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I D E N T I F I C A T I O N

PRODUCT CODE: AC-F724F-MC

PRODUCT NAME: CXGTAE0 GT-40 DEC/X11 MODULE

DATE: SEPTEMBER 1978

MAINTAINER: DEC/X11 SUPPORT GROUP

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1.   ABSTRACT

               "GTA" IS AN "IOMODR" THAT EXERCISES ONE
          GT40A DECGRAPHIC-11 DISPLAY CONTROLLER AND ONE
          TWELVE INCH DISPLAY. IT DISPLAYS A SPECIAL TEST
          PATTERN BY EXECUTING ALL OF THE GT40A'S DISPLAY
          INSTRUCTIONS. IT ALSO INCLUDES A TEST OF THE LIGHT-
          PEN. IF A LIGHT-PEN FLAG IS DETECTED, THE MESSAGE
          "LIGHT-PEN HIT" IS DISPLAYED NEAR THE CENTER OF
          THE SCREEN.

2.   REQUIREMENTS

          HARDWARE: GT40 ALPHAGRAPHIC DISPLAY SYSTEM
          STORAGE:: GTA REQUIRES:
                         1. DECIMAL WORDS: 937
                         2. OCTAL WORDS: 1651
                         3. OCTAL BYTES: 3522

3.   PASS DEFINITION

          ONE PASS OF GTA MODULE CONSISTS OF TEN ITERATIONS OF BASIC TEST
          SEQUENCE, WHICH RESULTS IN:

          256 PROGRAM INTERRUPTS, 180,000 NON-PROCESSOR REQUESTS.

4.   EXECUTION TIME

          GTA RUNNING ALONE ON PDP-11/05 TAKES
          APPROXIMATELY ONE MINUTE.

5.   CONFIGURATION REQUIREMENTS

          DEFAULT PARAMETERS:

          DEVADR: 172000, VECTOR: 320, BR1: 4, DEVCNT: 1

          REQUIRED PARAMETERS:

          NONE

6.   DEVICE/OPTION SETUP

          THE GT40A MUST HAVE THE POWER ON.

7.   MODULE OPERATION

          TEST PATTERN DESCRIPTION:

          A. LINE TYPE TEST:

               TO TEST THE ABILITY OF THE GT40A TO DISPLAY
          EACH OF THE FOUR POSSIBLE LINE TYPES, THE OUTER
          PERIMETER OF THE TEST PATTERN CONSISTS OF A LARGE
          RECTANGLE. EACH SIDE OF THE RECTANGLE IS DISPLAYED
          USING A DIFFERENT LINE TYPE IE: SOLID,DASH,DOT-DASH,
          AND DOT. (LONG VECTOR MODE)

          B. CHARACTER GENERATOR TEST:

               TO TEST THE ABILITY OF THE GT40A TO DISPLAY
          EACH MEMBER OF ITS CHARACTER SET, THREE PAIRS OF
          LINES ARE DISPLAYED NEAR THE TOP OF THE SCREEN. THE
          FIRST LINE IN EACH PAIR DISPLAYS THE CHARACTERS IN
          NORMAL FONT WHILE THE SECOND LINE DISPLAYS THE SAME
          CHARACTERS IN ITALIC FONT. THE FIRST PAIR OF LINES
          DISPLAYS THE 64 ASCII UPPERCASE CHARACTERS
          (OCTAL CODES 100-137 AND 40-77 DISPLAYED LEFT TO RIGHT).
          THE SECOND PAIR DISPLAYS THE 32 LOWER CASE ASCII
          CHARACTERS (OCTAL CODES 140-177 DISPLAYED LEFT TO RIGHT).
          THE THIRD PAIR DISPLAYS THE 31 SPECIAL CHARACTERS
          (OCTAL CODES 0-37 DISPLAYED LEFT TO RIGHT) THAT APPEAR
          AS APL - GREEK - SPECIAL CHARACTERS.

          C. INTENSITY LEVEL TEST:

               TO TEST THE ABILITY OF THE GT40A TO VARY
          THE INTENSITY LEVEL OF THE DISPLAY, EIGHT
          HORIZONTAL PARALLEL LINES ARE DISPLAYED TO THE
          LEFT OF CENTER OF THE TEST PATTERN. EACH LINE
          IS DISPLAYED WITH A DIFFERENT INTENSITY LEVEL
          STARTING WITH THE TOP LINE AT LEVEL 7 (THE BRIGHTEST)
          AND PROCEEDING DOWN TO THE BOTTOM LINE AT LEVEL 0
          (THE DIMMEST). ALL LINES ARE DISPLAYED IN LONG
          VECTOR MODE.

D.   VECTOR/RELATIVE POINT AND BLINK TEST:

     TO TEST THE ABILITY OF THE GT40A TO DISPLAY
VECTORS IN THE LONG, SHORT, AND RELATIVE POINT
MODE AND TO BLINK A SELECTED PORTION OF THE
DISPLAY, A SET OF SIX NESTED OCTAGONS IS DISPLAYED
IN THE UPPER RIGHT QUADRANT OF THE SCREEN.
THE TWO OUTERMOST OCTAGONS ARE DISPLAYED USING
LONG VECTOR MODE, THE TWO MIDDLE ONES USING
SHORT VECTOR MODE, AND THE INNERMOST TWO USING
RELATIVE POINT MODE.   THE USE OF RELATIVE POINT
POINT MODE CAUSES THE TWO INNERMOST OCTAGONS
TO BE DISPLAYED AS EIGHT INTENSIFIED POINTS
FOR EACH ONE.   ALTERNATE OCTAGONS STARTING
WITH THE INNERMOST ONE ARE BLINKED TO TEST
THE OPERATION OF THE BLINK MODE.

E.   GRAPHPLOT DISPLAY TEST:

     TO TEST THE ABILITY OF THE GT40A TO DISPLAY
A GRAPHPLOT PATTERN, TWO EXPANDING SINE WAVE PATTERNS
ARE DISPLAYED.   THE FIRST SINE WAVE APPEARS
SUPERIMPOSED ON A HORIZONTAL LINE ACROSS THE BOTTOM
OF THE SCREEN AND EXPANDS FROM LEFT TO RIGHT.
THE SECOND SINE WAVE APPEARS SUPERIMPOSED ON A
VERTICAL LINE AT THE LEFT OF THE SCREEN AND EXPANDS
FROM BOTTOM TO TOP.   THE EXPANSION OF THE SINE
WAVES IS A FUNCTION OF THE DISPLAY INTERRUPT RATE.
NO SINE WAVE EXPANSION WOULD INDICATE THAT THE GT40A
IS NOT INTERRUPTING THE CPU.

