

BTAR DEC/X11 SYSTEM EXERCISE MODULE MACY11 30A(1052) 12-OCT-78 16:23 PAGE 2
X9TA80.P11 12-OCT-78 11:53

SEQ 0001

.REM -

IDENTIFICATION

PRODUCT CODE: AC-E812B-MC
PRODUCT NAME: CKBTABO BUS TESTER MODULE B
PRODUCT DATE: SEPTEMBER 1978
MAINTAINER: DEC/X11 SUPPORT GROUP

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BSTAR DEC/X11 SYSTEM EXERCISER MODULE MACY11 30A(1052) 12-OCT-78 16:23 PAGE 3
XBTAB0.P11 12-OCT-78 11:53

SEQ 0002

1. ABSTRACT

THE BTA MODULE IS AN IOMODR THAT EXERCISES THE FIRST TWO ADDRESSES AND FIRST TWO VECTORS OF THE BUS TESTER. BOTH CSR'S ARE TESTED AND STEPPED THROUGH FOUR BR LEVELS.

2. REQUIREMENTS

HARDWARE: ONE UNIBUS TESTER

STORAGE:: BTA REQUIRES:

- 1. DECIMAL WORDS: 279
- 2. OCTAL WORDS: 0427
- 3. OCTAL BYTES: 1056

3. PASS DEFINITION

ONE PASS CONSISTS OF CYCLING THROUGH THE CODE 100,000 TIMES WHICH CHECKS THE INTERRUPT ON FOUR BR LEVELS.

4. EXECUTION TIME

ONE PASS TAKES APPROXIMATELY 1 MINUTE.

5. CONFIGURATION REQUIREMENTS

DEFAULT PARAMETERS: DVA:170000 VCT:510 BR1:0 BR2:0 DVC:1 SR1:0
REQUIRED PARAMETERS: NONE NONE
MEANING OF SR1: NONE

6. DEVICE/OPTION SETUP

CONNECT THE BUS TESTER AND POWER UP.

BTAB DEC/X11 SYSTEM EXERCISER MODULE MACY11 30A(1052) 12-OCT-78 16:23 PAGE 4
XBTAB0.P11 12-OCT-78 11:53

SEQ 0003

7. MODULE OPERATION

SETS UP THE FIRST TWO CSRT'S, ONE FOR A TRANSFER AND THE OTHER FOR AN INTERRUPT. WHEN THE OPERATION HAS COMPLETED ERROR CHECKING IS DONE AND THE BR LEVEL IS CHANGED, TESTING IS THEN CONTINUED.

