EQU	2600			2600		GEN			
118			*										
119	1	02		CTL	644 11								
120	1	03		SFX	#								
121	1	04	XXX	EQU	0	#		0000					
122	1	05	XL1	EQU	089	#		0089					
123	1	06	XL2	EQU	094	#		0094					
124	1	07	XL3	EQU	099	#		0099					
125	1	08	PARAM	EQU	686	#		0686					
126			*		SIGNAL FOR THE TAPE GENERATOR								
127				110	DCW @]]]]] 59ABC@ ALL 11-5-8 FIRST CARD	#	12	0110			1		
128			*										
129	1	09		ORG	333	#			0333				
130	1	10		SBR	PRTXT&3	#	4	0333	H 567		2	567	
131	1	11		SBR	HLDXT&6	#	4	0337	H 408		2	408	
132	1	12		MCW	@000@,LINCT-2	#	7	0341	M 661 656		2	661	656
133	1	13		MCW	XL3, HLD32&6	#	7	0348	M 099 415		2	099	415
134	1	14		MCW	XL1, HLD31&6	#	7	0355	M 089 422		2	089	422
135	1	15		SBR	XL1, 1	#	7	0362	H 089 001		2	089	001
136	1	16		SBR	XL3, 202	#	7	0369	H 099 202		3	099	202
137	1	17		CS	332	#	4	0376	/ 332		3	332	
138	1	18		CS		#	1	0380	/		3		
139	1	19		NOP	110,210	#	7	0381	N 110 210		3	110	210
140	1	20		BSS	ONLY,F	#	5	0388	B 621 F		3	621	
141	1	21		CC	1	#	2	0393	F 1		3		
142	1	22		MCW	094,250	#	7	0395	M 094 250		3	094	250
143	1	23	HLDXT	SBR	216,XXX	#	7	0402	H 216 000		4	216	000
144	1	24	HLD32	SBR	256,XXX	#	7	0409	H 256 000		4	256	000
145	1	25	HLD31	SBR	244,XXX	#	7	0416	H 244 000		4	244	000
146	1	26		W		#	1	0423	2		4		
147	1	27		CC	K	#	2	0424	F K		4		
148	1	28		ZA	&2,PGCTR#2	#	7	0426	? 662 664		4	662	664
149	1	29	NULINE	CS	332	#	4	0433	/ 332		4	332	
150	1	30		CS		#	1	0437	/		5		

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
151	1	31		CC	J	#	2	0438	F J		5		
152	1	32		MCW	LINCT,306	#	7	0440	M 658 306		5	658	306
153	1	33		MCW		#	1	0447	M		5		
154	1	34		SBR	MVHED&6	#	4	0448	H 465		5	465	
155	1	35		MCW	@9@, CTR-1	#	7	0452	M 665 668		5	665	668
156	1	36	MVHED	MCW	CTR-1,XXX	#	7	0459	M 668 000		5	668	000
157	1	37		MCW	HEAD	#	4	0466	M 651		6	651	
158	1	38		SBR	MVHED&6	#	4	0470	H 465		6	465	
159	1	39		A	@I0@, CTR#2	#	7	0474	A 667 669		6	667	669
160	1	40		BWZ	MVHED, CTR-1, 2	#	8	0481	V 459 668 2		6	459	668
161	1	41		A	&1,LINCT-2	#	7	0489	A 670 656		6	670	656
162	1	42		W		#	1	0496	2		6		
163	1	43	LOOP	SW	0&X3	#	4	0497	, 0?0		6	000+3	
164	1	44		MCW	0&X1,0&X3	#	7	0501	M 0|0 0?0		7	000+1	000+3
165	1	45		BW	CMPAB,0&X1	#	8	0508	V 520 0|0 1		7	520	000+1
166	1	46		CW	0&X3	#	4	0516	) 0?0		7	000+3	
167	1	47	CMPAB	C	XL1,PARAM&2	#	7	0520	C 089 688		7	089	688
168	1	48		BU	CPL	#	5	0527	B 568 /		7	568	
169	1	49		W		#	1	0532	2		7		
170	1	50		WM		#	2	0533	2)		7		
171	1	51	RSTRX	MCW	HLD31&6,XL1	#	7	0535	M 422 089		8	422	089
172	1	52		MCW	HLD32&6,XL3	#	7	0542	M 415 099		8	415	099
