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10      .TITLE GRIDD
11      PUSBUT .CBD PUSBUT 1
12      / EDITED FOR MARK4 (44K) BY JOE ATIYAH 1/5/72
13      .GLOBL GRIDD, .DA, NUMBER, MESS1, BUTTON, SUBNOD
14      GRIDD XX
15      000002 R 121247 E      JMS* .DA
16      000003 R 600015 R      JMP .+1+11
17      000004 R 000000 A      COMPAD 0
18      000005 R 000000 A      EOCPAD 0
19      000006 R 000000 A      LIBAD 0
20      000007 R 000000 A      BORDAD 0
21      00010 R 000000 A      EOBAD 0
22      00011 R 000000 A      ROUTAD 0
23      00012 R 000000 A      EOROUT 0
24      00013 R 000000 A      CONNAD 0
25      00014 R 000000 A      MODEN 0
26      00015 R 220000 R      LAC* PUSBUT
27      00016 R 041240 R      DAC MESS# /FOR MESS1 CALLS
28      00017 R 220012 R      LAC* EOROUT
29      00020 R 740031 A      TCA
30      00021 R 341250 R      TAD (7636
31      00022 R 740100 A      SMA /NO ROOM IN ROUTES ARRAY FOR GRIDD VALUES
32      00023 R 600027 R      JMP .+4
33      00024 R 201251 R      LAC (1
34      00025 R 060014 R      DAC* MODEN
35      00026 R 620001 R      JMP* GRIDD
36      00027 R 220011 R      LAC* ROUTAD /ROUTES(1) ADDRESS
37      00030 R 341250 R      TAD (7636
38      00031 R 041116 R      DAC FLGAD /ROUTES(3999)
39      00032 R 723001 A      AAC 1
40      00033 R 041114 R      DAC NXAD
41      00034 R 723300 A      AAC 300
42      00035 R 041115 R      DAC NYAD
43      00036 R 200004 R      LAC COMPAD
44      00037 R 360005 R      TAD* EOCPAD
45      00040 R 041233 R      DAC LIM /LIMIT REG. VALUE FOR ALL COMP SCANS.
46      00041 R 722000 A      PAL
47      00042 R 200004 R      LAC COMPAD
48      00043 R 723775 A      AAC -3
49      00044 R 721000 A      PAX /SET INDEX REG. FOR START OF SCAN
50      00045 R 141101 R      DZM NCOMPS /ZERO COMPONENT COUNT
51      00046 R 725006 A      CNTLP AXS 6 /INCR. TO 4TH. WORD OF NEXT COMPONENT
52      00047 R 741000 A      SKP
53      00050 R 600125 R      JMP ENDCNT /COMPONENTS COUNTED. DF. ADDRESSES CLEARED
54      00051 R 231070 R      LAC* ZERO.X
55      00052 R 741200 A      SNA /NOT DELETED
56      00053 R 600116 R      JMP CLRDF
57      00054 R 501252 R      AND (4000 /FIXING BIT
58      00055 R 740200 A      SZA
59      00056 R 600116 R      JMP CLRDF /FIXED
60      00057 R 737775 A      AXR -3 /TO FIRST WORD
61      00060 R 231070 R      LAC* ZERO.X /REL. POINTER TO CONNECTIONS LIST

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PAGE	3	GRIDD	SRC	GRIDD
62		00061	R 737003 A	AXR /BACK TO 4TH. WORD
63		00062	R 741200 A	SNA
64		00063	R 600111 R	JMP NOCONS
65		00064	R 723777 A	AAC -1
66		00065	R 340013 R	TAD CONNAD /ABS. POINTER TO CONNECTION LIST
67		00066	R 041235 R	DAC SCAN
68		00067	R 221235 R	LAC* SCAN
69		00070	R 501253 R	AND (777
70		00071	R 740031 A	TCA
71		00072	R 041075 R	DAC COUNT /-NO. OF CONNECTIONS
72		00073	R 441235 R	CONLP ISZ SCAN
73		00074	R 441235 R	ISZ SCAN /TO SECOND WORD
74		00075	R 221235 R	LAC* SCAN
75		00076	R 652000 A	LMQ
76		00077	R 441235 R	ISZ SCAN /THIRD WORD
77		00100	R 221235 R	LAC* SCAN
78		00101	R 744010 A	RCL
79		00102	R 742010 A	RTL
80		00103	R 640614 A	LLS 14
81		00104	R 501254 R	AND (37777 /ROUTES POINTER
82		00105	R 740200 A	SZA
83		00106	R 600113 R	JMP FIXIT /HAS ROUTES. FIX IT.
84		00107	R 441075 R	ISZ COUNT
85		00110	R 600073 R	JMP CONLP
86		00111	R 441101 R	NOCONS ISZ NCOMPS
87		00112	R 600116 R	JMP CLRDF
88		00113	R 231070 R	FIXIT LAC* ZERO,X
89		00114	R 341252 R	TAD (4000
90		00115	R 071070 R	DAC* ZERO,X /FIXED
91		00116	R 231071 R	CLRDF LAC* ONE,X /START CLEARING DF. ADDRESSES
92		00117	R 501255 R	AND (1777
93		00120	R 071071 R	DAC* ONE,X
94		00121	R 231072 R	LAC* TWO,X
95		00122	R 501255 R	AND (1777
96		00123	R 071072 R	DAC* TWO,X /DF. ADDRESSES CLEARED
97		00124	R 600046 R	JMP CNTLP
98		00125	R 201101 R	ENDCNT LAC NCOMPS
99		00126	R 041105 R	DAC NSRT /SET FOR X SORT
100		00127	R 741200 A	SNA
101		00130	R 601066 R	JMP DUFF /NO COMPONENTS TO BE GRIDDED
102		00131	R 220014 R	LAC* MODEN
103		00132	R 741200 A	SNA /NOT INPUT MODE
104		00133	R 600353 R	JMP TYPE /TO READ IN VALUES
105		00134	R 201116 R	LAC FLGAD
106		00135	R 721000 A	PAX
107		00136	R 231070 R	LAC* ZERO,X
108		00137	R 541256 R	SAD (-1 /APPROX. MODE
109		00140	R 600536 R	JMP SETUP
110		00141	R 171070 R	DZM* ZERO,X /CLEAR AFTER APPROX GRIDD
111		00142	R 200007 R	LAC BORDAD /BOARD(1) ADDRESS
112		00143	R 041235 R	DAC SCAN
113		00144	R 360010 R	TAD* EOBAD