8.   OPERATION OPTIONS

        NONE

9.   NON STANDARD PRINTOUTS

        NONE. ALL PRINTOUTS HAVE STANDARD MEANINGS AS REPRESENTED IN
        DEC/X11 DOCUMENTATION.

189   -   .LIST   SEQ,BIN

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190
191
192                              .LIST   ME
193                              .NLIST  MD,MC,CND
194                              .TITLE  GTAE DEC/X11 SYSTEM EXERCISER MODULE
195                      ;       DDXCOM  VERSION  6      23-MAY-79
196                              .LIST   BIN
197          000000'     ;*******************************************************************
198          000000' 052107 042501   040   MODNAM: .ASCII  /GTAE / ;MODULE NAME.
199          000005'        000            XFLAG:  .BYTE   OPEN       ;USED TO KEEP TRACK OF WEOFF USAGE
200          000006' 172000                ADDR:   172000+0          ;1ST DEVICE ADDR.
201          000010' 000320                VECTOR: 320+0             ;1ST DEVICE VECTOR.
202          000012'        200            BR1:    .BYTE   PRTY4+0   ;1ST BR LEVEL.
203          000013'        000            BR2:    .BYTE   PRTY+0    ;2ND BR LEVEL.
204          000014' 000001                DVID1:  +1                ;DEVICE INDICATOR 1.
205          000016' 000000                SR1:    OPEN              ;SWITCH REGISTER 1.
206          000020' 000000                SR2:    OPEN              ;SWITCH REGISTER 2.
207          000022' 000000                SR3:    OPEN              ;SWITCH REGISTER 3.
208          000024' 000000                SR4:    OPEN              ;SWITCH REGISTER 4.
209                      ;*******************************************************************
210          000026' 152000                STAT:   152000            ;STATUS WORD.
211          000030' 000250'               INIT:   START             ;MODULE START ADDR.
212          000032' 000224'               SPOINT: MODSP             ;MODULE STACK POINTER.
213          000034' 000000                PASCNT: 0                 ;PASS COUNTER.
214          000036' 000012                ICONT:  10.               ;# OF ITERATIONS PER PASS=10.
215          000040' 000000                ICOUNT: 0.                ;LCC TO COUNT ITERATIONS
216          000042' 000000                SOFCNT: 0                 ;LCC TO SAVE TOTAL SOFT ERRORS
217          000044' 000000                HRDCNT: 0                 ;LCC TO SAVE TOTAL HARD ERRORS
218          000046' 000000                SOFPAS: 0                 ;LCC TO SAVE SOFT ERRORS PER PASS
219          000050' 000000                HRDPAS: 0                 ;LCC TO SAVE HARD ERRORS PER PASS
220          000052' 000000                SYSCNT: 0                 ;# OF SYS ERRORS ACCUMULATED
221          000054' 000000                RANNUM: 0                 ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED
222          000056'                       CONFIG:
223          000056' 000000                RES1:   0                 ;RESERVED FOR MONITOR USE
224          000060' 000000                RES2:   0                 ;RESERVED FOR MONITOR USE
225          000062' 000000                SVR0:   OPEN              ;LOC TO SAVE R0.
226          000064' 000000                SVR1:   OPEN              ;LOC TO SAVE R1.
227          000066' 000000                SVR2:   OPEN              ;LOC TO SAVE R2.
228          000070' 000000                SVR3:   OPEN              ;LOC TO SAVE R3.
229          000072' 000000                SVR4:   OPEN              ;LOC TO SAVE R4.
230          000074' 000000                SVR5:   OPEN              ;LOC TO SAVE R5.
231          000076' 000000                SVR6:   OPEN              ;LOC TO SAVE R6.
232          000100' 000000                CSRA:   OPEN              ;ADDR OF CURRENT CSR.
233          000102'                       SBADR:                    ;ADDR OF GOOD DATA, OR
234          000102' 000000                ACSR:   OPEN              ;CONTENTS OF CSR.
235          000104'                       WASADR:                   ;ADDR OF BAD DATA, OR
236          000104' 000000                ASTAT:  OPEN              ;STATUS REG CONTENTS.
237          000106'                       ERRTYP:                   ;TYPE OF ERROR
238          000106' 000000                ASB:    OPEN              ;EXPECTED DATA.
239          000110' 000000                AWAS:   OPEN              ;ACTUAL DATA.
240          000112' 000612'               RSTRT:  RESTRT            ;RESTART ADDRESS AFTER END OF PASS
241          000114' 000000                WDTO:   OPEN              ;WORDS TO MEMORY PER ITERATION
242          000116' 000000                WDFR:   OPEN              ;WORDS FROM MEMORY PER ITERATION
243          000120' 000000                INTR:   OPEN              ;# OF INTERRUPTS PER ITERATION
244          000122' 000045                IDNUM:  45                ;MODULE IDENTIFICATION NUMBER=45
245          000224'                       MODSP:
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246          ;*******************************************************************
247
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248
249    000224'  172000              GTPC:    172000              ;DISPLAY PC
250    000226'  172002              GTSR:    172002              ;DISPLAY STATUS REG.
251    000230'  172004              GTXPOS:  172004              ;DISPLAY X REGISTER
252    000232'  172006              GTYPOS:  172006              ;DISSPLAY Y REGISTER
253
254    000234'  000320              GTDONE:  320                 ;DISPLAY DONE VECTOR
255    000236'  000322              GTDNE1:  322
256
257    000240'  000324              GTLPH:   324                 ;DISPLAY LIGHT-PEN VECTOR
258    000242'  000326              GTLPH1:  326
259
260    000244'  000330              GTSOTM:  330                 ;DISPLAY SHIFT-OUT/ TIME-OUT VECTOR
261    000246'  000332              GTSOT1:  332
262
263                                          ;INITILIZE GT-40 ADDRESSES AND VECTORS
264
265    000250'  012767  000740  177640  START:  MOV   #480.,WDFP          ;480. WDS FROM MEM
266    000256'  012767  000040  177634          MOV   #32.,INTP          ;32 INTERRUPTS
267    000264'  016767  177516  177732          MOV   ADDR,GTPC          ;LOAD DISPLAY P.C.
268    000272'  016767  177510  177726          MOV   ADDR,GTSR          ;LOAD DISPLAY STATUS
269    000300'  016767  177502  177722          MOV   ADDR,GTXPOS        ;LOAD DISPLAY X REG.
270    000306'  016767  177474  177716          MOV   ADDR,GTYPOS        ;LOAD DISPLAY Y REG.
271    000314'  062767  000002  177704          ADD   #2,GTSR            ;UPDATE SR VALUE
272    000322'  062767  000004  177700          ADD   #4,GTXPOS          ;UPDATE X VALUE
273    000330'  062767  000006  177674          ADD   #6,GTYPOS          ;UPDATE Y VALUE
274    000336'  016767  177446  177670          MOV   VECTOR,GTDONE      ;LOAD DONE VECTOR
275    000344'  016767  177440  177664          MOV   VECTOR,GTDNE1
276    000352'  016767  177432  177660          MOV   VECTOR,GTLPH       ;LOAD LIGHT-PEN VECTOR
277    000360'  016767  177424  177654          MOV   VECTOR,GTLPH1
278    000366'  016767  177416  177650          MOV   VECTOR,GTSOTM      ;LOAD SHIFT-OUT VECTOR
279    000374'  016767  177410  177644          MOV   VECTOR,GTSOT1
280    000402'  062767  000002  177626          ADD   #2,GTDNE1          ;UPDATE DONE VECTOR
281    000410'  062767  000004  177622          ADD   #4,GTLPH           ;UPDATE LIGHT-PEN VECTOR
282    000416'  062767  000006  177616          ADD   #6,GTLPH1
283    000424'  062767  000010  177612          ADD   #10,GTSOTM         ;UPDATE SHIFT-OUT VECTOR
284    000432'  062767  000012  177606          ADD   #12,GTSOT1
285    000440'  012777  000542' 177566          MOV   #GTSTOP,@GTDONE    ;LOAD DONE VECTOR
286    000446'  116777  177340  177562          MOVB  BR1,@GTDNE1
287    000454'  012777  000632' 177556          MOV   #GTLPEN,@GTLPH     ;LOAD LIGHT-PEN VECTOR
288    000462'  116777  177324  177552          MOVB  BR1,@GTLPH1
289    000470'  012777  000660' 177546          MOV   #GTSHIF,@GTSOTM    ;LOAD SHIFT-OUT VECTOR
290    000476'  116777  177310  177542          MOVB  BR1,@GTSOT1
291    000504'  012767  000040  000026          MOV   #40,GTDLY0
292    000512'  012767  003514' 002744          MOV   #FILEOC,FILEOA
293    000520'  012767  174104  000242          MOV   #STATSB!INCR+4,GRPINC
294    000526'  012777  000706' 177470          MOV   #FILEO,@GTPC       ;START THE DISPLAY
295    000534'  104400  000000'          EXIT$,BEGIN                     ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
296
297    000540'  000010              GTDLY0:  10
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298    000542'                      GTSTOP:
299
300    000542'  000004  000000' 000550'         PIRQ$,BEGIN,1$          ; QUEUE UP TO CONTINUE AT 1$ AND RTI
301                                          ;-------------------------------------------------------------
302    000550'  005367  177764          1$:  DEC   GTDLY0               ;DECREMENT DELAY
303    000554'  001016                       BNE   RESTRT              ;BRANCH IF NOT
304    000556'  012767  000040  177754        MOV   #40,GTDLY0          ;RESET DELAY
305    000564'  005267  000200  177754        INC   GRPINC             ;UPDATE GRAPH INCREMENT
306    000570'  022767  174110  000172        CMP   #STATSB!INCR+10,GRPINC  ;TEST FOR INCREMENT
