

PDP11/45

MULTIPLY
MD-11-DCKBK-A

EP DCKBK A DL A

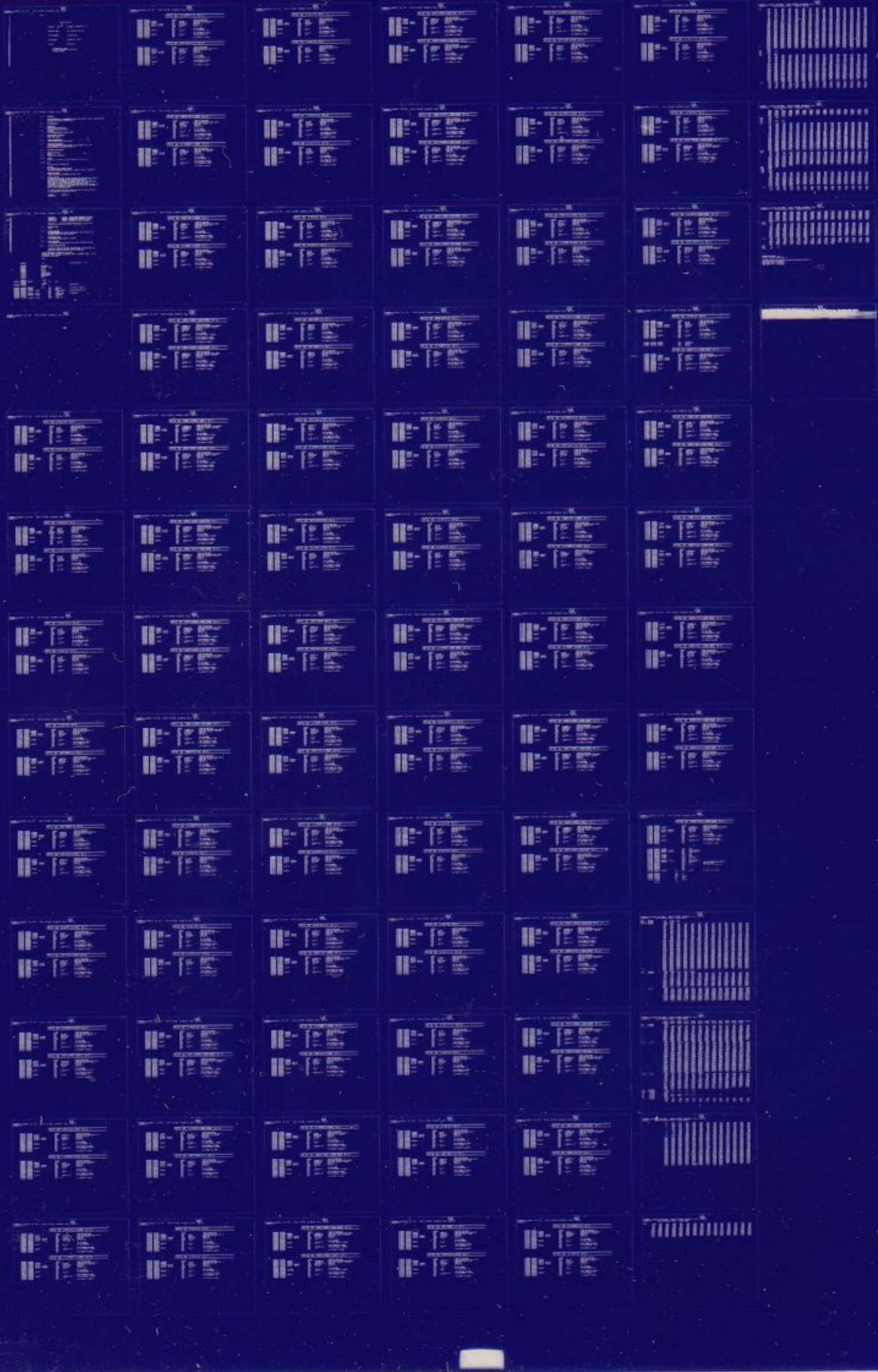
OCT 1976

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FICHE 1 OF 1

Made in U.S.A.

This is a microfiche card containing a grid of frames. The frames are arranged in approximately 12 rows and 6 columns. Each frame contains a small, dense grid of characters, likely representing a portion of a larger data set or a program. The characters are small and difficult to read individually, but they appear to be organized into columns and rows within each frame. The overall layout is typical of a microfiche used for data storage and retrieval.

108
109
110
111
112
113
114
115
116

TRAPVEC+4: 012716 ; MOVE SCOPE ADDRESS TO STACK
TRAPVEC+6: ADDRESS ; ADDRESS OF PREVIOUS SCOPE
TRAPVEC+10: 000006 ; RETURN TO TEST AT SCOPE

RESTORE ALL LOCATIONS BEFORE PROCEEDING TO NEXT TEST.

7.0 RESTRICTIONS
NONE

8.0 MISCELLANEOUS
ON TRAP ERRORS THE STACK POINTER(R6) WILL CONTAIN THE ADDRESS WHERE THE TRAP OCCURED.

8.1 EXECUTION TIME
THE PROGRAM TAKES ABOUT 1 MINUTE.

8.2 STACK POINTER
THE PROGRAM INITIALLY SETS THE STACK POINTER AT 500.

9.0 PROGRAM DESCRIPTIONS

THIS IS A TEST OF THE MUL INSTRUCTION. IT TESTS MUL ON
DIFFERENT NUMBER PATTERNS IN ALL REGISTERS

.TITLE MAINDEC-11-DCKBK-A MUL TEST
;COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
;PROGRAM BY BOB BRAIN

.ABS

000000

.=0

;TRAP CATCHER 0 - 776

000000
010701
000001
000006
000007
177570
177570
177776
000000

HLT=HALT
SCOPE= 10701
N=1
SP=X6
PC=X7
SWR=177570
DISPLAY=SWR
PS=177776
M=0

000200 000200 000576

.=200 JMP BEG

001000 001000 000000

.=1000 ICNT: 0 ;PASS COUNT

001002 012706 000500
001006 005037 177776
001012 032737 001000 177570
001020 001403
001022 012737 004000 177776
001030 032767 000400 176532
001036 001403
001040 116767 176524 176722