PAGE	4	GRIDD	SRC	GRIDD
114		00145	R 723777 A	AAC -1
115		00146	R 041236 R	DAC ENDBOD
116		00147	R 541235 R	SAD SCAN
117		00150	R 620001 R	JMP* GRIDD /BOARD NOT DEFINED
118		00151	R 141120 R	DZM XMAX
119		00152	R 141122 R	DZM YMAX
120		00153	R 201255 R	LAC (1777
121		00154	R 041117 R	DAC XMIN
122		00155	R 041121 R	DAC YMIN
123		00156	R 221235 R	BLOOP LAC* SCAN
124		00157	R 740031 A	TCA
125		00160	R 041075 R	DAC COUNT /-NO. OF PAIRS OF POINTS
126		00161	R 441235 R	BODLUP ISZ SCAN
127		00162	R 221235 R	LAC* SCAN /X VALUE
128		00163	R 041112 R	DAC DUMP1
129		00164	R 740031 A	TCA
130		00165	R 041113 R	DAC DUMP2 /- x VALUE
131		00166	R 341117 R	TAD XMIN
132		00167	R 741100 A	SPA
133		00170	R 600173 R	JMP XMIND
134		00171	R 201112 R	LAC DUMP1
135		00172	R 041117 R	DAC XMIN /NEW XMIN VALUE
136		00173	R 201113 R	XMIND LAC DUMP2 /-X VALUE
137		00174	R 341120 R	TAD XMAX
138		00175	R 740100 A	SMA
139		00176	R 600201 R	JMP XMAXD
140		00177	R 201112 R	LAC DUMP1
141		00200	R 041120 R	DAC XMAX /NEW X MAX
142		00201	R 441235 R	XMAXD ISZ SCAN
143		00202	R 221235 R	LAC* SCAN /Y VALUE
144		00203	R 041112 R	DAC DUMP1
145		00204	R 740031 A	TCA
146		00205	R 041113 R	DAC DUMP2 /-Y VALUE
147		00206	R 341121 R	TAD YMIN
148		00207	R 741100 A	SPA
149		00210	R 600213 R	JMP YMIND
150		00211	R 201112 R	LAC DUMP1
151		00212	R 041121 R	DAC YMIN /NEW Y MIN
152		00213	R 201113 R	YMIND LAC DUMP2
153		00214	R 341122 R	TAD YMAX
154		00215	R 740100 A	SMA
155		00216	R 600221 R	JMP YMAXD
156		00217	R 201112 R	LAC DUMP1
157		00220	R 041122 R	DAC YMAX
158		00221	R 441075 R	YMAXD ISZ COUNT
159		00222	R 600161 R	JMP BODLUP
160		00223	R 441235 R	ISZ SCAN
161		00224	R 201235 R	LAC SCAN
162		00225	R 541236 R	SAD ENDBOD
163		00226	R 600230 R	JMP DIMENS /MAX AND MIN VALUES FOUND
164		00227	R 600156 R	JMP BLOOP
165				/

PAGE	5	GRIDD	SRC	GRIDD
166				/NOW DETERMINE NO. OF X AND Y GRIDD POSITIONS REQUIRED
167				/
168	00230	R	201117	R DIMENS LAC XMIN
169	00231	R	740031	A TCA
170	00232	R	341120	R TAD XMAX
171	00233	R	040252	R DAC BBX /BOARD X DIMENSION
172	00234	R	201121	R LAC YMIN
173	00235	R	740031	A TCA
174	00236	R	341122	R TAD YMAX
175	00237	R	040254	R DAC BBY /BOARD Y DIMENSION
176	00240	R	140266	R DZM NY
177	00241	R	440266	R GRDLUP ISZ NY
178	00242	R	200266	R LAC NY
179	00243	R	040331	R DAC NNY
180	00244	R	201115	R LAC NYAD
181	00245	R	721000	A PAX
182	00246	R	200331	R LAC NNY
183	00247	R	071070	R DAC* ZERO,X
184	00250	R	744000	A CLL
185	00251	R	653122	A MUL
186	00252	R	000000	A BBX 0
187	00253	R	640323	A DIV
188	00254	R	000000	A BBY 0
189	00255	R	641002	A LACQ /LOAD ANSWER
190	00256	R	040276	R DAC NX
191	00257	R	040303	R DAC NNX
192	00260	R	201114	R LAC NXAD
193	00261	R	721000	A PAX
194	00262	R	200303	R LAC NNX
195	00263	R	071070	R DAC* ZERO,X
196	00264	R	744000	A CLL
197	00265	R	653122	A MUL
198	00266	R	000000	A NY 0
199	00267	R	641002	A LACQ
200	00270	R	740031	A TCA
201	00271	R	341101	R TAD NCOMPS
202	00272	R	740031	A TCA
203	00273	R	741100	A SPA
204	00274	R	600241	R JMP GRDLUP
205	00275	R	741000	A SKP
206	00276	R	000000	A NX 0
207				/
208				/NOW GENERATE GRID POSITIONS
209				/
210	00277	R	200252	R LAC BBX
211	00300	R	652000	A LMQ
212	00301	R	754000	A CLL!CLA
213	00302	R	640323	A DIV
214	00303	R	000000	A NNX 0
215	00304	R	641002	A LACQ
216	00305	R	041234	R DAC DELXY
217	00306	R	201114	R LAC NXAD