307    000576'  001005                       BNE   RESTRT              ;BRANCH IF NOT
308    000600'  012767  174100  000162        MOV   #STATSB!INCR,GRPINC ;RESET GRAPH INCREMENT
309    000606'  104413  000000'          ENDIT$,BEGIN                   ;SIGNAL END OF ITERATION.
310                                          ;MONITOR SHALL TEST END OF PASS
311    000612'  012767  003514' 002644  RESTRT:  MOV   #FILEOC,FILEOA
312    000620'  012777  000001  177376          MOV   #1,@GTPC          ;RESUME THE DISPLAY
313    000626'  104400  000000'          EXIT$,BEGIN                    ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
314
315
316    000632'                      GTLPEN:
317                                          ;-------------------------------------------------------------
318    000632'  000004  000000' 000640'         PIRQ$,BEGIN,1$          ; QUEUE UP TO CONTINUE AT 1$ AND RTI
319                                          ;-------------------------------------------------------------
320    000640'  012767  003466' 002616  1$:  MOV   #FILEOB,FILEOA
321    000646'  012777  000001  177350        MOV   #1,@GTPC            ;RESUME THE DISPLAY
322    000654'  104400  000000'          EXIT$,BEGIN                    ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
323
324    000660'                      GTSHIF:
325                                          ;-------------------------------------------------------------
326    000660'  000004  000000' 000666'         PIRQ$,BEGIN,1$          ; QUEUE UP TO CONTINUE AT 1$ AND RTI
327                                          ;-------------------------------------------------------------
328    000666'  012767  000024  177212  1$:  MOV   #24,ERRTYP          ;TIME OUT SHIFT OUT ERROR
329                                          ;*************************************************************
330    000674'  104405  000000' 000000      HRDER$,BEGIN,NULL          ;GT-40 SHIFT-OUT/TIME-OUT ERROR
331                                          ;*************************************************************
332    000702'  104410  000000'          END$,BEGIN                     ;
333
334
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335
336
337
338   000706'  114140      FILEO:  POINT!LPON
339   000710'  000000              0
340   000712'  001377              MAXY
341   000714'  174300              STATSB!LFLITE
342   000716'  113004              LONGV!INT4!LINE0
343   000720'  041777              INTX!MAXX
344   000722'  000000              0
345   000724'  110005              LONGV!LINE1              ;RIGHT LINE
346   000726'  040000              INTX
347   000730'  021377              MINUSX!MAXY
348   000732'  110006              LONGV!LINE2              ;BOTTOM LINE
349   000734'  061777              INTX!MINUSX!MAXX
350   000736'  000000              0
351   000740'  110007              LONGV!LINE3              ;LEFT LINE
352   000742'  040000              INTX
353   000744'  001377              MAXY
354
355   000746'  114004              POINT!LINE0
356   000750'  000400              400
357   000752'  000200              200
358   000754'  110000              LONGV
359   000756'  041200              INTX+1200
360   000760'  000000              0
361   000762'  114000              POINT
362   000764'  000440              440
363   000766'  000200              200
364   000770'  174104      GRPINC:  STATSB!INCR+4
365   000772'  124000              GRAPHY
366   000774'  000200              0200
367   000776'  000205              0205
368   001000'  000212              0212
369   001002'  000217              0217
370   001004'  000224              0224
371   001006'  000231              0231
372   001010'  000236              0236
373   001012'  000243              0243
374   001014'  000247              0247
375   001016'  000253              0253
376   001020'  000257              0257
377   001022'  000262              0262
378   001024'  000265              0265
379   001026'  000270              0270
380   001030'  000272              0272
381   001032'  000274              0274
382   001034'  000276              0276
383   001036'  000277              0277
384   001040'  000277              0277
385   001042'  000277              0277
386   001044'  000277              0277
387   001046'  000276              0276
388   001050'  000275              0275
389   001052'  000274              0274
390   001054'  000272              0272
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391   001056'  000267              0267
392   001060'  000264              0264
393   001062'  000261              0261
394   001064'  000256              0256
395   001066'  000252              0252
396   001070'  000246              0246
397   001072'  000241              0241
398   001074'  000235              0235
399   001076'  000230              0230
400   001100'  000223              0223
401   001102'  000216              0216
402   001104'  000211              0211
403   001106'  000203              0203
404   001110'  000176              0176
405   001112'  000171              0171
406   001114'  000163              0163
407   001116'  000156              0156
408   001120'  000151              0151
409   001122'  000144              0144
410   001124'  000137              0137
411   001126'  000133              0133
412   001130'  000127              0127
413   001132'  000123              0123
414   001134'  000117              0117
415   001136'  000114              0114
416   001140'  000111              0111
417   001142'  000106              0106
418   001144'  000104              0104
419   001146'  000102              0102
420   001150'  000101              0101
421   001152'  000100              0100
422   001154'  000100              0100
423   001156'  000100              0100
424   001160'  000100              0100
425   001162'  000101              0101
426   001164'  000102              0102
427   001166'  000104              0104
428   001170'  000106              0106
429   001172'  000111              0111
430   001174'  000113              0113
431   001176'  000117              0117
432   001200'  000122              0122
433   001202'  000126              0126
434   001204'  000132              0132
435   001206'  000137              0137
436   001210'  000144              0144
437   001212'  000151              0151
438   001214'  000156              0156
439   001216'  000163              0163
440   001220'  000170              0170
441   001222'  000175              0175
442   001224'  000203              0203
443   001226'  000210              0210
444   001230'  000215              0215
445   001232'  000222              0222
446   001234'  000227              0227
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447   001236'  000234                    0234
448   001240'  000241                    0241
449   001242'  000245                    0245
450   001244'  000252                    0252
451   001246'  000255                    0255
452   001250'  000261                    0261
453   001252'  000264                    0264
454   001254'  000267                    0267
455   001256'  000271                    0271
456   001260'  000274                    0274
457   001262'  000275                    0275
458   001264'  000276                    0276
459   001266'  000277                    0277
460   001270'  000277                    0277
461   001272'  000277                    0277
462   001274'  000277                    0277
463   001276'  000276                    0276
464   001300'  000274                    0274
465   001302'  000273                    0273
466   001304'  000270                    0270
467   001306'  000266                    0266
468   001310'  000263                    0263
469   001312'  000257                    0257
470   001314'  000254                    0254
471   001316'  000247                    0247
472   001320'  000243                    0243
473   001322'  000237                    0237
474   001324'  000232                    0232
475   001326'  000225                    0225
476   001330'  000220                    0220
477   001332'  000213                    0213
478   001334'  000205                    0205
479   001336'  000200                    0200
480   001340'  000173                    0173
481   001342'  000165                    0165
482   001344'  000160                    0160
483   001346'  000153                    0153
484   001350'  000146                    0146
485   001352'  000141                    0141
486   001354'  000135                    0135
487   001356'  000130                    0130
488   001360'  000124                    0124
489   001362'  000120                    0120
490   001364'  000115                    0115
491   001366'  000112                    0112
492   001370'  000107                    0107
493   001372'  000105                    0105
494   001374'  000103                    0103
495   001376'  000101                    0101
496   001400'  000100                    0100
497   001402'  000100                    0100
498   001404'  000100                    0100
499   001406'  000100                    0100
500   001410'  000100                    0100
501   001412'  000102                    0102
502   001414'  000103                    0103