BEG: MOV #500,X6 ;** STACK AT 500 **
CLR @#PS
BIT #1000,@#SWR ;WHICH REGISTER SET?
BEQ .+10
MOV #4000,@#PS ;ALTERNATE!
BIT #400,SWR
BEQ .+10
MOVB SWR,177770

EO1

MAINDEC-11-DCKBK-A MUL TEST MACY11 27(732) 07-SEP-76 09:41 PAGE 4
DCKBKA.P11

:TEST 1 MUL 0 * #0 = 0 0 PS = 4
:*****

001046 010701
001050 012700 000000
001054 070027 000000
001060 013767 177776 013370
001066 122767 000004 013362
001074 001401
001076 000000
001100 000000
001104 001401
001106 000000
001110 022701 000000
001114 001401
001116 000000

SCOPE
MOV #0,XD
MUL #0,XD
MOV #PS,PSW
CHPB #4,PSW
BEQ .+4
HLT
CMP #0,XD
BEQ .+4
HLT
CMP #0,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 0
:MULTIPLY 0 * #0
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 2 MUL 0 * #1 = 0 0 PS = 4
:*****

001120 010701
001122 012700 000000
001126 070027 000001
001130 013767 177776 013316
001140 122767 000004 013310
001146 001401
001150 000000
001154 022700 000000
001156 001401
001160 000000
001162 022701 000000
001166 001401
001170 000000

SCOPE
MOV #0,XD
MUL #1,XD
MOV #PS,PSW
CHPB #4,PSW
BEQ .+4
HLT
CMP #0,XD
BEQ .+4
HLT
CMP #0,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 0
:MULTIPLY 0 * #1
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 3 MUL 1 * 80 = 0 0 PS = 4
:*****

001172 010701
001174 012700 000001
001200 070027 000000
001204 013767 177776 013244
001212 122767 000004 013236
001220 001401
001222 000000
001224 022700 000000
001230 001401
001232 000000
001234 022701 000000
001240 001401
001242 000000

SCOPE
MOV 81,XD
MUL 80,XD
MOV 28PS,PSW
CMPB 84,PSW
BEQ .+4
HLT
CMP 80,XD
BEQ .+4
HLT
CMP 80,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 1
:MULTIPLY 1 * 80
:SAVE PS
:IS PS = 4

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 4 MUL -1 * 81 = -1 -1 PS = 10
:*****

001244 010701
001246 012700 177777
001252 070027 000001
001256 013767 177776 013172
001264 122767 000010 013164
001272 001401
001274 000000
001276 022700 177777
001302 001401
001304 000000
001306 022701 177777
001312 001401
001314 000000

SCOPE
MOV 8-1,XD
MUL 81,XD
MOV 28PS,PSW
CMPB 810,PSW
BEQ .+4
HLT
CMP 8-1,XD
BEQ .+4
HLT
CMP 8-1,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH -1
:MULTIPLY -1 * 81
:SAVE PS
:IS PS = 10

:PS IS WRONG
:IS HIGH ORDER = -1

:HIGH ORDER IS WRONG
:IS LOW ORDER = -1

:LOW ORDER IS WRONG

:TEST 5 MUL 1 * 0-1 = -1 -1 PS = 10

001316 010701
001320 012700 000001
001324 070027 177777
001330 013767 177776 013120
001336 122767 000010 013112
001344 001401
001346 000000
001350 022700 177777
001354 001401
001356 070000
001360 022701 177777
001364 001401
001366 000000

SCOPE
MOV #1,X0
MUL #-1,X0
MOV J#PS,PSW
CMPB #10,PSW
BEQ .+4
HLT
CMP #-1,X0
BEQ .+4
HLT
CMP #-1,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1
:MULTIPLY 1 * 0-1
:SAVE PS
:IS PS = 10

:PS IS WRONG
:IS HIGH ORDER = -1

:HIGH ORDER IS WRONG
:IS LOW ORDER = -1

:LOW ORDER IS WRONG

:TEST 6 MUL 1 * 02 = 0 2 PS = 0

001370 010701
001372 012700 000001
001376 070027 000002
001402 013767 177776 013046
001410 122767 000000 013040
001416 001401
001420 070000
001422 022700 000000
001426 001401
001430 000000
001432 022701 000002
001436 001401
001440 000000

SCOPE
MOV #1,X0
MUL #2,X0
MOV J#PS,PSW
CMPB #0,PSW
BEQ .+4
HLT
CMP #0,X0
BEQ .+4
HLT
CMP #2,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1
:MULTIPLY 1 * 02
:SAVE PS
:IS PS = 0

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 2

:LOW ORDER IS WRONG

:TEST 7 MUL 2 * 2 = 0 4 PS = 0

001442	010701			SCOPE		:TEST OF MULTIPLY
001444	012700	000002		MOV	#2,XD	:LOAD MULTIPLICAN WITH 2
001450	070027	000002		MUL	#2,XD	:MULTIPLY 2 * 2
001454	013767	177776	012774	MOV	2#PS,PSW	:SAVE PS
001462	122767	000000	012766	CMPB	#0,PSW	:IS PS = 0
001470	001401			BEQ	.+4	
001472	000000			HLT		:PS IS WRONG
001474	022700	000000		CMP	#0,XD	:IS HIGH ORDER = 0
001570	001401			BEQ	.+4	
001572	000000			HLT		:HIGH ORDER IS WRONG
001504	022701	000004		CMP	#4,XD!1	:IS LOW ORDER = 4
001510	001401			BEQ	.+4	
001512	000000			HLT		:LOW ORDER IS WRONG