8. OPERATION OPTIONS

NONE

9. NON-STANDARD PRINTOUTS

NONE

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000000-   - IONODR <BTAB > 170000,510,160000,131
000000- MODULE 152000,BTAB 170000,510,160000,131
000000- TITLE BTAB DEC/X11 SYSTEM EXERCISER MODULE
000000- DDXCOM VERSION 6 25-OCT-78
        ; LIST 0TN
*****
BEGIN:
MODNAME= ASCII /BTAB / ;MODULE NAME.
XFLAG= .BYTE OPEN   ;USED TO KEEP TRACK OF WBUFF USAGE
000006- 170000 .WORD 100000+0 ;1ST DEVICE ADDR.
000012- 000000 VFCOR= $1000 ;1ST BR VECTOR.
000013- 0000 BRI: .BYTE PRTY+0 ;2ND BR LEVEL.
000014- 000001 BR2: .BYTE PRTY+0 ;2ND BR LEVEL.
DVID1: +1 ;DEVICE INDICATOR 1.
000016- 000000 SRI: OPEN ;SWITCH REGISTER 1.
000020- 000000 SR2: OPEN ;SWITCH REGISTER 2.
000024- 000000 SR3: OPEN ;SWITCH REGISTER 3.
000028- 000000 SR4: OPEN ;SWITCH REGISTER 4.
***** STATUS WORD.
000026- 152000 STAT: 152000 ;STATUS WORD.
000030- 000224 INIT: START ;MODULE START ADDR.
000032- 000224 SPPOINT: MODSP ;MODULE STACK POINTER.
000034- 000000 PASCNT: 0 ;PASS COUNT.
000038- 000000 LOCNT: 0 ;LOC TO COUNT ITERATIONS.
000040- 000000 ICOUNT: 0 ;LOC TO COUNT ITERATIONS PER PASS=100000
000042- 000000 SOFCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS.
000044- 000000 HRDCNT: 0 ;LOC TO SAVE TOTAL HARD ERRORS.
000046- 000000 SDFPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS.
000050- 000000 HRDPAS: 0 ;LOC TO SAVE HARD ERRORS PER PASS.
000052- 000000 SVSCNT: 0 ;# OF SYS ERRORS ACCUMULATED.
000053- 000000 RLEN: 0 ;RESERVED FOR MONITOR USE.
000056- 000000 CONF1: ;RESERVED FOR MONITOR USE.
000058- 000000 RES1: 0 ;RESERVED FOR MONITOR USE.
000060- 000000 RES2: 0 ;RESERVED FOR MONITOR USE.
000062- 000000 SVR0: OPEN ;LOC TO SAVE R0.
000064- 000000 SVR1: OPEN ;LOC TO SAVE R1.
000066- 000000 SVR2: OPEN ;LOC TO SAVE R2.
000068- 000000 SVR3: OPEN ;LOC TO SAVE R3.
000072- 000000 SVR4: OPEN ;LOC TO SAVE R4.
000074- 000000 SVR5: OPEN ;LOC TO SAVE R5.
000076- 000000 SVR6: OPEN ;LOC TO SAVE R6.
000100- 000000 CSRA: OPEN ;ADDR OF CURRENT CSR.
000102- 000000 SBDAR: ;ADDR OF GOOD DATA, OR
000102- 000000 ACSTR: OPEN ;CONTENTS OF CSR.
000102- 000000 MSADR: OPEN ;BDS ADDRESS, OR
000104- 000000 ASAT: OPEN ;STATUS REG CONTENTS.
000106- 000000 ERRTYP: ;TYPE OF ERROR.
000106- 000000 ASB: OPEN ;EXPECTED DATA.
000110- 000000 AWAS: OPEN ;ACTUAL DATA.
000112- 000316 RSTART: RESTRT ;RESTART ADDRESS AFTER END OF PASS
000114- 000000 RDTOT: OPEN ;WORDS TO MEMORY PER ITERATION.
000115- 000000 WDR: OPEN ;WORDS FROM MEMORY PER ITERATION.
000116- 000000 INTL: OPEN ;# OF INTERRUPTS PER ITERATION.
000122- 000131 IDNUM: 131 ;MODULE IDENTIFICATION NUMBER=131
000040-          ;REPT SPSTZ ;MODULE STACK STARTS HERE.
        
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        ;NLIST 0
        ;LIST
        ;ENDR