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503   001416'  000105                    0105
504   001420'  000107                    0107
505   001422'  000112                    0112
506   001424'  000115                    0115
507   001426'  000121                    0121
508   001430'  000125                    0125
509   001432'  000131                    0131
510   001434'  000135                    0135
511   001436'  000142                    0142
512   001440'  000147                    0147
513   001442'  000154                    0154
514   001444'  000161                    0161
515   001446'  000166                    0166
516   001450'  000173                    0173
517
518   001452'  114000                    POINT
519   001454'  000200                    200
520   001456'  000040                    40
521   001460'  110000                    LONGV
522   001462'  040000                    INTX
523   001464'  001200                    1200
524   001466'  114000                    POINT
525   001470'  000200                    200
526   001472'  000100                    100
527   001474'  120000                    GRAPHX
528   001476'  000200                    0200
529   001500'  000205                    0205
530   001502'  000212                    0212
531   001504'  000217                    0217
532   001506'  000224                    0224
533   001510'  000231                    0231
534   001512'  000236                    0236
535   001514'  000243                    0243
536   001516'  000247                    0247
537   001520'  000253                    0253
538   001522'  000257                    0257
539   001524'  000262                    0262
540   001526'  000265                    0265
541   001530'  000270                    0270
542   001532'  000272                    0272
543   001534'  000274                    0274
544   001536'  000276                    0276
545   001540'  000277                    0277
546   001542'  000277                    0277
547   001544'  000277                    0277
548   001546'  000277                    0277
549   001550'  000276                    0276
550   001552'  000275                    0275
551   001554'  000274                    0274
552   001556'  000272                    0272
553   001560'  000267                    0267
554   001562'  000264                    0264
555   001564'  000261                    0261
556   001566'  000256                    0256
557   001570'  000252                    0252
558   001572'  000246                    0246
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559   001574'  000241                    0241
560   001576'  000235                    0235
561   001600'  000230                    0230
562   001602'  000223                    0223
563   001604'  000216                    0216
564   001606'  000211                    0211
565   001610'  000203                    0203
566   001612'  000176                    0176
567   001614'  000171                    0171
568   001616'  000163                    0163
569   001620'  000156                    0156
570   001622'  000151                    0151
571   001624'  000144                    0144
572   001626'  000137                    0137
573   001630'  000133                    0133
574   001632'  000127                    0127
575   001634'  000123                    0123
576   001636'  000117                    0117
577   001640'  000114                    0114
578   001642'  000111                    0111
579   001644'  000106                    0106
580   001646'  000104                    0104
581   001650'  000102                    0102
582   001652'  000101                    0101
583   001654'  000100                    0100
584   001656'  000100                    0100
585   001660'  000100                    0100
586   001662'  000100                    0100
587   001664'  000101                    0101
588   001666'  000102                    0102
589   001670'  000104                    0104
590   001672'  000106                    0106
591   001674'  000111                    0111
592   001676'  000113                    0113
593   001700'  000117                    0117
594   001702'  000122                    0122
595   001704'  000126                    0126
596   001706'  000132                    0132
597   001710'  000137                    0137
598   001712'  000144                    0144
599   001714'  000151                    0151
600   001716'  000156                    0156
601   001720'  000163                    0163
602   001722'  000170                    0170
603   001724'  000175                    0175
604   001726'  000203                    0203
605   001730'  000210                    0210
606   001732'  000215                    0215
607   001734'  000222                    0222
608   001736'  000227                    0227
609   001740'  000234                    0234
610   001742'  000241                    0241
611   001744'  000245                    0245
612   001746'  000252                    0252
613   001750'  000255                    0255
614   001752'  000261                    0261
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615   001754'  000264                    0264
616   001756'  000267                    0267
617   001760'  000271                    0271
618   001762'  000274                    0274
619   001764'  000275                    0275
620   001766'  000276                    0276
621   001770'  000277                    0277
622   001772'  000277                    0277
623   001774'  000277                    0277
624   001776'  000277                    0277
625   002000'  000276                    0276
626   002002'  000274                    0274
627   002004'  000273                    0273
628   002006'  000270                    0270
629   002010'  000266                    0266
630   002012'  000263                    0263
631   002014'  000257                    0257
632   002016'  000254                    0254
633   002020'  000247                    0247
634   002022'  000243                    0243
635   002024'  000237                    0237
636   002026'  000232                    0232
637   002030'  000225                    0225
638   002032'  000220                    0220
639   002034'  000213                    0213
640   002036'  000205                    0205
641   002040'  000200                    0200
642   002042'  000173                    0173
643   002044'  000165                    0165
644   002046'  000160                    0160
645   002050'  000153                    0153
646   002052'  000146                    0146
647   002054'  000141                    0141
648   002056'  000135                    0135
649   002060'  000130                    0130
650   002062'  000124                    0124
651   002064'  000120                    0120
652   002066'  000115                    0115
653   002070'  000112                    0112
654   002072'  000107                    0107
655   002074'  000105                    0105
656   002076'  000103                    0103
657   002100'  000101                    0101
658   002102'  000100                    0100
659   002104'  000100                    0100
660   002106'  000100                    0100
661   002110'  000100                    0100
662   002112'  000100                    0100
663   002114'  000102                    0102
664   002116'  000103                    0103
665   002120'  000105                    0105
666   002122'  000107                    0107
667   002124'  000112                    0112
668   002126'  000115                    0115
669   002130'  000121                    0121
670   002132'  000125                    0125
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671  002134'  000131                        0131
672  002136'  000135                        0135
673  002140'  000142                        0142
674  002142'  000147                        0147
675  002144'  000154                        0154
676  002146'  000161                        0161
677  002150'  000166                        0166
678  002152'  000173                        0173
679
680  002154'  114000                        POINT
681  002156'  001434                        1434
682  002160'  000724                        724
683  002162'  130030                        RELATV!BLKON
684  002164'  041600                        INTX+1600
685  002166'  041607                        INTX+1600+7
686  002170'  040007                        INTX+7
687  002172'  061607                        INTX!MINUSX+1600+7
688  002174'  061600                        INTX!MINUSX+1600
689  002176'  061707                        INTX!MINUSX+1600+MINSUY+7
690  002200'  040107                        INTX+MINSUY+7
691  002202'  041707                        INTX+1600+MINSUY+7
692  002204'  114000                        POINT
693  002206'  001430                        1430
694  002210'  000710                        710
695  002212'  130020                        RELATV!BLKOFF
696  002214'  043600                        INTX+3600
697  002216'  043617                        INTX+3600+17
698  002220'  040017                        INTX+17
699  002222'  063617                        INTX!MINUSX+3600+17
700  002224'  063600                        INTX!MINUSX+3600