:TEST 10 MUL 1000 * 200 = 1 0 PS = 1

001514	010701			SCOPE		:TEST OF MULTIPLY
001516	012700	001000		MOV	#1000,XD	:LOAD MULTIPLICAN WITH 1000
001522	070027	000200		MUL	#200,XD	:MULTIPLY 1000 * 200
001576	013767	177776	012722	MOV	2#PS,PSW	:SAVE PS
001574	122767	000001	012714	CMPB	#1,PSW	:IS PS = 1
001542	001401			BEQ	.+4	
001544	000000			HLT		:PS IS WRONG
001546	022700	000001		CMP	#1,XD	:IS HIGH ORDER = 1
001552	001401			BEQ	.+4	
001554	000000			HLT		:HIGH ORDER IS WRONG
001556	022701	000000		CMP	#0,XD!1	:IS LOW ORDER = 0
001562	001401			BEQ	.+4	
001564	000000			HLT		:LOW ORDER IS WRONG

 :TEST 11 MUL 200 * 01000 = 1 0 PS = 1
 :*****

001566	010701			SCOPE		:TEST OF MULTIPLY
001570	012700	000200		MOV	#200,%D	:LOAD MULTIPLICAN WITH 200
001574	070027	001000		MUL	#1000,%D	:MULTIPLY 200 * 01000
001600	013767	177776	012650	MOV	#PS,PSW	:SAVE PS
001606	122767	000001	012642	CHPB	#1,PSW	:IS PS = 1
001614	011401			BEQ	+.4	
001616	010000			HLT		:PS IS WRONG
001620	012700	000001		CMP	#1,%D	:IS HIGH ORDER = 1
001624	011401			BEQ	+.4	
001626	010000			HLT		:HIGH ORDER IS WRONG
001630	012701	000000		CMP	#0,%D!1	:IS LOW ORDER = 0
001634	001401			BEQ	+.4	
001636	000000			HLT		:LOW ORDER IS WRONG

 :TEST 12 MUL 77777 * 02 = 0 177776 PS = 1
 :*****

001640	010701			SCOPE		:TEST OF MULTIPLY
001642	012700	077777		MOV	#77777,%D	:LOAD MULTIPLICAN WITH 77777
001646	070027	000002		MUL	#2,%D	:MULTIPLY 77777 * 02
001652	013767	177776	012576	MOV	#PS,PSW	:SAVE PS
001660	122767	000001	012570	CHPB	#1,PSW	:IS PS = 1
001666	001401			BEQ	+.4	
001670	010000			HLT		:PS IS WRONG
001672	012700	000000		CMP	#0,%D	:IS HIGH ORDER = 0
001676	001401			BEQ	+.4	
001700	010000			HLT		:HIGH ORDER IS WRONG
001702	012701	177776		CMP	#177776,%D!1	:IS LOW ORDER = 177776
001706	001401			BEQ	+.4	
001710	000000			HLT		:LOW ORDER IS WRONG

;TEST 13 MUL 2 * 877777 = 0 177776 PS = 1

001712	010701			SCOPE		;TEST OF MULTIPLY
001714	012700	000002		MOV	#2,XD	;LOAD MULTIPLICAN WITH 2
001720	070027	077777		MUL	#77777,XD	;MULTIPLY 2 * 877777
001724	013767	177776	012524	MOV	#PS,PSW	;SAVE PS
001732	122767	000001	012516	CMPB	#1,PSW	;IS PS = 1
001740	001401			BEQ	.+4	
001742	070000			HLT		;PS IS WRONG
001744	012700	000000		CMP	#0,XD	;IS HIGH ORDER = 0
001750	001401			BEQ	.+4	
001752	000000			HLT		;HIGH ORDER IS WRONG
001754	022701	177776		CMP	#177776,XD!1	;IS LOW ORDER = 177776
001760	001401			BEQ	.+4	
001762	000000			HLT		;LOW ORDER IS WRONG

;TEST 14 MUL 7777 * #10 = 0 77770 PS = 0

001764	010701			SCOPE		;TEST OF MULTIPLY
001766	012700	007777		MOV	#7777,XD	;LOAD MULTIPLICAN WITH 7777
001772	070027	000010		MUL	#10,XD	;MULTIPLY 7777 * #10
001776	013767	177776	012452	MOV	#PS,PSW	;SAVE PS
002004	122767	000000	012444	CMPB	#0,PSW	;IS PS = 0
002012	001401			BEQ	.+4	
002014	070000			HLT		;PS IS WRONG
002016	022700	000000		CMP	#0,XD	;IS HIGH ORDER = 0
002022	001401			BEQ	.+4	
002024	000000			HLT		;HIGH ORDER IS WRONG
002026	022701	077770		CMP	#77770,XD!1	;IS LOW ORDER = 77770
002032	001401			BEQ	.+4	
002034	000000			HLT		;LOW ORDER IS WRONG

L01

:TEST 15 MUL 10 * 87777 = 0 77770 PS = 0
:*****

002036	010701			SCOPE		:TEST OF MULTIPLY
002040	012700	000010		MOV	#10,%D	:LOAD MULTIPLICAN WITH 10
002044	070027	007777		MUL	#7777,%D	:MULTIPLY 10 * 87777
002050	013767	177776	012400	MOV	2#PS,PSW	:SAVE PS
002056	122767	000000	012372	CMPB	#0,PSW	:IS PS = 0
002064	001401			BEQ	.+4	
002066	000000			HLT		:PS IS WRONG
002070	022700	000000		CMP	#0,%D	:IS HIGH ORDER = 0
002074	001401			BEQ	.+4	
002076	000000			HLT		:HIGH ORDER IS WRONG
002100	022701	077770		CMP	#77770,%D!1	:IS LOW ORDER = 77770
002104	001401			BEQ	.+4	
002106	000000			HLT		:LOW ORDER IS WRONG