173	1	53		CS	332	#	4	0549	/ 332		8	332	
174	1	54		CS		#	1	0553	/		8		
175	1	55		BSS	*&5,G	#	5	0554	B 563 G		8	563	
176	1	56		B	PRTXT	#	4	0559	B 564		8	564	
177	1	57		H		#	1	0563	.		8		
178	1	58	PRTXT	H	0	#	4	0564	. 000		9	000	
179	1	59	CPL	SBR	XL1, 1&X1	#	7	0568	H 089 0|1		9	089	001+1
180	1	60		BCE	INC, XL3-2, 2	#	8	0575	B 632 097 2		9	632	097
181	1	61		SBR	XL3, 201	#	7	0583	H 099 201		9	099	201
182	1	62		W		#	1	0590	2		9		
183	1	63		WM		#	2	0591	2)		9		
184	1	64		A	&1,PGCTR	#	7	0593	A 670 664		9	670	664
185	1	65		C	PGCTR,&15	#	7	0600	C 664 672		10	664	672
186	1	66		BU	NULINE	#	5	0607	B 433 /		10	433	
187	1	67		S	PGCTR	#	4	0612	S 664		10	664	
188	1	68		CCB	NULINE,1	#	5	0616	F 433 1		10	433	
189	1	69	ONLY	MCW	@EXECUTED@,220	#	7	0621	M 680 220		10	680	220
190	1	70		W	RSTRX	#	4	0628	2 535		10	535	
191	1	71	INC	A	&1,XL3	#	7	0632	A 670 099		10	670	099
192	1	72		B	LOOP	#	4	0639	B 497		11	497	
193	1	73	HEAD	DCW	@9.....@	#	9	0651			11		
194	1	74		DCW	@9-@	#	2	0653			11		
195	1	75	LINCT	DCW	00000	#	5	0658			11		
196	1	76		LTORG	*	#			0659				
				DCW	@000@	#	3	0661		LIT	11		
				DCW	&2	#	1	0662		LIT	11		
			PGCTR#	DCW	#02	#	2	0664		AREA	11		
				DCW	@9@	#	1	0665		LIT	12		

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
				DCW	@I0@	#	2	0667		LIT	12		
			CTR #	DCW	#02	#	2	0669		AREA	12		
				DCW	&1	#	1	0670		LIT	12		
				DCW	&15	#	2	0672		LIT	12		
				DCW	@EXECUTED@	#	8	0680		LIT	12		
197	1	77		XFR	0	#			B 001		13	001	

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
198	1	78		JOB	1401 FORTRAN FIXED XLINK ROUTINE								
199	1	79		ORG	333	#			0333				
200	1	80		H	333	#	4	0333	. 333		14	333	
201	1	81	START	MCW	86,XL2	#	7	0337	M 086 094		14	086	094
202	1	82		CS	80	#	4	0344	/ 080		14	080	
203	1	83		BCE	ARRAY,0&X2,\$	#	8	0348	B 585 0!0 \$		14	585	000+2
204	1	84	CLEAR	CS	000	#	4	0356	/ 000		14	000	
205	1	85		SBR	ADR3	#	4	0360	H 359		14	359	
206	1	86		C	ADR3,@699@	#	7	0364	C 359 645		14	359	645
207	1	87		BU	CLEAR	#	5	0371	B 356 /		15	356	
208	1	88		SW	ACCHI-5&X3	#	4	0376	, 2G4		15	274+3	
209	1	89		MZ	ACCHI&X3,FIELD	#	7	0380	Y 2G9 642		15	279+3	642
210	1	90		C	FIELD,ACCHI&X3	#	7	0387	C 642 2G9		15	642	279+3
211	1	91		BE	CARDS	#	5	0394	B 603 S		15	603	
212	1	92		BM	GETM,ACCHI&X3	#	8	0399	V 620 2G9 K		15	620	279+3
213	1	93		MZ	ZERO,ACCHI&X3	#	7	0407	Y 637 2G9		16	637	279+3
214	1	94		C	699,ACCHI&X3	#	7	0414	C 699 2G9		16	699	279+3
215	1	95		BE	GETM	#	5	0421	B 620 S		16	620	
216	1	96		SW	22	#	4	0426	, 022		16	022	
217	1	97		MCW	GM,22	#	7	0430	M 680 022		16	680	022