701  002226'  063717                        INTX!MINUSX+3600+MINSUY+17
702  002230'  040117                        INTX+MINSUY+17
703  002232'  043717                        INTX+3600+MINSUY+17
704  002234'  114000                        POINT
705  002236'  001420                        1420
706  002240'  000660                        660
707  002242'  104030                        SHORTV!BLKON
708  002244'  047600                        INTX+7600
709  002246'  047637                        INTX+7600+37
710  002250'  040037                        INTX+37
711  002252'  067637                        INTX!MINUSX+7600+37
712  002254'  067600                        INTX!MINUSX+7600
713  002256'  067737                        INTX!MINUSX+7600+MINSUY+37
714  002260'  040137                        INTX+MINSUY+37
715  002262'  047737                        INTX+7600+MINSUY+37
716  002264'  114000                        POINT
717  002266'  001400                        1400
718  002270'  000600                        600
719  002272'  104020                        SHORTV!BLKOFF
720  002274'  057600                        INTX+17600
721  002276'  057677                        INTX+17600+77
722  002300'  040077                        INTX+77
723  002302'  077677                        INTX!MINUSX+17600+77
724  002304'  077600                        INTX!MINUSX+17600
725  002306'  077777                        INTX!MINUSX+17600+MINSUY+77
726  002310'  040177                        INTX+MINSUY+77
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727  002312'  057777                        INTX+17600+MINSUY+77
728  002314'  114030                        POINT!BLKON
729  002316'  001360                        1360
730  002320'  000520                        520
731  002322'  110000                        LONGV               ;OCTOGON BY LENGTH OF 137
732  002324'  040137                        INTX+137
733  002326'  000000                        0
734  002330'  040137                        INTX+137
735  002332'  000137                        137
736  002334'  040000                        INTX
737  002336'  000137                        137
738  002340'  060137                        INTX!MINUSX+137
739  002342'  000137                        137
740  002344'  060137                        INTX!MINUSX+137
741  002346'  000000                        0
742  002350'  060137                        INTX!MINUSX+137
743  002352'  020137                        MINUSX+137
744  002354'  040000                        INTX
745  002356'  020137                        MINUSX+137
746  002360'  040137                        INTX+137
747  002362'  020137                        MINUSX+137
748  002364'  114120                        POINT!BLKOFF!LPOFF
749  002366'  001340                        1340
750  002370'  000440                        440
751  002372'  110000                        LONGV               ;OCTOGON BY LENGTH OF 177
752  002374'  040177                        INTX+177
753  002376'  000000                        0
754  002400'  040177                        INTX+177
755  002402'  000177                        177
756  002404'  040000                        INTX
757  002406'  000177                        177
758  002410'  060177                        INTX!MINUSX+177
759  002412'  000177                        177
760  002414'  060177                        INTX!MINUSX+177
761  002416'  000000                        0
762  002420'  060177                        INTX!MINUSX+177
763  002422'  020177                        MINUSX+177
764  002424'  040000                        INTX
765  002426'  020177                        MINUSX+177
766  002430'  040177                        INTX+177
767  002432'  020177                        MINUSX+177
768
769  002434'  114140                        POINT!LPON
770  002436'  000100                        100
771  002440'  001277                        MAXY-100
772  002442'  164000                        DNOP
773  002444'  170040                        STATSA!ITALO
774  002446'  100000                        CHAR
775
776  002450'  040500  041502  042504        .ASCII  /@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_/
777  002456'  043506  044510  045512
778  002464'  046514  047516  050520
779  002472'  051522  052524  053526
780  002500'  054530  055532  056534
781  002506'  057536
782  002510'  020440  021442  022444        .ASCII  / !"#$%&'()*+,-./0123456789:;<=>?/
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793   002516'  023446   024450   025452
784   002524'  026454   027456   030460
785   002532'  031462   032464   033466
786   002540'  034470   025472   036474
787   002546'  037476
788                                          .EVEN
789   002550'  164000                        UNOP
790   002552'  170060                        STATSAIITAL1
791   002554'  114000                        POINT
792   002556'  000100                        100
793   002560'  001247                        MAXY-130
794   002562'  100000                        CHAR
795
796   002564'  040500   041502   042504      .ASCII  /!"#$%&'()*+,-./0123456789:;<=>?/
797   002572'  043506   044510   045512
798   002600'  046514   047516   050520
799   002606'  051522   052524   053526
800   002614'  054530   055532   056534
801   002622'  057536
802   002624'  020440   021442   022444      .ASCII  / !"#$%&'()*+,-./0123456789:;<=>?/
803   002632'  023446   024450   025452
804   002640'  026454   027456   030460
805   002646'  031462   032464   033466
806   002654'  034470   025472   036474
807   002662'  037476
808                                          .EVEN
809   002664'  170040                        STATSAIITAL0
810   002666'  114000                        POINT
811   002670'  000220                        220
812   002672'  001177                        MAXY-200
813   002674'  100000                        CHAR
814
815   002676'     140      141      142      .BYTE   140,141,142,143,144,145,146,147
816   002701'     143      144      145
817   002704'     146      147
818   002706'     150      151      152      .BYTE   150,151,152,153,154,155,156,157
819   002711'     153      154      155
820   002714'     156      157
821   002716'     160      161      162      .BYTE   160,161,162,163,164,165,166,167
822   002721'     163      164      165
823   002724'     166      167
824   002726'     170      171      172      .BYTE   170,171,172,173,174,175,176,177
825   002731'     173      174      175
826   002734'     176      177
827                                          .EVEN
828   002736'  170060                        STATSAIITAL1
829   002740'  114000                        POINT
830   002742'  000220                        220
831   002744'  001147                        MAXY-230
832   002746'  100000                        CHAR
833
834   002750'     140      141      142      .BYTE   140,141,142,143,144,145,146,147
835   002753'     143      144      145
836   002756'     146      147
837   002760'     150      151      152      .BYTE   150,151,152,153,154,155,156,157
838   002763'     153      154      155
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839   002766'     156      157
840   002770'     160      161      162      .BYTE   160,161,162,163,164,165,166,167
841   002773'     163      164      165
842   002776'     166      167
843   003000'     170      171      172      .BYTE   170,171,172,173,174,175,176,177
844   003003'     173      174      175
845   003006'     176      177
846                                          .EVEN
847   003010'  170040                        STATSAIITAL0
848   003012'  114000                        POINT
849   003014'  000220                        220
850   003016'  001077                        MAXY-300
851   003020'  100000                        CHAR
852
853   003022'     016      000      001      .BYTE   16,0,1,2,3,4,5,6,7,10,11,12,13,14,15,16
854   003025'     002      003      004
855   003030'     005      006      007
856   003033'     010      011      012
857   003036'     013      014      015
858   003041'     016
859   003042'     020      021      022      .BYTE   20,21,22,23,24,25,26,27,30,31,32,33,34,35,36,37,17,0
860   003045'     023      024      025
861   003050'     026      027      030
862   003053'     031      032      033
863   003056'     034      035      036
864   003061'     037      017      000
865                                          .EVEN
866   003064'  170060                        STATSAIITAL1
867   003066'  114000                        POINT
868   003070'  000220                        220
869   003072'  001047                        MAXY-330
870   003074'  100000                        CHAR
871
872   003076'     016      000      001      .BYTE   16,0,1,2,3,4,5,6,7,10,11,12,13,14,15,16
873   003101'     002      003      004
874   003104'     005      006      007
875   003107'     010      011      012
876   003112'     013      014      015
877   003115'     016
878   003116'     020      021      022      .BYTE   20,21,22,23,24,25,26,27,30,31,32,33,34,35,36,37,17,0
879   003121'     023      024      025
880   003124'     026      027      030
881   003127'     031      032      033
882   003132'     034      035      036
883   003135'     037      017      000
884                                          .EVEN
885   003140'  114000                        POINT