000224- MODSP:
***** START: MOV #8,_INTR ;8 INTERRUPTS/ITERATION
162 000224- 012767 000010 177666    MOV #2,_WDTO ;2 WORDS TO MEM/ITERATION
163 000232- 012767 00002 177654    MOV #2,_WDFR ;2 WORDS FROM MEM/ITERATION
164 000240- 000248 00002 177650    CLR TIB
165 000246- 0005067 0000126
166 000252- 0005067 0000125
167 000256- 004567 000172    JSR R5,_ADSUP ;SET UP ADDRESSES.
168 000262- 004567 000252    JSR R5,_VEC ;SET UP VECTORS.
169 000266- 005067 000332    CLR EXP1A ;CLEAR OUT EXPECTED DATA
170 000272- 005067 000324    CLR RECIA ;CLEAR TEST LOCATION.
171 000276- 005067 000316    CLR SPDATA ;CLEAR PATTERN TO BE TRANSMITTED
172 000282- 005067 000542    MOV #33,BPUNC ;SET FIRST FUNCTION
173 000310- 012777 000033 000536    MOV #33,BPUNC ;SET SECOND FUNCTION
174 000316- 012777 000627- 000510    RESTRT: MOV #REC1A,BACRA ;SET UP ADDRESS OF DATA
175 000324- 012777 000002 000504    MOV #2,BACMC ;SET WORD COUNT
176 000332- 016777 000514 000500    MOV FUNC,BACCSR ;PIRE OFF BUSS TESTFR.
177 000340- 016777 000501- 000502    MOV BPUNC,@BBCSR ;SET SECTION 2 OFF.
178 000346- 104400 000000-          EXIT,BEGIN ;EXIT TO MONITOR. MODULE WAIT FOR INTERRUPT.
179
180
181
182 000352-          ;INTERRUPT SERVICE ROUTINES.
183
184 000352- 000004 000000- 000360- PIROS,BEGIN,15 ;QUEUE UP TO CONTINUE AT IS AND RTI
185
186 000360- 005777 000454    1$: BPL ABCCSR ;TEST FOR BUSY SET
187 000370- 100004    BPL _OK
188 000375- 016700 000446    MOV ABCCSR,R0 ;OK
189 000372- 004567 000360    JSR R5,ER51
190 000376- 005077 000436    2$: CLR ABCCSR
191 000402- 005077 000432    CLR ABCCSR
192 000406- 026767 000210 000210    CMP RFC1A,EXP1A ;TRANSFER DONE CORRFCTLY?
193 000414- 016700 000454    BEQ 3$ ;YES
194 000419- 016700 000458    MOV ABCCSR,R0
195 000426- 004567 000359    JSR R5,ER52
196 000426- 004567 000204    3$: JSR R5,BRA ;CHANGE BR LEVEL
197 000432- 104413 000000-    ENDITS,BEGIN ;SIGNAL END OF ITERATION
198 000436- 000167 177654    JMP RESTRT ;MONITOR SHALL TEST END OF PASS
199
200
201
202 000442- 005077 000402    BUST2: CLR BBCCSR ;RETURN.
203 000446- 005077 000376    CLR @BBCCSR
204 000452- 000002          RTS
205
206
207 000454- 016700 177326    ADSUP: MOV ADDR,R0 ;GET FIRST ADDRESS
208 000460- 016707 000346    MOV R0,BDBR ;SET DATA BUFFER OF SECTION 1
209 000464- 005070 000420    CLR (R0)* ;SET ADDRESS REG FOR SECTION 1
210 000467- 010567 000342    MOV R0,ABCRA
211 000472- 005020          CLR (R0)*
        
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BTAB DEC/X11 SYSTEM EXERCISER MODULE
XBTAB0.P11 12-OCT-78 11:53

MACV11 30A(1052) 12-OCT-78 16:23 PAGE 7

SEQ 0006

212 000474* 010067 000336 MOV R0,ABWC ;SET WORD COUNT FOR SECTION 1
213 000500* 005029 000332 CLR (R0),ACCSR ;SET CSR FOR SECTION 1
214 000506* 005020 000326 MDV R0,BDBBR ;SET DATA BUFFER IN SECTION 2
215 000514* 010067 000326 CLR (R0)+ ;SET ADDRESS REG IN SECTION 2
216 000516* 010067 000322 MDV R0,BBCA ;SET ADDRESS REG IN SECTION 2
217 000522* 005020 000316 CLR (R0)+ ;SET WORD COUNT IN SECTION 2
218 000523* 005020 000316 CLR (R0),RWIC ;SET CSR IN SECTION 2
219 000532* 010067 000312 RTS R5 ;SET CSR IN SECTION 2
220 000536* 000205
221
222 000540* 016700 177244 VEC: MOV VECTOR,R0 ;POINT TO FIRST VECTOR
223 000544* 012700 000352 MOV #RUST1,(R0)+ ;POINT TO FIRST INTERRUPT
224 000550* 000200 000056 TST R0,SAVA ;SET RR LOCATION
225 000552* 027777 000200 000042 BIS #200,RSAVA ;CLEAR RR BITS
226 000557* 005720 000442 TST (R0)+ ;SET RR LEVEL OF 4
227 000562* 012720 000442 MOV #RUST2,(R0)+ ;POINT TO SECOND INTERRUPT
228 000567* 010067 000332 MOV R0,SAVB ;SAVE RR LOCATION
229 000569* 027777 000200 000016 BIS #240,RSAVB ;CLEAR RR BITS
230 000570* 000205 RTS R5 ;SET RR LEVEL OF 4
231
232
233
234
235
236
237
238
239
240 000570* 000000 SENDIA: 0
241 000572* 000000 RRCIA: 0
242 000574* 000000 EXP: 0
243 000576* 000000 TOTR: 0
244 000578* 000000 SAVR: 0
245 000580* 000000 SAVB: 0
246 000584* 000000 SAVR: 0
247 000586* 027767 000003 177762 BRA: CMP #2,TOT ;CHECK ALL RR LEVELS.
248 000588* 000000 ADD R0,;ALL RRS DONE
249 000589* 000040 000176 ADD #40,FUNC ;CHANGE RR LEVEL
250 000591* 000040 000172 ADD #40,RPUNC
251 000594* 000040 000172 ADD #40,RSAVA ;STEP RR LEVEL
252 000596* 027777 000040 177742 ADD #40,RSAVB
253 000598* 000040 000172 ADD #40,RSAVB
254 000599* 000040 177724 INC TOT
255 000600* 000040 177724 RTS R5
256 000601* 000040 177724 MOV #45411,FUNC ;SET 1ST RR LEVEL
257 000602* 012767 000033 000134 MOV #33,RPUNC
258 000603* 012767 000033 000134 TST R0,SAVA ;CLEAR RR BITS
259 000604* 042777 000340 177704 BIS #140,RSAVR
260 000605* 042777 000340 177704 BIS #140,RSAVB ;SET RR TO 4
261 000606* 012767 0000200 177664 BIS #200,RSAVR
262 000607* 012767 0000200 177664 BIS #200,RSAVB ;CLEAR COUNTER.
263 000608* 000205 RTS R5
264
265
266 000756* 010067 177116 ERRI: MOV R0,CSRA ;LOAD CSR ADDRESS