218	1	98	SERCH	RT	1,1	#	8	0437	M %U1 001 R		16	%U1	001
219	1	99		BEF	OUT	#	5	0445	B 478 K		17	478	
220	2	00		C	10,@LIB@	#	7	0450	C 010 648		17	010	648
221	2	01		BU	SERCH	#	5	0457	B 437 /		17	437	
222	2	02		C	17,ACCHI&X3	#	7	0462	C 017 2G9		17	017	279+3
223	2	03		BE	T1	#	5	0469	B 498 S		17	498	
224	2	04		B	SERCH	#	4	0474	B 437		17	437	
225	2	05	OUT	NOF	CARDS	#	4	0478	N 603		17	603	
226	2	06		MCW	TPERM,OUT	V3M4 #	7	0482	M 581 478		18	581	478
227	2	07		RWD	1	#	5	0489	U %U1 R		18	%U1	
228	2	08		B	SERCH	#	4	0494	B 437		18	437	
229	2	09	T1	LCA	ZEROS,101	#	7	0498	L 641 101		18	641	101
230	2	10		LCA	ZEROS	#	4	0505	L 641		18	641	
231	2	11		LCA	ZEROS	#	4	0509	L 641		18	641	
232	2	12		RTW	1,333	#	8	0513	L %U1 333 R		18	%U1	333
233	2	13		BER	ERR	#	5	0521	B 557 L		19	557	
234	2	14		MCW	ZERO,CTRR	#	7	0526	M 637 641		19	637	641
235	2	15		SBR	TPERM-1,T2	#	7	0533	H 580 540		19	580	540
236	2	16	T2	RTW	1,700	#	8	0540	L %U1 700 R		19	%U1	700
237	2	17		BER	ERR	#	5	0548	B 557 L		19	557	
238	2	18	TBOOT	B	000	#	4	0553	B 000		19	000	
239	2	19	ERR	A	ONE,CTRR	#	7	0557	A 679 641		20	679	641
240	2	20		BCE	TPERM,CTRR,9	#	8	0564	B 581 641 9		20	581	641
241	2	21		BSP	1	#	5	0572	U %U1 B		20	%U1	
242	2	22		B	T1	#	4	0577	B 498		20	498	
243	2	23	TPERM	H	TPERM	#	4	0581	. 581		20	581	
244	2	24	ARRAY	MCW	3&X2,ADR3	#	7	0585	M 0!3 359		20	003+2	359
245	2	25		MZ	ZERO,ADR3-1	#	7	0592	Y 637 358		21	637	358
246	2	26		B	CLEAR	#	4	0599	B 356		21	356	
247	2	27	CARDS	SW	1	#	4	0603	, 001		21	001	

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
248	2	28		R		#	1	0607	1		21		
249	2	29		BCE	1,1,,	#	8	0608	B 001 001 ,		21	001	001
250	2	30		B	CARDS	#	4	0616	B 603		21	603	
251	2	31	GETM	RWD	1	#	5	0620	U %U1 R		21	%U1	
252	2	32		RTW	1,1	#	8	0625	L %U1 001 R		22	%U1	001
253	2	33		B	1 EXECUTE MONITOR PROGRAM	#	4	0633	B 001		22	001	
254	2	34	ADR3	EQU	CLEAR&3	#		0359					
255	2	35	FIELD	DCW	@000000@	#	6	0642			22		
256	2	36	ZEROS	EQU	FIELD-1	#		0641					
257	2	37	ZERO	EQU	ZEROS-4	#		0637					
258	2	38	CTRR	EQU	ZEROS	#		0641					
259	2	39	ACCHI	EQU	279	#		0279					
260	2	40	ONE	EQU	679	#		0679					
261	2	41	GM	EQU	680	#		0680					
262	2	42		LTORG	*	#			0643				
				DCW	@699@	#	3	0645		LIT	22		
				DCW	@LIB@	#	3	0648		LIT	22		
263	2	43		ORG	679	#			0679				
264	2	44		DCW	@1}@	#	2	0680			23		
265	2	45		XFR	0	#			B 001		24	001	

GROUP MARK IN 680

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
266	2	46		JOB	1401 FORTRAN ARITH AND RELOCATABLE ROUTINES								
267	2	47	*										