:TEST 16 MUL 77777 * 877777 = 37777 1 PS = 1
:*****

002110	010701			SCOPE		:TEST OF MULTIPLY
002112	012700	077777		MOV	#77777,%D	:LOAD MULTIPLICAN WITH 77777
002116	070027	077777		MUL	#77777,%D	:MULTIPLY 77777 * 877777
002122	013767	177776	012326	MOV	2#PS,PSW	:SAVE PS
002130	122767	000001	012320	CMPB	#1,PSW	:IS PS = 1
002136	001401			BEQ	.+4	
002140	000000			HLT		:PS IS WRONG
002142	022700	037777		CMP	#37777,%D	:IS HIGH ORDER = 37777
002146	001401			BEQ	.+4	
002150	000000			HLT		:HIGH ORDER IS WRONG
002152	022701	000001		CMP	#1,%D!1	:IS LOW ORDER = 1
002156	001401			BEQ	.+4	
002160	000000			HLT		:LOW ORDER IS WRONG

:TEST 17 MUL 77777 * #1 = 0 77777 PS = 0
:*****

002162	010701			SCOPE		:TEST OF MULTIPLY
002164	012700	077777		MOV	#77777,%0	:LOAD MULTIPLICAN WITH 77777
002170	070027	000001		MUL	#1,%0	:MULTIPLY 77777 * #1
002174	013767	177776	012254	MOV	@#PS,PSW	:SAVE PS
002202	122767	000000	012246	CMPB	#0,PSW	:IS PS = 0
002210	001401			BEQ	+.4	
002212	000000			HLT		:PS IS WRONG
002214	022700	000000		CMP	#0,%0	:IS HIGH ORDER = 0
002220	001401			BEQ	+.4	
002222	000000			HLT		:HIGH ORDER IS WRONG
002224	022701	077777		CMP	#77777,%0!1	:IS LOW ORDER = 77777
002230	001401			BEQ	+.4	
002232	000000			HLT		:LOW ORDER IS WRONG

:TEST 20 MUL 1 * #77777 = 0 77777 PS = 0
:*****

002234	010701			SCOPE		:TEST OF MULTIPLY
002236	012700	000001		MOV	#1,%0	:LOAD MULTIPLICAN WITH 1
002242	070027	077777		MUL	#77777,%0	:MULTIPLY 1 * #77777
002246	013767	177776	012202	MOV	@#PS,PSW	:SAVE PS
002254	122767	000000	012174	CMPB	#0,PSW	:IS PS = 0
002262	001401			BEQ	+.4	
002264	000000			HLT		:PS IS WRONG
002266	022700	000000		CMP	#0,%0	:IS HIGH ORDER = 0
002272	001401			BEQ	+.4	
002274	000000			HLT		:HIGH ORDER IS WRONG
002276	022701	077777		CMP	#77777,%0!1	:IS LOW ORDER = 77777
002302	001401			BEQ	+.4	
002304	000000			HLT		:LOW ORDER IS WRONG

;TEST 21 MUL 77777 * 8-1 = -1 100001 PS = 10

002306	010701			SCOPE		;TEST OF MULTIPLY
002310	012700	077777		MOV	#77777,%0	;LOAD MULTIPLICAN WITH 77777
002314	070027	177777		MUL	#-1,%0	;MULTIPLY 77777 * 8-1
002320	013767	177776	012130	MOV	@#PS,PSW	;SAVE PS
002326	122767	000010	012122	CMPB	#10,PSW	;IS PS = 10
002334	001401			BEQ	+.4	
002336	000000			HLT		;PS IS WRONG
002340	022700	177777		CMP	#-1,%0	;IS HIGH ORDER = -1
002344	001401			BEQ	+.4	
002346	000000			HLT		;HIGH ORDER IS WRONG
002350	022701	100001		CMP	#100001,%0!1	;IS LOW ORDER = 100001
002354	001401			BEQ	+.4	
002356	000000			HLT		;LOW ORDER IS WRONG

;TEST 22 MUL -1 * #77777 = -1 100001 PS = 10

002360	010701			SCOPE		;TEST OF MULTIPLY
002362	012700	177777		MOV	#-1,%0	;LOAD MULTIPLICAN WITH -1
002366	070027	077777		MUL	#77777,%0	;MULTIPLY -1 * #77777
002372	013767	177776	012056	MOV	@#PS,PSW	;SAVE PS
002400	122767	000010	012050	CMPB	#10,PSW	;IS PS = 10
002406	001401			BEQ	+.4	
002410	000000			HLT		;PS IS WRONG
002412	022700	177777		CMP	#-1,%0	;IS HIGH ORDER = -1
002416	001401			BEQ	+.4	
002420	000000			HLT		;HIGH ORDER IS WRONG
002422	022701	100001		CMP	#100001,%0!1	;IS LOW ORDER = 100001
002426	001401			BEQ	+.4	
002430	000000			HLT		;LOW ORDER IS WRONG

:TEST 23 MUL -2 * 877777 = -1 2 PS = 11

002432	010701			SCOPE		:TEST OF MULTIPLY
002434	012700	177776		MOV	8-2,XD	:LOAD MULTIPICAN WITH -2
002440	070027	077777		MUL	877777,XD	:MULTIPLY -2 * 877777
002444	013767	177776	012004	MOV	8PS,PSW	:SAVE PS
002452	122767	000011	011776	CMPB	811,PSW	:IS PS = 11
002460	001401			BEQ	.+4	
002462	000000			HLT		:PS IS WRONG
002464	022700	177777		CMP	8-1,XD	:IS HIGH ORDER = -1
002470	001401			BEQ	.+4	
002472	000000			HLT		:HIGH ORDER IS WRONG
002474	022701	000002		CMP	82,XD!1	:IS LOW ORDER = 2
002500	001401			BEQ	.+4	
002502	000000			HLT		:LOW ORDER IS WRONG