PAGE	6	GRIDD	SRC	GRIDD
218		00307	R 723001 A	AAC 1
219		00310	R 721000 A	PAX /SET INDEX REG. FOR SCAN
220		00311	R 340276 R	TAD NX
221		00312	R 722000 A	PAL /SET LIMIT REG FOR SCAN
222		00313	R 201234 R	LAC DELXY
223		00314	R 660502 A	LRSS 2 /DIVIDE BY 4 TO GET OFFSET FROM LLH CORNER
224		00315	R 341117 R	TAD XMIN
225		00316	R 071070 R	DAC* ZERO,X /FIRST X VALUE
226		00317	R 725001 A	XLOOP AXS 1
227		00320	R 741000 A	SKP
228		00321	R 600325 R	JMP XDUN /X VALUES INSERTED
229		00322	R 341234 R	TAD DELXY
230		00323	R 071070 R	DAC* ZERO,X /INSERT NEXT X VALUE
231		00324	R 600317 R	JMP XLOOP
232				/NOW THE SAME FOR Y VALUES
233		00325	R 200254 R	XDUN LAC BBY
234		00326	R 652000 A	LMQ
235		00327	R 754000 A	CLL!CLA
236		00330	R 640323 A	DIV
237		00331	R 000000 A	NNY 0
238		00332	R 641002 A	LACQ
239		00333	R 041234 R	DAC DELXY
240		00334	R 201115 R	LAC NYAD
241		00335	R 723001 A	AAC 1
242		00336	R 721000 A	PAX
243		00337	R 340266 R	TAD NY
244		00340	R 722000 A	PAL
245		00341	R 201234 R	LAC DELXY
246		00342	R 660502 A	LRSS 2
247		00343	R 341121 R	TAD YMIN
248		00344	R 071070 R	DAC* ZERO,X
249		00345	R 725001 A	YLOOP AXS 1
250		00346	R 741000 A	SKP
251		00347	R 600555 R	JMP DOIT /Y VALUES INSERTED
252		00350	R 341234 R	TAD DELXY
253		00351	R 071070 R	DAC* ZERO,X
254		00352	R 600345 R	JMP YLOOP
255				/
256				/
257				/
258		00353	R 201240 R	TYPE LAC MESS
259		00354	R 161240 R	DZM* MESS
260		00355	R 652000 A	LMQ
261		00356	R 201257 R	LAC (MESSD
262		00357	R 121244 E	JMS* MESS1
263		00360	R 121243 E	JMS* BUTTON
264		00361	R 541251 R	SAD (1
265		00362	R 600460 R	JMP UNEVEN
266		00363	R 541260 R	SAD (2
267		00364	R 600370 R	JMP EVEN
268		00365	R 541261 R	SAD (6
269		00366	R 620001 R	JMP* GRIDD

PAGE	7	GRIDD	SRC	GRIDD
270		00367	R 600353	R JMP TYPE
271		00370	R 201240	R EVEN LAC MESS
272		00371	R 161240	R DZM* MESS
273		00372	R 652000	A LMQ
274		00373	R 201262	R LAC (MESSC
275		00374	R 121244	E JMS* MESS1
276		00375	R 121245	E JMS* NUMBER / READ IN X ORIGIN
277		00376	R 741100	A SPA
278		00377	R 601066	R JMP DUFF / EXIT, NEG VAL
279		00400	R 041241	R DAC ORIG#
280		00401	R 121245	E JMS* NUMBER / READ IN NO OF X LINES
281		00402	R 741100	A SPA
282		00403	R 601066	R JMP DUFF / EXIT, NEG VAL
283		00404	R 040547	R DAC NNNX
284		00405	R 201114	R LAC NXAD
285		00406	R 721000	A PAX
286		00407	R 200547	R LAC NNNX
287		00410	R 071070	R DAC* ZERO,X
288		00411	R 740031	A TCA
289		00412	R 041075	R DAC COUNT
290		00413	R 737001	A AXR 1 / SET FOR GENERATING X VALS
291		00414	R 121245	E JMS* NUMBER / READ IN STEPSIZE
292		00415	R 741100	A SPA
293		00416	R 601066	R JMP DUFF / EXIT, NNEG VAL
294		00417	R 041242	R DAC STPSZ#
295		00420	R 201241	R LAC ORIG
296		00421	R 071070	R DAC* ZERO,X / GENERATE X VALS
297		00422	R 341242	R TAD STPSZ
298		00423	R 737001	A AXR 1
299		00424	R 441075	R ISZ COUNT / EXIT IF ALL X VALS GENERATED
300		00425	R 600421	R JMP .-4
301				/ READ IN Y VALUES
302		00426	R 121245	E JMS* NUMBER / READ IN Y ORIGIN
303		00427	R 741100	A SPA
304		00430	R 601066	R JMP DUFF / EXIT IF NEG
305		00431	R 041241	R DAC ORIG
306		00432	R 121245	E JMS* NUMBER
307		00433	R 741100	A SPA
308		00434	R 601066	R JMP DUFF
309		00435	R 652000	A LMQ
310		00436	R 201115	R LAC NYAD
311		00437	R 721000	A PAX
312		00440	R 641002	A LACQ
313		00441	R 071070	R DAC* ZERO,X
314		00442	R 740031	A TCA
315		00443	R 041075	R DAC COUNT
316		00444	R 737001	A AXR 1
317		00445	R 121245	E JMS* NUMBER / READ IN Y STEPSIZE
318		00446	R 741100	A SPA
319		00447	R 601066	R JMP DUFF / EXIT IF NEG
320		00450	R 041242	R DAC STPSZ
321		00451	R 201241	R LAC ORIG