268	2	48		SFX	B								
269	2	49	*										
270	2	50		XINIT	XL1, XL2, XL3, , , , XXXX					MACRO			
271			XXX	EQU	0	B		0000		GEN			
272			XL1	EQU	089	B		0089		GEN			
273			089	DCW	000	B	3	0089		GEN	25		
274			091	DC	00	B	2	0091		GEN	25		
275			XL2	EQU	094	B		0094		GEN			
276			094	DCW	000	B	3	0094		GEN	25		
277			096	DC	00	B	2	0096		GEN	25		
278			XL3	EQU	099	B		0099		GEN			
279			099	DCW	000	B	3	0099		GEN	25		
280			100	DC	0	B	1	0100		GEN	25		
281	2	51	*										
282	2	52		XNMBR						MACRO			
283			X1	EQU	089	B		0089		GEN			
284			X2	EQU	094	B		0094		GEN			
285			X3	EQU	099	B		0099		GEN			
286	2	53	*										
287	2	54	WKZON	EQU	200	B		0200					
288	2	55	TOP	EQU	WKZON&1	B		0201					
289	2	56	SPOT	EQU	WKZON&50	B		0250					
290	2	57	ACCHI	EQU	WKZON&79	B		0279					
291	2	58	*										
292	2	59		ORG	700	B		0700					
293	2	60	*										
294	2	61	*		ARITHMETIC ROUTINE MONITOR								
295	2	62	*										
296	2	63	ARITF	SBR	X2	B	4	0700	H 094		26	094	
297	2	64		SBR	086	B	4	0704	H 086		26	086	
298	2	65		SBR	STMNM&6	B	4	0708	H V06		26	1506	
299	2	66	ARITH	MCW	2&X2, X1	B	7	0712	M 0!2 089		26	002+2	089
300	2	67		SAR	ALGRT&6	B	4	0719	Q 765		26	765	
301	2	68	SBBR1	SBR	BRWHR&6	B	4	0723	H S27		26	1227	
302	2	69		BCE	STSUB, 0&X2, \$	B	8	0727	B S06 0!0 \$		26	1206	000+2
303	2	70		SBR	OUT2&6, 0&X1	B	7	0735	H T75 0!0		27	1375	000+1
304	2	71		CS	WKZON&103	B	4	0742	/ 303		27	303	
305	2	72		CS		B	1	0746	/		27		
306	2	73		CS		B	1	0747	/		27		
307	2	74		LCA	@0@, ACCHI&1	B	7	0748	L W85 280		27	1685	280
308	2	75	CLR X	S	X1&2	B	4	0755	S 091		27	091	
309	2	76	ALGRT	SBR	XL2, XXX	B	7	0759	H 094 000		27	094	000
310	2	77		C	4&X2, @#@	B	7	0766	C 0!4 W86		28	004+2	1686
311	2	78		MCW	4&X2, SIGNF	B	7	0773	M 0!4 924		28	004+2	924
312	2	79		SW	TOP	B	4	0780	, 201		28	201	
313	2	80	EXIT	BL	QFUNCT	B	5	0784	B T05 T		28	1305	
314	2	81		SBR	NGBMP&6, 4&X2	B	7	0789	H 874 0!4		28	874	004+2
315	2	82		BCE	OPDSC, 5&X2, \$	B	8	0796	B /99 0!5 \$		28	1199	005+2

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
316	2	83		MCW	7&X2, XL1	B	7	0804	M 0!7 089		29	007+2	089
317	2	84		SAR	ALGRT&6	B	4	0811	Q 765		29	765	
318	2	85	SBBR2	BWZ	XSIZE,X1-1,K	B	8	0815	V V30 088 K		29	1530	088
319	2	86		BWZ	XSIZE,X1-1,S	B	8	0823	V V30 088 S		29	1530	088
320	2	87	*										
321	2	88	*		FLOAT ARITHMETIC								
322	2	89	*										
323	*2	90	FSIZE	SBR	X3,XXX	B	7	0831	H 099 000		29	099	000
324	2	91		CW	FIXSW#1	B	4	0838	) W87		29	1687	
325	2	92		MCW	0&X1,EXPB	B	7	0842	M 0|0 W82		30	000+1	1682