:TEST 24 MUL 77777 * 8-2 = -1 2 PS = 11

002504	010701			SCOPE		:TEST OF MULTIPLY
002506	012700	077777		MOV	877777,XD	:LOAD MULTIPICAN WITH 77777
002512	070027	177776		MUL	8-2,XD	:MULTIPLY 77777 * 8-2
0 516	013767	177776	011732	MOV	8PS,PSW	:SAVE PS
0 24	122767	000011	011724	CMPB	811,PSW	:IS PS = 11
0 532	001401			BEQ	.+4	
002534	000000			HLT		:PS IS WRONG
002536	022700	177777		CMP	8-1,XD	:IS HIGH ORDER = -1
002542	001401			BEQ	.+4	
002544	000000			HLT		:HIGH ORDER IS WRONG
002546	022701	000002		CMP	82,XD!1	:IS LOW ORDER = 2
002552	001401			BEQ	.+4	
002554	000000			HLT		:LOW ORDER IS WRONG

:TEST 25 MUL 125252 * 02 = -1 52524 PS = 11
:*****

002626 010701
002627 012700 125252
002628 070027 000002
002629 013767 177776 011660
002630 122767 000011 011652
002631 001401
002632 000000
002633 022700 177777
002634 001401
002635 000000
002636 022701 052524
002637 001401
002638 000000

SCOPE
MOV 0125252,X0
MUL 02,X0
MOV 00PS,PSW
CHPB 011,PSW
BEQ .+4
HLT
CMP 0-1,X0
BLO .+4
HLT
CMP 052524,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 125252
:MULTIPLY 125252 * 02
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 52524
:
:LOW ORDER IS WRONG

:TEST 26 MUL 2 * 0125252 = -1 52524 PS = 11
:*****

002639 010701
002640 012700 000002
002641 070027 125252
002642 013767 177776 011606
002643 122767 000011 011600
002644 001401
002645 000000
002646 022700 177777
002647 001401
002648 000000
002649 022701 052524
002650 001401
002700 000000

SCOPE
MOV 02,X0
MUL 0125252,X0
MOV 00PS,PSW
CHPB 011,PSW
BEQ .+4
HLT
CMP 0-1,X0
BLO .+4
HLT
CMP 052524,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 2
:MULTIPLY 2 * 0125252
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 52524
:
:LOW ORDER IS WRONG

:TEST 27 MUL 52525 * 02 = 0 125252 PS = 1
:*****

002702	010701			SCOPE		:TEST OF MULTIPLY
002704	012700	052525		MOV	#52525,X0	:LOAD MULTIPICAN WITH 52525
002710	070027	000002		MUL	02,X0	:MULTIPLY 52525 * 02
002714	013767	177776	011534	MOV	0#PS,PSW	:SAVE PS
002722	122767	000001	011526	CHPB	01,PSW	:IS PS = 1
002730	001401			EQ	.+4	
002732	000000			HLT		:PS IS WRONG
002734	022700	000000		CHP	00,X0	:IS HIGH ORDER = 0
002740	001401			BEQ	.+4	
002742	000000			HLT		:HIGH ORDER IS WRONG
002744	022701	125252		CHP	#125252,X0!1	:IS LOW ORDER = 125252
002750	001401			BEQ	.+4	
002752	000000			HLT		:LOW ORDER IS WRONG

:TEST 30 MUL 2 * 052525 = 0 125252 PS = 1
:*****

002754	010701			SCOPE		:TEST OF MULTIPLY
002756	012700	000002		MOV	02,X0	:LOAD MULTIPICAN WITH 2
002762	070027	052525		MUL	#52525,X0	:MULTIPLY 2 * 052525
002766	013767	177776	011462	MOV	0#S,PSW	:SAVE PS
002774	122767	000001	011454	CHPB	01,PSW	:IS PS = 1
003002	001401			BEQ	.+4	
003004	000000			HLT		:PS IS WRONG
003006	022700	000000		CHP	00,X0	:IS HIGH ORDER = 0
003012	001401			BEQ	.+4	
003014	000000			HLT		:HIGH ORDER IS WRONG
003016	022701	125252		CHP	#125252,X0!1	:IS LOW ORDER = 125252
003022	001401			BEQ	.+4	
003024	000000			HLT		:LOW ORDER IS WRONG

:TEST 31 MUL 125252 * #40000 = 165252 100000 PS = 11
:*****

003026	010701			SCOPE		:TEST OF MULTIPLY
003030	012700	125252		MOV	#125252,x0	:LOAD MULTIPICAN WITH 125252
003034	070027	040000		MUL	#40000,x0	:MULTIPLY 125252 * #40000
003040	013767	177776	011410	MOV	@PS,PSW	:SAVE PS
003046	122767	000011	011402	CMPB	#11,PSW	:IS PS = 11
003054	001401			BEG	.+4	
003056	000000			HLT		:PS IS WRONG
003060	022700	165252		CMP	#165252,x0	:IS HIGH ORDER = 165252
003064	001401			BEG	.+4	
003066	000000			HLT		:HIGH ORDER IS WRONG
003070	022701	100000		CMP	#100000,x0!1	:IS LOW ORDER = 100000
003074	001401			BEG	.+4	
003076	000000			HLT		:LOW ORDER IS WRONG

:TEST 32 MUL 40000 * #125252 = 165252 100000 PS = 11
:*****

003100	010701			SCOPE		:TEST OF MULTIPLY
003102	012700	040000		MOV	#40000,x0	:LOAD MULTIPICAN WITH 40000
003106	070027	125252		MUL	#125252,x0	:MULTIPLY 40000 * #125252
003112	013767	177776	011336	MOV	@PS,PSW	:SAVE PS
003120	122767	000011	011330	CMPB	#11,PSW	:IS PS = 11
003126	001401			BEG	.+4	
003130	000000			HLT		:PS IS WRONG
003132	022700	165252		CMP	#165252,x0	:IS HIGH ORDER = 165252
003136	001401			BEG	.+4	
003140	000000			HLT		:HIGH ORDER IS WRONG
003142	022701	100000		CMP	#100000,x0!1	:IS LOW ORDER = 100000
003146	001401			BEG	.+4	
003150	000000			HLT		:LOW ORDER IS WRONG