PAGE	8	GRIDD	SRC	GRIDD	
322		00452	R 071070	R	DAC* ZERO,X / GENERATE Y VALUES
323		00453	R 341242	R	TAD STPSZ
324		00454	R 737001	A	AXR 1
325		00455	R 441075	R	ISZ COUNT
326		00456	R 600452	R	JMP .-4
327		00457	R 600531	R	JMP FINI
328		00460	R 201240	R	UNEVEN LAC MESS
329		00461	R 161240	R	DZM* MESS
330		00462	R 652000	A	LMQ
331		00463	R 201263	R	LAC (MESSA
332		00464	R 121244	E	JMS* MESS1
333		00465	R 121245	E	JMS* NUMBER /READ IN NO. OF X VALUES
334		00466	R 741100	A	SPA
335		00467	R 601066	R	JMP DUFF /EXIT ON NEGATIVE VALUE
336		00470	R 040547	R	DAC NNNX
337		00471	R 201114	R	LAC NXAD
338		00472	R 721000	A	PAX
339		00473	R 200547	R	LAC NNNX
340		00474	R 071070	R	DAC* ZERO,X
341		00475	R 740031	A	TCA
342		00476	R 041075	R	DAC COUNT /SET FOR X VALUE READ IN LOOP
343		00477	R 737001	A	AXR 1
344		00500	R 121245	E	LRX JMS* NUMBER /READ AN X VALUE
345		00501	R 741100	A	SPA
346		00502	R 601066	R	JMP DUFF
347		00503	R 071070	R	DAC* ZERO,X /STORE X VALUE
348		00504	R 737001	A	AXR 1
349		00505	R 441075	R	ISZ COUNT /EXIT IF ALL X VALUES IN
350		00506	R 600500	R	JMP LRX
351					/NOW READ IN NY AND Y VALUES AS FOR X VALUE
352		00507	R 121245	E	JMS* NUMBER
353		00510	R 741100	A	SPA
354		00511	R 601066	R	JMP DUFF
355		00512	R 652000	A	LMQ
356		00513	R 201115	R	LAC NYAD
357		00514	R 721000	A	PAX
358		00515	R 641002	A	LACQ
359		00516	R 071070	R	DAC* ZERO,X
360		00517	R 740031	A	TCA
361		00520	R 041075	R	DAC COUNT
362		00521	R 737001	A	AXR 1
363		00522	R 121245	E	LRX JMS* NUMBER
364		00523	R 741100	A	SPA
365		00524	R 601066	R	JMP DUFF
366		00525	R 071070	R	DAC* ZERO,X
367		00526	R 737001	A	AXR 1
368		00527	R 441075	R	ISZ COUNT
369		00530	R 600522	R	JMP LRY
370		00531	R 201116	R	FINI LAC FLGAD
371		00532	R 721000	A	PAX
372		00533	R 777777	A	LAW -1
373		00534	R 071070	R	DAC* ZERO,X /DEFINED GRID FLAG SET

PAGE	9	GRIDD	SRC	GRIDD	
374		00535	R 601066	R	JMP BUFF
375					/
376					/NOW CHECK GRIDD IS LARGE ENOUGH TO HOLD COMPS
377					/
378		00536	R 201114	R	SETUP LAC NXAD
379		00537	R 721000	A	PAX
380		00540	R 231070	R	LAC* ZERO,X
381		00541	R 040547	R	DAC NNNX /FOR CHECK
382		00542	R 744000	A	CLL
383		00543	R 201115	R	LAC NYAD
384		00544	R 721000	A	PAX
385		00545	R 231070	R	LAC* ZERO,X
386		00546	R 653122	A	MUL
387		00547	R 000000	A	NNNX 0
388		00550	R 641002	A	LACQ /NO. OF GRID POSITIONS
389		00551	R 740031	A	TCA
390		00552	R 341101	R	TAD NCOMPS
391		00553	R 740300	A	SZA!SMA /ENOUGH ROOM
392		00554	R 601060	R	JMP NORUM /EXIT NOT ROOM
393		00555	R 201240	R	DOIT LAC MESS
394		00556	R 161240	R	DZM* MESS
395		00557	R 652000	A	LMQ
396		00560	R 201264	R	LAC (MESSB
397		00561	R 121244	E	JMS* MESS1
398		00562	R 201233	R	LAC LIM
399		00563	R 722000	A	PAL /SET FOR ALL COMP. SCANS
400		00564	R 201115	R	LAC NYAD
401		00565	R 721000	A	PAX
402		00566	R 231070	R	LAC* ZERO,X
403		00567	R 040664	R	DAC NNNNY
404		00570	R 201251	R	LAC (1
405		00571	R 041073	R	DAC MODE /SET MODE FOR X SORT
406		00572	R 740030	A	IAC
407		00573	R 041074	R	DAC MODEO /SET FOR X SORT
408		00574	R 141104	R	DZM LIMIT /SET FOR X SORT
409		00575	R 101003	R	JMS XYSRT /X SORT
410		00576	R 201073	R	LAC MODE
411		00577	R 041074	R	DAC MODEO /SET FOR Y SORT
412		00600	R 740030	A	IAC
413		00601	R 041073	R	DAC MODE /SET FOR Y SORT
414					/NOW SORT Y VALUES FOR NX SETS OF NY X VALUES
415		00602	R 141104	R	DZM LIMIT
416		00603	R 201114	R	LAC NXAD
417		00604	R 721000	A	PAX
418		00605	R 231070	R	LAC* ZERO,X
419		00606	R 740031	A	TCA
420		00607	R 041075	R	DAC COUNT /FOR LOOP
421		00610	R 201115	R	LAC NYAD
422		00611	R 721000	A	PAX
423		00612	R 231070	R	LAC* ZERO,X
424		00613	R 041105	R	DAC NSRT /NO. TO BE SORTED
425		00614	R 201115	R	YSRT LAC NYAD