326	2	93		SAR	XL1	B	4	0849	Q 089		30	089	
327	2	94		MCW	0&X1,SPOT	B	7	0853	M 0|0 250		30	000+1	250
328	2	95		SBR	XL2	B	4	0860	H 094		30	094	
329	2	96		LCA	@0@	B	4	0864	L W85		30	1685	
330	2	97	NGBMP	BW	*&8,0	B	8	0868	V 883 000 1		30	883	000
331	2	98		MZ	SPOT, NSIGN	B	7	0876	Y 250 |87		31	250	1087
332	2	99		S	@0@,SPOT&2&X3	B	7	0883	S W85 2E2		31	1685	252+3
333	3	00		C	1&X2, @0@	B	7	0890	C 0!1 W85		31	001+2	1685
334	3	01		A	XL3, XL2	B	7	0897	A 099 094		31	099	094
335	3	02		BCE	FDIV, CODE, /	B	8	0904	B S33 924 /		31	1233	924
336	3	03		BCE	FMPY, CODE, *	B	8	0912	B S62 924 *		32	1262	924
337	3	04	*										
338	3	05	*		FLOATING ADD / SUBTRACT								
339	3	06	*										
340	3	07		S	SIGNF	B	4	0920	S 924		32	924	
341	3	08	SIGNF	ZA	NSIGN	B	4	0924	? |87		32	1087	
342	3	09		BCE	NUVAL,ACCHI&1,0	B	8	0928	B |17 280 0		32	1017	280
343	3	10		BE	CLRWK	B	5	0936	B /34 S		32	1134	
344	3	11		S	EXPB,EXP	B	7	0941	S W82 W79		32	1682	1679
345	3	12		ZA	EXP&1,XL1&1	B	7	0948	? W80 090		33	1680	090
346	3	13		C	XL3, XL1	B	7	0955	C 099 089		33	099	089
347	3	14		BM	RTN1,EXP	B	8	0962	V /65 W79 K		33	1165	1679
348	3	15		BH	CHGEX BR IF PREV RESULT TO BE RETAINED IN WK ACC	B	5	0970	B /88 U		33	1188	
349	3	16		A	EXP,EXPB	B	7	0975	A W79 W82		33	1679	1682
350	3	17		ZA	SPOT,SPOT&X1	B	7	0982	? 250 2V0		34	250	250+1
351	3	18		ZA	XL3&1,XL1&1	B	7	0989	? 100 090		34	100	090
352	3	19	ASCOM	MZ	NSIGN,0&X2	B	7	0996	Y |87 0!0		34	1087	000+2
353	3	20		A	ACCHI&X1,0&X2	B	7	1003	A 2X9 0!0		34	279+1	000+2
354	3	21	MVZON	MZ	0&X2,NSIGN	B	7	1010	Y 0!0 |87		34	000+2	1087
355	3	22	NUVAL	ZA	EXPB,EXP	B	7	1017	? W82 W79		35	1682	1679
356	3	23	*										
357	3	24	*		NORMALIZE								
358	3	25	*										
359	3	26	NMLZ1	MCW	RCDMK,1&X2	B	7	1024	M W75 0!1		35	1675	001+2
360	3	27		MZ		B	1	1031	Y		35		
361	3	28		MZ		B	1	1032	Y		35		
362	3	29		A		B	1	1033	A		35		
363	3	30		MN		B	1	1034	D		35		
364	3	31		SBR	XL1	B	4	1035	H 089		35	089	
365	3	32		S	ACCHI&2&X3	B	4	1039	S 2H1		36	281+3	

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
416	3	83	OPDSC	SBR	X2,5&X2	B	7	1199	H 094 0!5		41	094	005+2
417	*3	84	STSUB	B	XXX	B	4	1206	B 000		41	000	
418	3	85		MN	0&X2	B	4	1210	D 0!0		41	000+2	
419	3	86		MN		B	1	1214	D		41		
420	3	87		MN		B	1	1215	D		41		
421	3	88		MN		B	1	1216	D		41		
422	3	89		SAR	ALGRT&6	B	4	1217	Q 765		41	765	
423	3	90	BRWHR	BCE	SBBR1,XXX,\$	B	8	1221	B 723 000 \$		42	723	000
424	3	91		B	SBBR2	B	4	1229	B 815		42	815	
425	3	92		*									
426	3	93		*	FLOATING DIVIDE								
427	3	94		*									
428	3	95	FDIV	BE	DVERR	B	5	1233	B /54 S		42	1154	