:TEST 33 MUL 10000 * #10000 = 40000 0 PS = 1
:*****

003152 010701
003154 012700 100000
003160 070027 100000
003164 013767 177776 011264
003172 122767 000001 011256
003200 001401
003202 000000
003204 022700 040000
003210 001401
003212 000000
003214 022701 000000
003220 001401
003222 000000

SCOPE
MOV #100000,X0
MUL #100000,X0
MOV #1,PSW
CMPB #1,PSW
BEG .+4
HLT
MOV #40000,X0
CMPB #40000,X0
BEG .+4
HLT
MOV #0,X0!
CMPB #0,X0!
BEG .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 100000
:MULTIPLY 100000 * #100000
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 40000
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 34 MUL 70707 * #70707 = 31221 44261 PS = 1
:*****

003224 010701
003226 012700 070707
003232 070027 070707
003236 013767 177776 011212
003244 122767 000001 011204
003252 001401
003254 000000
003256 022700 031221
003262 001401
003264 000000
003266 022701 044261
003272 001401
003274 000000

SCOPE
MOV #70707,X0
MUL #70707,X0
MOV #1,PSW
CMPB #1,PSW
BEG .+4
HLT
MOV #31221,X0
CMPB #31221,X0
BEG .+4
HLT
MOV #44261,X0!
CMPB #44261,X0!
BEG .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 70707
:MULTIPLY 70707 * #70707
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 31221
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 44261
:
:LOW ORDER IS WRONG

:TEST 35 MUL 107070 * #107070 = 31222 26100 PS = 1

003276	010701			SCOPE		:TEST OF MULTIPLY
003300	012700	107070		MOV	#107070,XD	:LOAD MULTIPLICAN WITH 107070
003304	070027	107070		MUL	#107070,XD	:MULTIPLY 107070 * #107070
003310	013767	177776	011140	MOV	2#PS,PSW	:SAVE PS
003316	122767	000001	011132	CHPB	#1,PSW	:IS PS = 1
003324	001401			BEG	.+4	
003326	000000			HLT		:PS IS WRONG
003330	022700	031222		CHP	#31222,XD	:IS HIGH ORDER = 31222
003334	001401			BEG	.+4	
003336	000000			HLT		:HIGH ORDER IS WRONG
003340	022701	026100		CHP	#26100,XD!1	:IS LOW ORDER = 26100
003344	001401			BEG	.+4	
003346	000000			HLT		:LOW ORDER IS WRONG

:TEST 36 MUL 100000 * #77777 = 140000 100000 PS = 11

003350	010701			SCOPE		:TEST OF MULTIPLY
003352	012700	100000		MOV	#100000,XD	:LOAD MULTIPLICAN WITH 100000
003356	070027	077777		MUL	#77777,XD	:MULTIPLY 100000 * #77777
003362	013767	177776	011066	MOV	2#PS,PSW	:SAVE PS
003370	122767	000011	011060	CHPB	#11,PSW	:IS PS = 11
003376	001401			BEG	.+4	
003400	000000			HLT		:PS IS WRONG
003402	022700	140000		CHP	#140000,XD	:IS HIGH ORDER = 140000
003406	001401			BEG	.+4	
003410	000000			HLT		:HIGH ORDER IS WRONG
003412	022701	100000		CHP	#100000,XD!1	:IS LOW ORDER = 100000
003416	001401			BEG	.+4	
003420	000000			HLT		:LOW ORDER IS WRONG

:TEST 37 MUL 77777 * #100000 = 140000 100000 PS = 11
:*****

003422 010701
003424 012700 077777
003430 070027 100000
003434 013767 177776 011014
003442 122767 000011 011006
003450 001401
003452 000000
003454 022700 140000
003460 001401
003462 000000
003464 022701 100000
003470 001401
003472 000000

SCOPE
MOV #77777,XD
MUL #100000,XD
MOV @PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #140000,XD
BEQ .+4
HLT
CMP #100000,XD!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 77777
:MULTIPLY 77777 * #100000
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 140000
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 40 MUL 157634 * #104031 = 7453 133074 PS = 1
:*****

003474 010701
003476 012700 157634
003502 070027 104031
003506 013767 177776 010742
003514 122767 000001 010734
003522 001401
003524 000000
003526 022700 007453
003532 001401
003534 000000
003536 022701 133074
003542 001401
003544 000000

SCOPE
MOV #157634,XD
MUL #104031,XD
MOV @PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #7453,XD
BEQ .+4
HLT
CMP #133074,XD!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 157634
:MULTIPLY 157634 * #104031
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 7453
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 133074
:
:LOW ORDER IS WRONG

:TEST 41 MUL 104031 * 0157634 = 7453 133074 PS = 1

003546	010701			SCOPE		:TEST OF MULTIPLY
003550	012700	104031		MOV	#104031,XD	:LOAD MULTIPLICAN WITH 104031
003554	070027	157634		MUL	#157634,XD	:MULTIPLY 104031 * 0157634
003560	013767	177776	010670	MOV	#PS,PSW	:SAVE PS
003566	122767	000001	010662	CHPB	#1,PSW	:IS PS = 1
003574	001401			BEG	.+4	
003576	000000			HLT		:PS IS WRONG
003600	022700	007453		CMP	#7453,XD	:IS HIGH ORDER = 7453
003604	001401			BEG	.+4	
003606	000000			HLT		:HIGH ORDER IS WRONG
003610	022701	133074		CMP	#133074,XD!1	:IS LOW ORDER = 133074
003614	001401			BEG	.+4	
003616	000000			HLT		:LOW ORDER IS WRONG