PAGE	10	GRIDD	SRC	GRIDD	
426		00615	R	721000	A PAX
427		00616	R	231070	R LAC* ZERO,X
428		00617	R	341104	R TAD LIMIT
429		00620	R	041104	R DAC LIMIT /LIMITS X VALUES TO BE SORTED
430		00621	R	740031	A TCA
431		00622	R	371070	R TAD* ZERO,X
432		00623	R	341101	R TAD NCOMPS /ACC. = NO. LEFT TO BE SORTED
433		00624	R	740300	A SZA!SMA
434		00625	R	741000	A SKP
435		00626	R	600641	R JMP SORTD /ALL SORTING DONE
436		00627	R	041103	R DAC NL
437		00630	R	740031	A TCA
438		00631	R	371070	R TAD* ZERO,X /ACC. NOW CONTAINS NO. THAT SORT ROUTINE EXPECTS
439		00632	R	741100	A SPA /NY OR FEWER LEFT - RESET NSRT
440		00633	R	600636	R JMP ENUF
441		00634	R	201103	R LAC NL
442		00635	R	041105	R DAC NSRT
443		00636	R	101003	R ENUF JMS XYSRT /Y SORT
444		00637	R	441075	R ISZ COUNT /EXIT IF SORT FINISHED
445		00640	R	600614	R JMP YSRT
446					/NOW USE THE POSITION INDEX VALUES, SET BY THE SORTING ROUTINE.
447					/TO PLACE THE COMPONENTS ON THE REQUIRED GRIDD.
448		00641	R	200006	R SORTD LAC LIBAD
449		00642	R	040763	R DAC ADLIB
450		00643	R	200004	R LAC COMPAD
451		00644	R	040762	R DAC ADCOMP
452		00645	R	723775	A AAC -3
453		00646	R	721000	A PAX /INITIAL VALUE OF INDEX REG. SET FOR COMP SCAN.
454		00647	R	141237	R DZM COMPNO* /COMPONENT NUMBER
455		00650	R	741000	A SKP
456		00651	R	441237	R NXTCP ISZ COMPNO
457		00652	R	725006	A AXS 6 / INDEX REG POINTS TO 4TH WORD OF COMP
458		00653	R	741000	A SKP
459		00654	R	601066	R JMP DUFF /EXIT - ALL DONE
460		00655	R	231071	R LAC* ONE,X /NEG. X SORT INDEX
461		00656	R	740100	A SMA
462		00657	R	600651	R JMP NXTCP / NOT TO BE GRIDDED
463		00660	R	740001	A CMA
464		00661	R	652000	A LMQ
465		00662	R	754000	A CLL!CLA
466		00663	R	640323	A DIV
467		00664	R	740040	A NNNNY XX /NO. OF VALUES FOR Y GRID
468		00665	R	641002	A LACQ / (XINDEX-1)/NY I.E. INDEX TO GET POSITION
469		00666	R	341114	R TAD NXAD
470		00667	R	061265	R DAC* (10
471		00670	R	220010	A LAC* 10
472		00671	R	041106	R DAC PX /X POSITION OF LLH CORNER
473					/NOW GET Y POSITION
474		00672	R	231072	R LAC* TWO,X
475		00673	R	740031	A TCA
476		00674	R	341115	R TAD NYAD
477		00675	R	723777	A AAC -1