429	3	96		MN	ACCHI&X3, 1&X2	B	7	1238	D 2G9 0!1		42	279+3	001+2
430	3	97		MCW		B	1	1245	M		42		
431	3	98		MN		B	1	1246	D		42		
432	3	99		D	0&X1, SPOT&1	B	7	1247	% 0|0 251		42	000+1	251
433	4	00		ZS	EXPB	B	4	1254	! W82		43	1682	
434	4	01		B	NDMDV	B	4	1258	B S83		43	1283	
435	4	02		*									
436	4	03		*	FLOATING MULTIPLY								
437	4	04		*									
438	4	05	FMPY	M	ACCHI&X3, SPOT&1&X3	B	7	1262	@ 2G9 2E1		43	279+3	251+3
439	4	06		SBR	X2,3&X2	B	7	1269	H 094 0!3		43	094	003+2
440	4	07		S	&2,EXP	B	7	1276	S W90 W79		43	1690	1679
441	4	08	NDMDV	A	EXPB, EXP	B	7	1283	A W82 W79		43	1682	1679
442	4	09		MZ	ACCHI&X3, *&1	B	7	1290	Y 2G9 S97		44	279+3	1297
443	4	10		ZA	NSIGN	B	4	1297	? |87		44	1087	
444	4	11		B	NMLZ1	B	4	1301	B |24		44	1024	
445	4	12		*									
446	4	13		*	EXIT ROUTINE								
447	4	14		*									
448	4	15	QFUNCT	BCE	OUT1,4&X2, |	B	8	1305	B T31 0!4 |		44	1331	004+2
449	4	16		SBR	ALGRT&6,1&X2	B	7	1313	H 765 0!1		44	765	001+2
450	4	17		C	ACCHI&1,@0@	B	7	1320	C 280 W85		44	280	1685
451	*4	18	QFUNCX	B	XXX	B	4	1327	B 000	BRANCH TO FUNCTION SELECTION ROUTINE	45	000	
452	4	19	OUT1	BCE	OUT2,ACCHI&1,0	B	8	1331	B T69 280 0		45	1369	280
453	4	20		BW	OUT2,FIXSW	B	8	1339	V T69 W87 1		45	1369	1687
454	4	21		BW	FINST,4&X2	B	8	1347	V T92 0!4 1	BRANCH IF FINAL STORAGE OF COMP	45	1392	004+2
455	4	22		SBR	X3,2&X3	B	7	1355	H 099 0?2		45	099	002+3
456	4	23	MVEXP	MCM	EXP-1,ACCHI-1&X3	B	7	1362	P W78 2G8		46	1678	278+3
457	4	24	OUT2	LCA	ACCHI&X3,XXX	B	7	1369	L 2G9 000		46	279+3	000
458	4	25		BW	5&X2,4&X2	B	8	1376	V 0!5 0!4 1	BR TO PROG MAINLINE IF END OF ARITH STR	46	005+2	004+2
459	4	26		SAR	XL2	B	4	1384	Q 094		46	094	
460	4	27		B	ARITH	B	4	1388	B 712		46	712	
461	4	28		*									
462	4	29		*	ROUNDING FOR FINAL STORAGE								
463	4	30		*									
464	4	31	FINST	A	&5,ACCHI-1&X3	B	7	1392	A W91 2G8		46	1691	278+3
465	4	82		BWZ	RDOVF,ACCHI&1,S	B	8	1399	V U18 280 S		47	1418	280

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
550	5	17		JOB	1401 FORTRAN FUNCTION COMMON DECK								
551	5	18	*		INSERT BEFORE SIN-COS DECK								
552	5	19		ORG	2000	B			2000				
553	5	20	*										
554	5	21	110	DCW	@_____@	B	5	0110			59		
555	5	22	*										
556	5	23	*		VARIABLE LENGTH DIVIDE								
557	5	24	*										
558	5	25	DIVID	SBR	DVXT&3	B	4	2000	H !46		60	2046	
559	5	26		MCW	ACCHI&X3, SPOT	B	7	2004	M 2G9 250		60	279+3	250
560	5	27		MN		B	1	2011	D		60		
561	5	28		LCA	&0	B	4	2012	L K61		60	2261	
562	5	29		S	&0, SPOT-1&X2	B	7	2016	S K61 2M9		60	2261	249+2