BTAB DEC/X11 SYSTEM EXERCISER MODULE
XBTAB0.P11 12-OCT-78 11:53

MACV11 30A(1052) 12-OCT-78 16:23 PAGE 8

SEQ 0007

267 000756* 010067 177116 MOV (R0),ACSR ;LOAD CONTENTS OF CSR
268 000766* 011967 070011 177112 MOV #11,ERRTYPE ;ILLEGAL INTERRUPT
269 *****
270 000774* 104405 000000* 000000 HRDERS,REGIN,NULL ;*****
271 001002* 000205 RTS R5 ;*****
272
273
274
275 001004* 010067 177070 EPR2: MOV R0,CSRA ;LOAD CSR ADDRESS
276 001010* 010067 177066 MOV (R0),ACSR ;LOAD CONTENTS OF CSR
277 001014* 012767 000001 177064 MOV #11,ERRTYPE ;DATA ERROR
278 *****
279 001022* 104405 000000* 000000 HRDERS,REGIN,NULL ;*****
280 001030* 000205 RTS R5 ;*****
281
282 ;SECTION 1 REGISTERS
283
284 001032* 000000 ADRR: 0
285 001034* 000000 ARCA: 0
286 001036* 000000 ARWC: 0
287 001040* 000000 ARCSR: 0
288
289 ;SECTION 2 REGISTERS
290
291 001042* 000000 BDRR: 0
292 001044* 000000 BCAC: 0
293 001046* 000000 BRRC: 0
294 001050* 000000 BRCSR: 0
295
296
297
298 001052* 000000 FUNC: 0
299 001054* 000000 BPUNC: 0
300
301
302 000001 .END

STAR DEC/X11 SYSTEM EXERCISER MODULE
X9TAB0.PII 12-OCT-78 11:53

MACY11 30A(1052) 12-OCT-78 16:23 PAGE 10
CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0008