PAGE	11	GRIDD	SRC	GRIDD
478		00676	R 061265	R DAC* 10
479		00677	R 220010	A LAC* 10
480		00700	R 041107	R DAC PY
481		00701	R 231070	R LAC* ZERO.X / WORD CONTAINING LIBRARY POINTER
482		00702	R 501253	R AND (???
483		00703	R 340006	R TAD LIBAD / ABS PTR TO 2ND WORD OF LIB ITEM
484		00704	R 740030	A IAC
485		00705	R 041076	R DAC TEMPS
486		00706	R 221076	R LAC* TEMPS
487		00707	R 501253	R AND (???
488		00710	R 041111	R DAC DY / COMP Y DIMENSION
489		00711	R 221076	R LAC* TEMPS
490		00712	R 744000	A CLL
491		00713	R 640511	A LRS 11
492		00714	R 041110	R DAC DX / COMP X DIMENSION
493		00715	R 231070	R LAC* ZERO.X
494		00716	R 640520	A LRS 20 / ACC. NOW CONTAINS ORIENTATION
495				/
496				/ NOW REPOSITION EACH COMP. SO THAT LLHC IS ON GRID
497				/
498		00717	R 341266	R TAD (JMP DISP+1
499		00720	R 040722	R DAC DISP / SET UP JUMP ACCORDING TO ORIENTATION
500		00721	R 201110	R LAC DX
501		00722	R 740040	A DISP XX
502		00723	R 600742	R JMP OZERO
503		00724	R 600737	R JMP OONE
504		00725	R 600731	R JMP OTWO
505		00726	R 341107	R OTHREE TAD PY
506		00727	R 041107	R DAC PY
507		00730	R 600742	R JMP OZERO
508		00731	R 341106	R OTWO TAD PX
509		00732	R 041106	R DAC PX
510		00733	R 201111	R LAC DY
511		00734	R 341107	R TAD PY
512		00735	R 041107	R DAC PY
513		00736	R 600742	R JMP OZERO
514		00737	R 201111	R OONE LAC DY
515		00740	R 341106	R TAD PX
516		00741	R 041106	R DAC PX
517		00742	R 201106	R OZERO LAC PX
518		00743	R 501255	R AND (1???
519		00744	R 071071	R DAC* ONE.X / WRITE IN NEW X POSITION
520		00745	R 201107	R LAC PY
521		00746	R 501255	R AND (1???
522		00747	R 071072	R DAC* TWO.X / WRITE IN NEW Y POSITION
523		00750	R 201116	R LAC FLGAD
524		00751	R 723777	A AAC -1
525		00752	R 061267	R DAC* (11
526		00753	R 220011	A LAC* 11
527		00754	R 541256	R SAD (-1
528		00755	R 600651	R JMP NXTCP
529		00756	R 121246	E JMS* SUBNOD

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530      00757 R 600766 R      JMP .+7
531      00760 R 001110 R      .DSA DX / X POSN OF PIN1 ON RETURN
532      00761 R 001111 R      .DSA DY / Y POSN OF PIN1 ON RETURN
533      00762 R 000000 A      ADCOMP 0
534      00763 R 000000 A      ADLIB 0
535      00764 R 001237 R      .DSA COMPNO / COMPONENT NUMBER
536      00765 R 001251 R      .DSA (1 / PIN1
537      00766 R 201110 R      LAC DX
538      00767 R 501270 R      AND (3
539      00770 R 740031 A      TCA
540      00771 R 341106 R      TAD PX / NEW POSN OF LLHC WITH
541      00772 R 501255 R      AND (1777 / PIN1 ON GRID
542      00773 R 071071 R      DAC* ONE,X / WRITE IN NEW X POSN
543      00774 R 201111 R      LAC DY
544      00775 R 501270 R      AND (3
545      00776 R 740031 A      TCA
546      00777 R 341107 R      TAD PY / NEW POSN OF LLHC WITH
547      01000 R 501255 R      AND (1777 / PIN1 ON GRID
548      01001 R 071072 R      DAC* TWO,X /WRITE IN NEW Y POSITION
549      01002 R 600651 R      JMP NXTCP
550                                     /X,Y SORTING ROUTINE. MODE=1 FOR X SORT, 2 FOR Y SORT. LIMIT REG.
551                                     /SET TO END OF COMPS. BEFORE ENTRY. NCOMPS SET TO NUMBER OF COMPS
552                                     /TO BE GRIDDED. X AND Y IN COMP. SRRAY ARE REPLACED BY NEGATIVE
553                                     /SORT INDEX
554      01003 R 740040 A      XYSRT XX
555      01004 R 141102 R      DZM INDX /ZERO NEG. SORT INDEX
556      01005 R 200004 R      NXSCN LAC COMPAD
557      01006 R 723775 A      AAC -3
558      01007 R 721000 A      PAX /INITIALISE INDEX REG. FOR START OF EACH SCAN
559      01010 R 201271 R      LAC (7777
560      01011 R 041100 R      DAC SMLST /X OR Y TO BE COMPARED WITH THIS TO GET SMALLEST VALUE.
561      01012 R 725006 A      NXCP AXS 6 /INDEX REG POINT TO 4TH. WORD OF COMP.
562      01013 R 741000 A      SKP
563      01014 R 601045 R      JMP ENDCP
564      01015 R 231073 R      LAC* MODE,X /X,Y OR SORT INDEX
565      01016 R 740100 A      SMA /ALREADY SORTED
566      01017 R 741000 A      SKP
567      01020 R 601012 R      JMP NXCP
568      01021 R 231074 R      LAC* MODEO,X
569      01022 R 341104 R      TAD LIMIT
570      01023 R 741100 A      SPA
571      01024 R 601012 R      JMP NXCP /NOT TO BE SORTED
572      01025 R 231070 R      LAC* ZERO,X /LOAD 4TH. WORD
573      01026 R 741200 A      SNA /NOT DELETED
574      01027 R 601012 R      JMP NXCP
575      01030 R 501252 R      AND (4000 /FIXING BIT
576      01031 R 740200 A      SZA /NOT FIXED
577      01032 R 601012 R      JMP NXCP
578      01033 R 231073 R      LAC* MODE,X /X OR Y
579      01034 R 740031 A      TCA
580      01035 R 341100 R      TAD SMLST
581      01036 R 741100 A      SPA /SMALLER VALUE FOUND