:TEST 42 MUL 15210 * 00 = 0 0 PS = 4

003620	010701			SCOPE		:TEST OF MULTIPLY
003622	012700	152210		MOV	#152210,XD	:LOAD MULTIPLICAN WITH 152210
003626	070027	000000		MUL	#0,XD	:MULTIPLY 152210 * 00
003632	013767	177776	010616	MOV	#PS,PSW	:SAVE PS
003640	122767	000004	010610	CHPB	#4,PSW	:IS PS = 4
003646	001401			BEG	.+4	
003650	000000			HLT		:PS IS WRONG
003652	022700	000000		CMP	#0,XD	:IS HIGH ORDER = 0
003656	001401			BEG	.+4	
003660	000000			HLT		:HIGH ORDER IS WRONG
003662	022701	000000		CMP	#0,XD!1	:IS LOW ORDER = 0
003666	001401			BEG	.+4	
003670	000000			HLT		:LOW ORDER IS WRONG

:TEST 43 MUL 0 * #152210 = 0 0 PS = 4

003672 010701
003674 012700 000000
003700 070027 152210
003704 013767 177776 010544
003712 122767 000004 010536
003720 001401
003722 000000
003724 022700 000000
003730 001401
003732 000000
003734 022701 000000
003740 001401
003742 000000

SCOPE
MOV #0,XD
MUL #152210,XD
MOV @#PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,XD
BEQ .+4
HLT
CMP #0,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * #152210
:SAVE PS
:IS PS = 4
:PS IS WRONG
:IS HIGH ORDER = 0
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:LOW ORDER IS WRONG

:TEST 44 MUL -1 * #0 = 0 0 PS = 4

003744 010701
003746 012700 177777
003752 070027 000000
003756 013767 177776 010472
003764 122767 000004 010464
003772 001401
003774 000000
003776 022700 000000
004002 001401
004004 000000
004006 022701 000000
004012 001401
004014 000000

SCOPE
MOV #-1,XD
MUL #0,XD
MOV @#PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,XD
BEQ .+4
HLT
CMP #0,XD!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * #0
:SAVE PS
:IS PS = 4
:PS IS WRONG
:IS HIGH ORDER = 0
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:LOW ORDER IS WRONG

:TEST 45 MUL 0 * 0-1 = 0 0 PS = 4
:*****

004016 010701
004020 012700 000000
004024 070127 177777
004028 013767 177776 010420
004032 122767 000004 010412
004036 001401
004040 000000
004044 001401
004048 000000
004052 001401
004056 000000

SCOPE
MOV 00,X0
MUL 0-1,X0
MOV 0,PS,PSW
CMPB 0,PSW
EQ .+4
HLT
CMP 00,X0
BEQ .+4
HLT
CMP 00,%0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * 0-1
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 46 MUL -1 * 01 = -1 -1 PS = 10
:*****

004070 010701
004074 012701 177777
004078 070127 000001 010346
004082 013767 177776 010340
004086 122767 000010
004090 001401
004094 000000
004098 001401 177777
004102 001401
004106 000000
004110 000000
004114 022701 177777
004118 001401
004122 000000
004126 001401
004130 000000
004134 022701 177777
004138 001401
004142 000000

SCOPE
MOV 0-1,X1
MUL 01,X1
MOV 0,PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,X1
BEQ .+4
HLT
CMP 0-1,%1!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 01
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = -1
:
:LOW ORDER IS WRONG

:TEST 47 MUL -1 * #0 = 0 0 PS = 4

004142	010701			SCOPE		:TEST OF MULTIPLY
004144	012701	177777		MOV	#-1,%1	:LOAD MULTIPICAN WITH -1
004150	070127	000000		MUL	#0,%1	:MULTIPLY -1 * #0
004154	013767	177776	010274	MOV	2#PS,PSW	:SAVE PS
004162	122767	000004	010266	CMPB	#4,PSW	:IS PS = 4
004170	001401			BEQ	+.4	
004172	000000			HLT		:PS IS WRONG
004174	022701	000000		CMP	#0,%1	:IS HIGH ORDER = 0
004176	001401			BEQ	+.4	
004178	000000			HLT		:HIGH ORDER IS WRONG
004204	022701	000000		CMP	#0,%1!1	:IS LOW ORDER = 0
004210	001401			BEQ	+.4	
004212	000000			HLT		:LOW ORDER IS WRONG

:TEST 50 MUL 77777 * #100000 = 100000 100000 PS = 11

004214	010701			SCOPE		:TEST OF MULTIPLY
004216	012701	077777		MOV	#77777,%1	:LOAD MULTIPICAN WITH 77777
004222	070127	100000		MUL	#100000,%1	:MULTIPLY 77777 * #100000
004226	013767	177776	010222	MOV	2#PS,PSW	:SAVE PS
004234	122767	000011	010214	CMPB	#11,PSW	:IS PS = 11
004242	001401			BEQ	+.4	
004244	000000			HLT		:PS IS WRONG
004246	022701	100000		CMP	#100000,%1	:IS HIGH ORDER = 100000
004252	001401			BEQ	+.4	
004254	000000			HLT		:HIGH ORDER IS WRONG
004256	022701	100000		CMP	#100000,%1!1	:IS LOW ORDER = 100000
004262	001401			BEQ	+.4	
004264	000000			HLT		:LOW ORDER IS WRONG