| | | | | | | | | | | |
|----------|----------|------|------|------|------|------|-----|------|------|--|
| ARC1 | 001034R | 174* | 210* | 287# | | | | | | |
| ARCSR | 001040R | 176* | 186 | 188 | 190* | 191* | 194 | 214* | 289# | |
| ABDRR | 001032R | 208* | 286# | | | | | | | |
| ABWCR | 001036R | 145* | 246* | 288# | | | | | | |
| ACG1 | 000005R | 145* | 246* | 277# | | | | | | |
| ADDR | 000006R | 110* | 207 | | | | | | | |
| ADDSP2 | 001000 | 162# | | | | | | | | |
| ADSPUP | 000454R | 167 | 207# | | | | | | | |
| ASB | 000106R | 148# | | | | | | | | |
| ASTAT | 000104R | 146# | | | | | | | | |
| AWAS | 000110R | 149# | | | | | | | | |
| BRCX1 | 000105R | 179* | 294# | | | | | | | |
| BRCSR | 001050R | 214* | 303# | 203* | 222* | 296# | | | | |
| BRDRR | 001042R | 216* | 293# | | | | | | | |
| BBWC | 001046R | 220* | 295# | | | | | | | |
| BEGIN | 000000R | 107# | 178 | 184 | 197 | 271* | 280 | | | |
| BFUNC | 001054R | 173* | 177 | 251* | 257* | 299# | | | | |
| BIT0 | = 000001 | 162# | | | | | | | | |
| BIT1 | = 000200 | 162# | | | | | | | | |
| BIT11 | = 004000 | 162# | | | | | | | | |
| BIT12 | = 010000 | 162# | | | | | | | | |
| BIT13 | = 020000 | 162# | | | | | | | | |
| BIT14 | = 040000 | 162# | | | | | | | | |
| BIT15 | = 080000 | 162# | | | | | | | | |
| BIT16 | = 000010 | 162# | | | | | | | | |
| BIT4 | = 000020 | 162# | | | | | | | | |
| BITS | = 000040 | 162# | | | | | | | | |
| BIT9 | = 000100 | 162# | | | | | | | | |
| BIT7 | = 000200 | 162# | | | | | | | | |
| BIT8 | = 000400 | 162# | | | | | | | | |
| BIT9 | = 000800 | 162# | | | | | | | | |
| BP | 000636R | 196 | 248# | | | | | | | |
| BREAK\$= | 104407 | 162# | | | | | | | | |
| BR1 | 000012R | 112# | | | | | | | | |
| BR2 | 000013R | 113# | | | | | | | | |
| BTODS | = 104421 | 162# | | | | | | | | |
| BUSTS | 0000352R | 182# | 226 | | | | | | | |
| BUSY2 | 000032R | 182# | 231 | | | | | | | |
| CDPFS= | 104417 | 162# | | | | | | | | |
| CONFIG | 0000056R | 132# | | | | | | | | |
| CSRA | 000100R | 142# | | | | | | | | |
| DATKS | = 104411 | 162# | | | | | | | | |
| DATES | = 104404 | 162# | | | | | | | | |
| DVID1 | 0000014R | 114# | | | | | | | | |
| DVIDTS | = 104410 | 162# | | | | | | | | |
| END | 000105R | 141# | 269* | 278* | | | | | | |
| ERRTP | 000105R | 189 | 267* | | | | | | | |
| ERR1 | 000756R | 195 | 267# | | | | | | | |
| ERR2 | 0001004R | 195 | 276# | | | | | | | |
| EXITS | = 104400 | 162# | | | | | | | | |
| EXPTA | 000624R | 169* | 192 | 242# | | | | | | |
| FUNG | 000652R | 162# | 176 | 250* | 256* | 298# | | | | |
| GCF6S\$= | 104414 | 162# | | | | | | | | |
| G4BUFS | = 104414 | 162# | | | | | | | | |

STAR DEC/X11 SYSTEM EXERCISER MODULE
X9TAB0.PII 12-OCT-78 11:53

MACY11 30A(1052) 12-OCT-78 16:23 PAGE 11
CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0009