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PAGE	13	GRIDD	SRC	GRIDD
582		01037	R 601012	R JMP W XCP
583		01040	R 231073	R LAC* MODE,X
584		01041	R 041100	R DAC SMLST /UPDATE SMALLEST VALUE
585		01042	R 724000	A PXA
586		01043	R 041077	R DAC PTER /SAVE POINTER TO 4TH. WORD
587		01044	R 601012	R JMP NXCP
588		01045	R 201077	R ENDCP LAC PTER
589		01046	R 341073	R TAD MODE
590		01047	R 041077	R DAC PTER
591		01050	R 201102	R LAC INDX
592		01051	R 723777	A AAC -1 /UPDATE NEG INDEX VALUE
593		01052	R 041102	R DAC INDX
594		01053	R 061077	R DAC* PTER /WRITE IN PLACE OF X OR Y
595		01054	R 341105	R TAD NSRT
596		01055	R 740200	A SZA /ALL COMPS. SORTED
597		01056	R 601005	R JMP NXSCN
598		01057	R 621003	R JMP* XYSRT /EXIT
599		01060	R 777777	A NORUM LAW -1 /THE REMAINDER SETS VARIOUS FLAGS ON EXIT
600		01061	R 060014	R DAC* MODEN
601		01062	R 201116	R LAC FLGAD
602		01063	R 721000	A PAX
603		01064	R 171070	R DZM* ZERO,X
604		01065	R 620001	R JMP* GRIDD
605		01066	R 160014	R DUFF DZM* MODEN
606		01067	R 620001	R JMP* GRIDD
607		01070	R 000000	A ZERO 0
608		01071	R 000001	A ONE 1
609		01072	R 000002	A TWO 2
610		01073	R 000000	A MODE 0
611		01074	R 000000	A MODE0 0
612		01075	R 000000	A COUNT 0
613		01076	R 000000	A TEMPS 0
614		01077	R 000000	A PTER 0
615		01100	R 000000	A SMLST 0
616		01101	R 000000	A NCOMPS 0 / COUNT OF COMPS TO BE GRIDDED
617		01102	R 000000	A INDX 0
618		01103	R 000000	A NL 0
619		01104	R 000000	A LIMIT 0
620		01105	R 000000	A NSRT 0
621		01106	R 000000	A PX 0
622		01107	R 000000	A PY 0
623		01110	R 000000	A DX 0 / X POSN OF PIN1 RELATIVE TO LLHC
624		01111	R 000000	A DY 0 / Y POSN OF PIN1 RELATIVE TO LLHC
625		01112	R 000000	A DUMP1 0
626		01113	R 000000	A DUMP2 0
627		01114	R 000000	A NXAD 0 / POINTER TO GRID X VALS
628		01115	R 000000	A NYAD 0 / POINTER TO GRID Y VALS
629		01116	R 000000	A FLGAD 0
630		01117	R 000000	A XMIN 0 / MAX AND
631		01120	R 000000	A XMAX 0 / MIN
632		01121	R 000000	A YMIN 0 / BOARD
633		01122	R 000000	A YMAX 0 / DIMENSIONS

PAGE	14	GRIDD	SRC	GRIDD
634		01123	R 001750 A	MESSA 1750
635		01124	R 000000 A	0
636		01125	R 202513 A	.ASCII / TYPE IN, FOR X AND Y, , NO OF VALS, VALS_/
		01126	R 150212 A	
		01127	R 202231 A	
		01130	R 626100 A	
		01131	R 432372 A	
		01132	R 220260 A	
		01133	R 202031 A	
		01134	R 642100 A	
		01135	R 545304 A	
		01136	R 026100 A	
		01137	R 472364 A	
		01140	R 047614 A	
		01141	R 202550 A	
		01142	R 146246 A	
		01143	R 261012 A	
		01144	R 640630 A	
		01145	R 516760 A	
		01146	R 000000 A	
637		01147	R 001750 A	MESSB 1750
638		01150	R 000000 A	0
639		01151	R 202052 A	.ASCII / BUSY_/
		01152	R 551662 A	
		01153	R 574000 A	
		01154	R 000000 A	
640		01155	R 001750 A	MESSC 1750
641		01156	R 000000 A	0
642		01157	R 202513 A	.ASCII / TYPE IN, FOR X AND Y, , ORIGIN, NO OF LINES, STEPSIZE_/
		01160	R 150212 A	
		01161	R 202231 A	
		01162	R 626100 A	
		01163	R 432372 A	
		01164	R 220260 A	
		01165	R 202031 A	
		01166	R 642100 A	
		01167	R 545304 A	
		01170	R 026100 A	
		01171	R 476451 A	
		01172	R 143622 A	
		01173	R 471304 A	
		01174	R 047236 A	
		01175	R 202370 A	
		01176	R 620230 A	
		01177	R 446350 A	
		01200	R 551530 A	
		01201	R 202472 A	
		01202	R 442640 A	
		01203	R 516233 A	
		01204	R 242676 A	
643		01205	R 001750 A	MESSD 1750
644		01206	R 000000 A	0