563	5	30		D	0&X1, SPOT	B	7	2023	% 0|0 250		60	000+1	250
564	5	31		MN	SPOT-1&X2, ACCHI&X3	B	7	2030	D 2M9 2G9		60	249+2	279+3
565	5	32		MCW		B	1	2037	M		61		
566	5	33		MN		B	1	2038	D		61		
567	5	34		SAR	X1	B	4	2039	Q 089		61	089	
568	5	35	DVXT	B	XXX	B	4	2043	B 000		61	000	
569	5	36	*										
570	5	37	*		POWER SERIES CALCULATION								
571	5	38	*										
572	5	39	CALC	SBR	CALXT&3	B	4	2047	H J90		61	2190	
573	5	40		CW	LOGM1, LOGM2	B	7	2051	) J49 J71		61	2149	2171
574	5	41	CALC1	S	TOP&1&X3	B	4	2058	S 2?2		61	202+3	
575	5	42		CW	ACCHI&1	B	4	2062	) 280		62	280	
576	5	43		CW		B	1	2066	)		62		
577	5	44		SW		B	1	2067	,		62		
578	5	45		S	X2&2	B	4	2068	S 096		62	096	
579	5	46		SBR	X2, SPOT	B	7	2072	H 094 250		62	094	250
580	5	47	CALCL	MCS	SPOT	B	4	2079	Z 250		62	250	
581	5	48		SW	0&X1	B	4	2083	, 0|0		62	000+1	
582	5	49		BCE	FINIS, 0&X2,	B	8	2087	B J83 0!0		63	2183	000+2
583	5	50		MZ	SPOT&1, 1&X2	B	7	2095	Y 251 0!1		63	251	001+2
584	5	51		A	1&X2, TOP&1&X3	B	7	2102	A 0!1 2?2		63	001+2	202+3
585	5	52		A	DEC, X2&1	B	7	2109	A K59 095		63	2259	095
586	5	53		C	X2, X1	B	7	2116	C 094 089		63	094	089
587	5	54		BH	FINIS	B	5	2123	B J83 U		64	2183	
588	5	55		A	UPBY, NCON	B	7	2128	A K50 K53		64	2250	2253
589	5	56		A	NCON, NCTR	B	7	2135	A K53 K56		64	2253	2256
590	5	57		NOP	XXX, SPOT&1	B	7	2142	N 000 251		64	000	251
591	5	58	LOGM1	ZA		B	1	2149	?		64		
592	5	59		M	ACCHI&X3, SPOT&4&X3	B	7	2150	@ 2G9 2E4		64	279+3	254+3
593	5	60		MZ	SPOT&4&X3, SPOT&5	B	7	2157	Y 2E4 255		65	254+3	255
594	5	61		NOP	SPOT&5, XXX	B	7	2164	N 255 000		65	255	000
595	5	62	LOGM2	ZA		B	1	2171	?		65		
596	5	63		D	NCTR, 4&X1	B	7	2172	% K56 0|4		65	2256	004+1
597	5	64		B	CALCL	B	4	2179	B !79		65	2079	
598	5	65	FINIS	SW	ACCHI&1	B	4	2183	, 280		65	280	
599	5	66	CALXT	B	XXX	B	4	2187	B 000		65	000	

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
600	5	67	*										
601	5	68	STR1	S	ACCHI&X3	B	4	2191	S 2G9		66	279+3	
602	5	69		MN	&1,ACCHI&1	B	7	2195	D K62 280		66	2262	280
603	5	70		MZ	TWTCH,ACCHI&X3	B	7	2202	Y K60 2G9		66	2260	279+3
604	5	71		MZ	CALC,TWTCH	B	7	2209	Y !47 K60		66	2047	2260
605	5	72		ZA	&1,EXP	B	7	2216	? K62 W79		66	2262	1679
606	5	73		B	CLR X	B	4	2223	B 755		66	755	
607	5	74	*										
608	5	75	*		COMMON CONSTANTS								
609	5	76	*										
610	5	77	LN10	EQU	* NATURAL LOG OF TEN	B		2226					
611	5	78		DCW	23025850929940456840179	B	23	2249			67		
612	5	79	UPBY	DCW	#1	B	1	2250			67		
613	5	80	NCON	DCW	#3	B	3	2253			67		
614	5	81	NCTR	DCW	#3	B	3	2256			67		
615	5	82	DEC	DCW	#3	B	3	2259			67		