886   003142'  030600                        600
887   003144'  000320                        320
888   003146'  100000                        CHAR
889   003150'  042504   027503   030530      .ASCIZ  /DEC/X11 PDP-11 SYSTEM EXERCISER/
890   003156'  020061   042120   026520
891   003164'  030461   051440   051531
892   003172'  042524   020115   054105
893   003200'  051105   044503   042523
894   003206'  000122
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 895  003210'  114000                     POINT
 896  003212'  000400                     400
 897  003214'  000020                     20
 898  003216'  100000                     CHAR
 899  003220'  042504  043503  040522     .ASCIZ  "DECGRAPHIC-11 GT-40 MONOGRAPHIC DISPLAY TERMINAL"
 900  003226'  044120  041511  030455
 901  003234'  020061  052107  032055
 902  003242'  020060  046101  044120
 903  003250'  043501  040522  044120
 904  003256'  041511  042040  051511
 905  003264'  046120  054501  052040
 906  003272'  051105  044515  040516
 907  003300'  000114
 908  003302'  170040                     STATSA!!TALO
 909  003304'  114000                     POINT
 910  003306'  000340                     340
 911  003310'  001000                     1000
 912  003312'  113604                     LONGV!INT7!LINE0
 913  003314'  040400                     INTX+400
 914  003316'  000000                     0
 915  003320'  114000                     POINT
 916  003322'  000340                     340
 917  003324'  000740                     740
 918  003326'  113400                     LONGV!INT6
 919  003330'  040400                     INTX+400
 920  003332'  000000                     0
 921  003334'  114000                     POINT
 922  003336'  000340                     340
 923  003340'  000700                     700
 924  003342'  113200                     LONGV!INT5
 925  003344'  040400                     INTX+400
 926  003346'  000000                     0
 927  003350'  114000                     POINT
 928  003352'  000340                     340
 929  003354'  000640                     640
 930  003356'  113000                     LONGV!INT4
 931  003360'  040400                     INTX+400
 932  003362'  000000                     0
 933  003364'  114000                     POINT
 934  003366'  000340                     340
 935  003370'  000600                     600
 936  003372'  112600                     LONGV!INT3
 937  003374'  040400                     INTX+400
 938  003376'  000000                     0
 939  003400'  114000                     POINT
 940  003402'  000340                     340
 941  003404'  000540                     540
 942  003406'  112400                     LONGV!INT2
 943  003410'  040400                     INTX+400
 944  003412'  000000                     0
 945  003414'  114000                     POINT
 946  003416'  000340                     340
 947  003420'  000500                     500
 948  003422'  112200                     LONGV!INT1
 949  003424'  040400                     INTX+400
 950  003426'  000000                     0
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 951  003430'  114000                     POINT
 952  003432'  000340                     340
 953  003434'  000440                     440
 954  003436'  112000                     LONGV!INT0
 955  003440'  040400                     INTX+400
 956  003442'  000000                     0
 957  003444'  164000                     DNOP
 958  003446'  164000                     DNOP
 959  003450'  164000                     DNOP
 960  003452'  164000                     DNOP
 961  003454'  164000                     DNOP
 962  003456'  164000                     DNOP
 963  003460'  164000                     DNOP
 964  003462'  160000                     DJMP
 965  003464'  003514'           FILEOA:  FILEOC
 966  003466'  117000           FILEOB:  POINT!INT4
 967  003470'  001000                     1000
 968  003472'  000440                     440
 969  003474'  100000                     CHAR
 970  003476'  044514  044107  026524     .ASCIZ  /LIGHT-PEN HIT/
 971  003504'  042520  020116  044510
 972  003512'  000124
 973                                       .EVEN
 974  003514'  173400           FILEOC:  DSTOP
 975  003516'  160000                     DJMP
 976  003520'  000706'                    FILEO
 977         000001                        .END
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ACSP     000102R     234#
ADDR     000006R     200#    267     268     269     270
ADDR22=  001000      247#
ASB      000106R     234#
ASTAT    000104R     236#
AWAS     000110R     239#
BEGIN    000000R     197#    295     300     309     313     318     322     326     330     332
BIT0   = 000001      247#
BIT1   = 000002      247#
BIT10  = 002000      247#
BIT11  = 004000      247#
BIT12  = 010000      247#
BIT13  = 020000      247#
BIT14  = 040000      247#
BIT15  = 100000      247#
BIT2   = 000004      247#
BIT3   = 000010      247#
BIT4   = 000020      247#
BIT5   = 000040      247#
BIT6   = 000100      247#
BIT7   = 000200      247#
BIT8   = 000400      247#
BIT9   = 001000      247#
BLKOFF = 000020      193#    695     719     748
BLKON  = 000030      193#    683     707     728
BREAK$= 104407       247#
BR1      000012R     202#    286     288     290
BR2      000013R     203#
BTOD$ = 104421       247#
CDATA$= 104412       247#
CHAR  = 100000       193#    774     794     813     832     851     870     888     898     969
CONFIG   000056R     222#
CSRA     000100R     224#
DATCK$= 104411       247#
DATEP$= 104404       247#
DJMP  = 160000       193#    964     975
DNOP  = 164000       193#    772     789     957     958     959     960     961     962     963
DSTOP = 173400       193#    974
DVID1    000014R     204#
ENDIT$= 104413       247#    309
END$  = 104410       247#    332
ERRTYP   000106R     237#    328*
EXIT$ = 104400       247#    295     313     322
FILE0    000706R     294#    338#    976
FILE0A   003464R     292*    311*    320*    965#
FILE0B   003466R     320     966#
FILE0C   003514R     292#    311     965     974#
GETPA$= 104415       247#
GRAPHX= 120000       193#    527
GRAPHY= 124000       193#    365
GRPINC   000770R     293#    305*    306     308*    364#
GTDLV0   000540R     291*    297#    302*    304*
GTDNE1   000236R     255#    275*    280*    286*
GTDONE   000234R     254#    274*    285*
GTLPEN   000632R     287#    316#
GTLPH    000240R     257#    276*    281*    287*
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GTLPH1   000242R     258#    277*    282*    288*
GTPC     000224R     249#    267*    294*    312*    321*
GTSHIF   000660R     289#    324#
GTSOTM   000244R     260#    278*    283*    289*
GTSOT1   000246R     261#    279*    284*    290*
GTSR     000226R     250#    268*    271*
GTSTOP   000542R     285#
GTXPOS   000230R     251#    269#    272*
GTYPOS   000232R     252#    270*    273*
GWBUF$= 104414       247#
HRDCNT   000044R     217#
HRDEP$= 104405       247#    330
HRDPAS   000050R     219#
ICONT    000036R     214#
ICOUNT   000040R     215#
IDNUM    000122R     244#
INCR  = 000100       193#    293     306     308     364
INIT     000030R     266*
INTR     000120R     243#
INTX  = 040000       193#    343     346     349     352     359     522     684     685     686     687     688     689
                             690     691     696     697     698     699     700     701     702     703     708     709     710
                             711     712     713     714     715     720     721     722     723     724     725     726     727
                             732     734     736     738     740     742     744     746     752     754     756     758     760
                             762     764     766     913     919     925     931     937     943     949     955
INT0  = 002000       193#    954
INT1  = 002200       193#    948
INT2  = 002400       193#    942
INT3  = 002600       193#    936
INT4  = 003000       193#    930     966
INT5  = 003200       193#    924
INT6  = 003400       193#    918
INT7  = 003600       193#    912
ITAL0 = 000040       193#    773     809     847     908
ITAL1 = 000060       193#    790     828     866
LINE0 = 000004       193#    342     355     912
LINE1 = 000005       193#    345
LINE2 = 000006       193#    348
LINE3 = 000007       193#    351
LONGV = 110000       193#    342     345     348     351     358     521     731     751     912     918     924     930
                             936     942     948     954
LPDARK= 000200       193#    341
LPLITE= 000300       193#    748
LPOFF = 000100       193#    339     769
LPON  = 000140       193#
MAP22$= 104416       247#
MAXSX = 017600       193#
MAXSY = 000077       193#
MAXX  = 001777       193#    343     349     353     771     793     812     831     850     869
MAXY  = 001377       193#    340     347     361     701     702     703     713     714     715     725     726     727
MINSUV= 000100       193#    689     690     691     688     699     700     701     711     712     713
MINUSX= 020000       193#    347     349     687     688     699     700     701     711     712     713
                             767     725     738     740     742     743     745     747     758     760     762     763     765
MINUSV= 020000       193#
MODNAM   000000R     198#
MODSP    000224R     212#    245#
```