| | | | | | | | | | | |
|---------|----------|------|------|------|------|------|------|------|------|-----|
| HRCNT | 000044R | 127# | | | | | | | | |
| HRDP2 | = 104405 | 162# | 271 | 280 | | | | | | |
| HRDPAS | 000005R | 129# | | | | | | | | |
| ICONT | 000036R | 124# | | | | | | | | |
| ICOUNT | 000040R | 125# | | | | | | | | |
| IDNTH | 000122R | 154# | | | | | | | | |
| INIT | 000030R | 121# | | | | | | | | |
| INTI | 000010R | 123# | | | | | | | | |
| MAIL2S | = 104416 | 162* | | | | | | | | |
| MODRAM | 000000R | 108# | | | | | | | | |
| MOOSP | 000224R | 122 | 160* | | | | | | | |
| MSGNS | = 104403 | 162# | | | | | | | | |
| MSGSS | = 104402 | 162# | | | | | | | | |
| MSG5 | = 104401 | 162# | | | | | | | | |
| NULL | = 000000 | 162# | | | | | | | | |
| OPEN | = 000000 | 162# | 114 | 115 | 116 | 117 | 118 | 135 | 136 | 137 |
| OTOTS | = 104420 | 162# | 148 | 149 | 151 | 152 | 153 | 162# | 162# | 138 |
| PASCNT | 000034R | 123# | | | | | | | | |
| PIROS | = 000004 | 162# | | | | | | | | |
| POPPSP | = 005126 | 162# | | | | | | | | |
| POPPSP2 | = 006226 | 162# | | | | | | | | |
| PRTY0 | = 000000 | 162# | | | | | | | | |
| PRTY0 | = 000000 | 162# | | | | | | | | |
| PRTY1 | = 000040 | 162# | | | | | | | | |
| PRTY2 | = 000100 | 162# | | | | | | | | |
| PRTY3 | = 000140 | 162# | | | | | | | | |
| PRTY4 | = 000200 | 162# | | | | | | | | |
| PRTY5 | = 000340 | 162# | | | | | | | | |
| PRTY6 | = 000340 | 162# | | | | | | | | |
| PRTY7 | = 000340 | 162# | | | | | | | | |
| PS | = 177778 | 162# | | | | | | | | |
| PSM | = 177776 | 162# | | | | | | | | |
| PUSH1 | = 005746 | 162# | | | | | | | | |
| PUSH2 | = 024646 | 162# | | | | | | | | |
| RANDUM | 000454R | 162# | | | | | | | | |
| RTS | 000652R | 170* | 174# | 193 | 241# | | | | | |
| RPSTRT | 000316R | 150 | 174# | 199 | 241# | | | | | |
| RES1 | 000056R | 133# | | | | | | | | |
| RES2 | 000060R | 134# | | | | | | | | |
| RSTRT | 000112R | 150# | | | | | | | | |
| SAVA | 000632R | 227* | 228* | 229* | 245# | 252* | 258* | 260* | | |
| SADV | 000634R | 232* | 233* | 246# | 253* | 259* | 261* | | | |
| SRDP | 000062R | 171# | 240# | | | | | | | |
| SENDIA | 000620R | 171# | | | | | | | | |
| SDFCNT | 000042R | 126# | | | | | | | | |
| SOPERS | = 104406 | 162# | | | | | | | | |
| SOPFAS | 000046R | 128# | | | | | | | | |
| SPPOINT | 000032R | 122# | | | | | | | | |
| SPSIZ | = 9 | 155 | | | | | | | | |
| SR1 | 000016R | 115# | | | | | | | | |
| SR2 | 000020R | 116# | | | | | | | | |
| SR3 | 000022R | 117# | | | | | | | | |
| SR4 | 000024R | 118# | | | | | | | | |
| START | 000224R | 121 | 162# | | | | | | | |

BTAB DEC/XII SYSTEM EXERCISER MODULE MACY11 30A(1052) 12-OCT-78 16:23 PAGE 12
XRTABO.P11 12-OCT-78 11:53 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0010

| | | |
|---------|---------|-------------|
| STAT | 000026R | 120* |
| SVR0 | 000057R | 135* |
| SVR1 | 000064R | 136* |
| SVR2 | 000066R | 137* |
| SVR3 | 000070R | 138* |
| SVR4 | 000072R | 139* |
| SVR5 | 000074R | 140* |
| SVR6 | 000076R | 141* |
| SYSCNT | 000052R | 130* |
| TOT | 000626R | 166* |
| TOTB | 000630R | 165* |
| TOPDFD= | 000022R | 162* |
| VFC | 000054R | 160* |
| VECTUP | 000108R | 118 222* |
| WASADR | 000104R | 145* |
| WOPR | 000116R | 152* |
| WOTO | 000114R | 151* |
| XFLAG | 000005R | 109* |

* ARS. 000000 000
001

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

XRTABO,XRTABO/SUL/CRP:SYM=DUXCOM,XRTABO
RUN-TIME: 1 1 . 3 SECONDS
RUN-TIME RATIO: 9/2=3.4
CORE USED: 7K (11 PAGES)