616	5	83	TWTCH	DCW	@A@	B	1	2260			67		
617	5	84	*		LOADER								
				DCW	&0	B	1	2261		LIT	67		
				DCW	&1	B	1	2262		LIT	68		
618	5	85		EX	DIVID	B			B !00		69	2000	
619			*		SIGNAL FOR THE TAPE GENERATOR								
620			110	DCW	@; ; ; ; @ ALL 11-6-8 LAST CARD	B	5	0110			70		

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
ACCHI#	0279: 0	ACCHIB	0279: 0	ADDRTB	1579: 0	ADR3 #	0359: 0	ALGRTB	0759: 0	ARITFB	0700: 0
ARITHB	0712: 0	ARRAY#	0585: 0	ASCOMB	0996: 0	BASEZB	1684: 0	BEGIN3	0838: 0	BRWHRB	1221: 0
CALC B	2047: 0	CALC1B	2058: 0	CALCLB	2079: 0	CALXTB	2187: 0	CARDS#	0603: 0	CDOVLY	0700: 0
CHGEXB	1188: 0	CLEAR#	0356: 0	CLRWBK	1134: 0	CLRXB	0755: 0	CMPAB#	0520: 0	CODE B	0924: 0
CPL #	0568: 0	CTR #	0669: 0	CTRR #	0641: 0	DEC B	2259: 0	DIVIDB	2000: 0	DVERRB	1154: 0
DVXT B	2043: 0	ERMSGB	1471: 0	ERMXTB	1526: 0	ERR #	0557: 0	EXIT B	0784: 0	EXP B	1679: 0
EXPB B	1682: 0	FDIV B	1233: 0	FIELD#	0642: 0	FINISB	2183: 0	FINSTB	1392: 0	FIXPTB	1541: 0
FIXSWB	1687: 0	FMPY B	1262: 0	FSIZEB	0831: 0	GETM #	0620: 0	GM #	0680: 0	HEAD #	0651: 0
HLD31#	0416: 0	HLD32#	0409: 0	HLDXT#	0402: 0	INC #	0632: 0	LINCT#	0658: 0	LN10 B	2226: 0
LOADNX	0700: 0	LOGM1B	2149: 0	LOGM2B	2171: 0	LOOP #	0497: 0	MVEXPB	1362: 0	MVHED#	0459: 0
MVQUTB	1661: 0	MVZONB	1010: 0	NCON B	2253: 0	NCTR B	2256: 0	NDMDVB	1283: 0	NGBMPB	0868: 0
NLOOPB	1043: 0	NMLZ1B	1024: 0	NORNDB	1448: 0	NSIGNB	1087: 0	NULINE	0433: 0	NUVALB	1017: 0
ONE #	0679: 0	ONLY #	0621: 0	OPDSCB	1199: 0	OUT #	0478: 0	OUT1 B	1331: 0	OUT2 B	1369: 0
PARAM	0686: 0	PGCTR#	0664: 0	PHASLD	0381: 0	PRTXT#	0564: 0	QFUNC	1305: 0	QFUNCX	1327: 0
RCDMKB	1675: 0	RDOVFB	1418: 0	RINX2B	1519: 0	RSTRX#	0535: 0	RTN1 B	1165: 0	SBBR1B	0723: 0
SBBR2B	0815: 0	SERCH#	0437: 0	SIGNFB	0924: 0	SNAPEX	0564: 0	SNAPSH	0333: 0	SPOT B	0250: 0
START#	0337: 0	STMNMB	1500: 0	STR1 B	2191: 0	STR99B	1115: 0	STRX2B	1486: 0	STRZEB	1142: 0
STSUBB	1206: 0	SUBTRB	1587: 0	T1 #	0498: 0	T2 #	0540: 0	TBOOT#	0553: 0	TOP B	0201: 0
TOP3	2600: 0	TPERM#	0581: 0	TPERR	0728: 0	TPREAD	0704: 0	TWCHB	2260: 0	UPBY B	2250: 0
WKZONB	0200: 0	X1 B	0089: 0	X2 B	0094: 0	X3 B	0099: 0	XDIV B	1623: 0	XL1 #	0089: 0
XL1 B	0089: 0	XL2 #	0094: 0	XL2 B	0094: 0	XL3 #	0099: 0	XL3 B	0099: 0	XMPY B	1598: 0
XPNUMB	1684: 0	XSIZEB	1530: 0	XXX #	0000: 0	XXX B	0000: 0	ZERO #	0637: 0	ZEROS#	0641: 0
ZONMVB	1407: 0	ZROSWB	1684: 0								

UNREFERENCED SYMBOLS

ARITFB BASEZB BEGIN3 CALC1B CDOVLY EXIT B FIXPTB FSIZEB LN10 B LOADNX MVZONB PHASLD QFUNCX SNAPEX SNAPSH START# STR1 B
TBOOT# TOP3 TPERR TPREAD XPNUMB ZROSWB