```
MSGN$  = 104403          247#
MSGS$  = 104402          247#
MSGS$  = 104401          247#
NULL   = 000000          247#   330
OPEN   = 000000          199    205    206    207    208    225    226    227    228    229    230    231    232
                                234    236    238    239    241    242    243    247-
OTOA$  = 104420          247#
PASCNT   000034R         213#
PIRQ$  = 000004          247#   300    318    326
POINT  = 114000          193#   338    355    361    519    524    698    695    704    719    74     71     797
                                791    810    829    84     867    695    898    935    715    721    8      79
                                045    951    866
POPSP  = 005726          247#
POPSP2 = 022626          247#
PRTY   = 000000          203    247#
PRTY0  = 000000          247#
PRTY1  = 000040          247#
PRTY2  = 000100          247#
PRTY3  = 000140          247#
PRTY4  = 000200          202    247#
PRTY5  = 000240          247#
PRTY6  = 000300          247#
PRTY7  = 000340          247#
PS     = 177776          247#
PSW    = 177776          247#
PUSH   = 005746          247#
PUSH2  = 024646          247#
RAND$  = 104417R         247#
RANNUM   000054R         221#
RELATV = 130000          193#   683    695
RESTRT   006612R         240    303    307    311#
RES1     000056R         223#
RES2     000060R         224#
RSTRT    001112R         240#
SBADR    000102R         233#
SHORTV = 104000          193#   707    719
SOFCNT   000042R         216#
SOFER$ = 104406          247#
SOFPAS   000046R         218#
SPOINT   000032R         212#
SPSIZ  = 000040          1#     245
SR1      000016R         205#
SR2      000020R         206#
SR3      000022R         207#
SR4      000024R         208#
START    000250R         211    265#
STAT     000026R         210#
STATSA = 170000          193#   773    790    809    828    847    866    908
STATSB = 174000          193#   293    306    308    341    364
SVR0     000062R         225#
SVR1     000064R         226#
SVR2     000066R         227#
SVR3     000070R         228#
SVR4     000072R         229#
SVR5     000074R         230#
SVR6     000076R         231#
```