645 01207 R 202270 A .ASC / KEY UP, 1 VALUES, 2 STEP, 3, 4, 5, 6 EXIT_

01210 R 554500 A

01211 R 202372 A

01212 R 026100 A

01213 R 201424 A

01214 R 053202 A

01215 R 462530 A

01216 R 551530 A

01217 R 201006 A

01220 R 220246 A

01221 R 522132 A

01222 R 026100 A

01223 R 201465 A

01224 R 420100 A

01225 R 321304 A

01226 R 020152 A

01227 R 261004 A

01230 R 033100 A

01231 R 426611 A

01232 R 152276 A

646 01233 R 000000 A

LIM 0

647 01234 R 000000 A

DELXY 0

648 01235 R 000000 A

SCAN 0

649 01236 R 000000 A

ENDBOD 0

650 000000 A

.END

01243 R 001243 E *E

01244 R 001244 E *E

01245 R 001245 E *E

01246 R 001246 E *E

01247 R 001247 E *E

01250 R 007636 A *L

01251 R 000001 A *L

01252 R 004000 A *L

01253 R 000777 A *L

01254 R 037777 A *L

01255 R 001777 A *L

01256 R 777777 A *L

01257 R 001205 R *L

01260 R 000002 A *L

01261 R 000006 A *L

01262 R 001155 R *L

01263 R 001123 R *L

01264 R 001147 R *L

01265 R 000010 A *L

01266 R 600723 R *L

01267 R 000011 A *L

01270 R 000003 A *L

01271 R 007777 A *L

SIZE=01272

NO ERROR LINES

ADCOMP	00762	451	533*						
ADLIB	00763	449	534*						
BBX	00252	171	186*	210					
BBY	00254	175	188*	233					
BLOOP	00156	123*	164						
BODLUP	00161	126*	159						
BORDAD	00007	20*	111						
BUTTON	01243	13	263						
CLRDF	00116	56	59	87	91*				
CNTLP	00046	51*	97						
COMPAD	00004	17*	43	47	450	556			
COMPNO	01237	454	456	535					
CONLP	00073	72*	85						
CONNAD	00013	24*	66						
COUNT	01075	71	84	125	158	289	299	315	325
		342	349	361	368	420	444	612*	
DELXY	01234	216	222	229	239	245	252	647*	
DIMENS	00230	163	168*						
DISP	00722	498	499	501*					
DOIT	00555	251	393*						
DUFF	01066	101	278	282	293	304	308	319	335
		346	354	365	374	459	605*		
DUMP1	01112	128	134	140	144	150	156	625*	
DUMP2	01113	130	136	146	152	626*			
DX	01110	492	500	531	537	623*			
DY	01111	488	510	514	532	543	624*		
ENDBOD	01236	115	162	649*					
ENDCNT	00125	53	98*						
ENDCP	01045	563	588*						
ENUF	00636	440	443*						
EOBAD	00010	21*	113						
EOCPAD	00005	18*	44						
EOROUT	00012	23*	28						
EVEN	00370	267	271*						
FINI	00531	327	370*						
FIXIT	00113	83	88*						
FLGAD	01116	38	105	370	523	601	629*		
GRDLUP	00241	177*	204						
GRIDD	00301	10	13	14*	35	117	269	604	606
INDX	01102	555	591	593	617*				
LIBAD	00006	19*	448	483					
LIM	01233	45	398	646*					
LIMIT	01104	408	415	428	429	569	619*		
LRX	00500	344*	350						
LRV	00522	363*	369						
MESS	01240	27	258	259	271	272	328	329	393
		394							
MESSA	01123	331	634*						
MESSB	01147	396	637*						
MESSC	01155	274	640*						
MESSD	01205	261	643*						
MESS1	01244	13	262	275	332	397			
MODE	01073	405	410	413	564	578	583	589	610*

MODEN	00014	25*	34	102	605				
MODEO	01074	407	411	568	611*				
NCOMPS	01101	50	86	98	201	390	432	616*	
NL	01103	436	441	618*					
NNNNY	00664	403	467*						
NNNX	00547	283	286	336	339	381	387*		
NNX	00303	191	194	214*					
NNY	00331	179	182	237*					
NOCONS	00111	64	86*						
NORUM	01060	392	599*						
NSRT	01105	99	424	442	595	620*			
NUMBER	01245	13	276	280	291	302	306	317	333
		344	352	363					
NX	00276	190	206*	220					
NXAD	01114	40	192	217	284	337	378	416	469
		627*							
NXCP	01012	561*	567	571	574	577	582	587	
NXSCN	01005	556*	597						
NXTCP	00651	456*	462	528	549				
NY	00266	176	177	178	198*	243			
NYAD	01115	42	180	240	310	356	383	400	421
		425	476	628*					
ONE	01071	91	93	460	519	542	608*		
OONE	00737	503	514*						
ORIG	01241	279	295	305	321				
OTHRREE	00726	505*							
OTWO	00731	504	508*						
OZERO	00742	502	507	513	517*				
PTER	01077	586	588	590	594	614*			
PUSBUT	00000	11*	11	26					
PX	01106	472	508	509	515	516	517	540	621*
PY	01107	480	505	506	511	512	520	546	622*
ROUTAD	00011	22*	36						
SCAN	01235	67	68	72	73	74	76	77	112
		116	123	126	127	142	143	160	161
		648*							
SETUP	00536	109	378*						
SMLST	01100	560	580	584	615*				
SORTD	00641	435	448*						
STPSZ	01242	294	297	320	323				
SUBNOD	01246	13	529						
TEMPS	01076	485	486	489	613*				
TWO	01072	94	96	474	522	548	609*		
TYPE	00353	104	258*	270					
UNEVEN	00460	265	328*						
XDUN	00325	228	233*						
XLOOP	00317	226*	231						
XMAX	01120	118	137	141	170	631*			
XMAXD	00201	139	142*						
XMIN	01117	121	131	135	168	224	630*		
XMIND	00173	133	136*						
XXSRT	01003	409	443	554*	598				
YLOOP	00345	249*	254						

PAGE 18 GRIDD CROSS REFERENCE

YMAX	01122	119	153	157	174	633*			
YMAXD	00221	155	158*						
YMIN	01121	122	147	151	172	247	632*		
YMIND	00213	149	152*						
YSRT	00614	425*	445						
ZERO	01070	54	61	88	90	107	110	183	195
		225	230	248	253	287	296	313	322
		340	347	359	366	373	380	385	402
		418	423	427	431	438	481	493	572
		603	607*						
.DA	01247	13	15						