```
SYNOFF = 000010          193#
SYNON  = 000014          193#
SYSCNT   000052R         220#
TRPDFD = 000022          247#   274    275    276    277    278    279
VECTOR   000010R         201#
WASADR   000104R         235#
WDFR     000116R         242#   265*
WDTO     000114R         241#
XFLAG    000005R         199#
```

```
. ABS.   000000          000
         003522          001
```

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

XGTAEO,XGTAEO/SOL/CRF:SYM=DDXCOM,XGTAEO
RUN-TIME: 1 2 .4 SECONDS
RUN-TIME RATIO: 17/4=3.5
CORE USED: 7K (13 PAGES)

```
XX    XX      GGGGGGG   TTTTTTTTT    AAAAAA    EEEEEEEEEE     000000
XX    XX      GGGGGGGG  TTTTTTTTT    AAAAAA    EEEEEEEEEE     000000
XX    XX    GG             TT      AA    AA    EE            00    00
XX    XX    GG             TT      AA    AA    EE            00    00
  XX  XX    GG             TT      AA    AA    EE            00  0000
  XX  XX    GG             TT      AA    AA    EE            00 00 00
    XX      GG             TT      AA    AA    EEEEEEE       00 00 00
    XX      GG  GGGGGG     TT      AA    AA    EEEEEEE       00 00 00
  XX  XX    GG  GGGGGG     TT      AAAAAAAAAA  EE          0000   00
  XX  XX    GG      GG     TT      AAAAAAAAAA  EE          0000   00
XX    XX    GG      GG     TT      AA    AA    EE            00   00
XX    XX    GG      GG     TT      AA    AA    EE            00   00
XX    XX      GGGGGG       TT      AA    AA    EEEEEEEEEE    000000
XX    XX      GGGGGG       TT      AA    AA    EEEEEEEEEE    000000
```

```
SSSSSSS   EEEEEEEEEE   QQQQQQ
SSSSSSS   EEEEEEEEEE   QQQQQQ
SS        EE          QQ    QQ
SS        EE          QQ    QQ
SS        EE          QQ    QQ
SSSSSS    EEEEEEE     QQ    QQ
SSSSSS    EEEEEEE     QQ    QQ
     SS   EE          QQ QQ QQ
     SS   EE          QQ QQ QQ
     SS   EE          QQ  QQ
SSSSSSS   EEEEEEEEEE   QQQQ QQ
SSSSSSS   EEEEEEEEEE   QQQQ QQ
```

```
*******************************************************************
* FOR REMOTE SITE PROBLEMS CONTACT THE I.P.C. NETWORK TEAM AT EX 5955....
*******************************************************************
* *   *   *   *   L I S T I N G   P R O B L E M S ?   *   *   *   *   *
* If you have problems/questions with this listing, please        *
* A. Check the applicable items.                                  *
*      ___ Do not need this listing, please discontinue           *
*      ___ Interested in receiving listing on microfiche          *
*      ___ Interested in receiving listing on 8 1/2 X 11 Xerox paper *
*      ___ Address is wrong or incomplete (Enter correctly below) *
*      ___ Have other problem/question; not sure whom to contact  *
* B. Identify yourself and the listing.          Phone:           *
*    Name:                        Location (mail stop):           *
*                                                                 *
*    CC #:       Listing name:                    Listing #:      *
*                                                                 *
* C. Mail entire page to: Corporate Information Services  PK3-2/F34  *
* *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   * *
```