MO2

 :TEST 51 MUL -1 * 077777 = 100001 100001 PS = 10
 :*****

004266	010701			SCOPE		:TEST OF MULTIPLY
004270	012701	177777		MOV	0-1,%1	:LOAD MULTIPLICAN WITH -1
004274	070127	077777		MUL	077777,%1	:MULTIPLY -1 * 077777
004300	013767	177776	010150	MOV	0#PS,PSW	:SAVE PS
004306	122767	000010	010142	CMPB	010,PSW	:IS PS = 10
004314	001401			BEQ	+.4	
004316	000000			HLT		:PS IS WRONG
004320	022701	100001		CMP	0100001,%1	:IS HIGH ORDER = 100001
004324	001401			BEQ	+.4	
004326	000000			HLT		:HIGH ORDER IS WRONG
004330	022701	100001		CMP	0100001,%1!1	:IS LOW ORDER = 100001
004334	001401			BEQ	+.4	
004336	000000			HLT		:LOW ORDER IS WRONG

 :TEST 52 MUL 77777 * 077777 = 1 1 PS = 1
 :*****

004340	010701			SCOPE		:TEST OF MULTIPLY
004342	012701	077777		MOV	077777,%1	:LOAD MULTIPLICAN WITH 77777
004346	070127	077777		MUL	077777,%1	:MULTIPLY 77777 * 077777
004352	013767	177776	010076	MOV	0#PS,PSW	:SAVE PS
004360	122767	000001	010070	CMPB	01,PSW	:IS PS = 1
004366	001401			BEQ	+.4	
004370	000000			HLT		:PS IS WRONG
004372	022701	000001		CMP	01,%1	:IS HIGH ORDER = 1
004376	001401			BEQ	+.4	
004400	000000			HLT		:HIGH ORDER IS WRONG
004402	022701	000001		CMP	01,%1!1	:IS LOW ORDER = 1
004406	001401			BEQ	+.4	
004410	000000			HLT		:LOW ORDER IS WRONG

:TEST 53 MUL 2 * #2 = 4 4 PS = 0

004412	010701			SCOPE		:TEST OF MULTIPLY
004414	012701	000002		MOV	#2,%1	:LOAD MULTIPLICAN WITH 2
004420	070127	000002		MUL	#2,%1	:MULTIPLY 2 * #2
004424	013767	177776	010024	MOV	2#PS,PSW	:SAVE PS
004432	122767	000000	010016	CMPB	#0,PSW	:IS PS = 0
004440	001401			BEQ	+.4	
004442	000000			HLT		:PS IS WRONG
004444	022701	000004		CMP	#4,%1	:IS HIGH ORDER = 4
004450	001401			BEQ	+.4	
004452	000000			HLT		:HIGH ORDER IS WRONG
004454	022701	000004		CMP	#4,%1!1	:IS LOW ORDER = 4
004460	001401			BEQ	+.4	
004462	000000			HLT		:LOW ORDER IS WRONG

:TEST 54 MUL 0 * #0 = 0 0 PS = 4

004464	010701			SCOPE		:TEST OF MULTIPLY
004466	012702	000000		MOV	#0,%2	:LOAD MULTIPLICAN WITH 0
004472	070227	000000		MUL	#0,%2	:MULTIPLY 0 * #0
004476	013767	177776	007752	MOV	2#PS,PSW	:SAVE PS
004504	122767	000004	007744	CMPB	#4,PSW	:IS PS = 4
004512	001401			BEQ	+.4	
004514	000000			HLT		:PS IS WRONG
004516	022702	000000		CMP	#0,%2	:IS HIGH ORDER = 0
004522	001401			BEQ	+.4	
004524	000000			HLT		:HIGH ORDER IS WRONG
004526	022703	000000		CMP	#0,%2!1	:IS LOW ORDER = 0
004532	001401			BEQ	+.4	
004534	000000			HLT		:LOW ORDER IS WRONG

:TEST S5 MUL 0 * 01 = 0 0 PS = 4
:*****

004536 010701
004540 012702 000000
004544 070227 000001
004550 013767 177776 007700
004556 122767 000004 007672
004564 001401
004566 000000
004570 022702 000000
004574 001401
004576 000000
004600 022703 000000
004604 001401
004606 000000

SCOPE
MOV 00,X2
MUL 01,X2
MOV 20PS,PSW
CMPB 04,PSW
BEQ .+4
HLT
CMP 00,X2
BEQ .+4
HLT
CMP 00,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * 01
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST S6 MUL 1 * 00 = 0 0 PS = 4
:*****

004610 010701
004612 012702 000001
004616 070227 000000
004622 013767 177776 007626
004630 122767 000004 007620
004636 001401
004640 000000
004642 022702 000000
004646 001401
004650 000000
004652 022703 000000
004656 001401
004660 000000

SCOPE
MOV 01,X2
MUL 00,X2
MOV 20PS,PSW
CMPB 04,PSW
BEQ .+4
HLT
CMP 00,X2
BEQ .+4
HLT
CMP 00,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1
:MULTIPLY 1 * 00
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 57 MUL -1 * 01 = -1 -1 PS = 10
:*****

004662 010701
004664 012702 177777
004670 070227 000001
004674 013767 177776 007554
004702 122767 000010 007546
004710 001401
004712 000000
004714 022702 177777
004720 001401
004722 000000
004724 022703 177777
004730 001401
004732 000000

SCOPE
MOV 0-1,x2
MUL 01,x2
MOV 00PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,x2
BEQ .+4
HLT
CMP 0-1,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH -1
:MULTIPLY -1 * 01
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDR IS WRONG
:IS LOW OWJER = -1
:
:LOW ORDER IS WRONG

:TEST 60 MUL 1 * 0-1 = -1 -1 PS = 10
:*****

004734 010701
004736 012702 000001
004742 070227 177777
004746 013767 177776 007502
004754 122767 000010 017474
004762 001401
004764 000000
004766 022702 177777
004772 001401
004774 000000
004776 022703 177777
005002 001401
005004 000000

SCOPE
MOV 01,x2
MUL 0-1,x2
MOV 00PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,x2
BEQ .+4
HLT
CMP 0-1,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 1
:MULTIPLY 1 * 0-1
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = -1
:
:LOW ORDER IS WRONG

: TEST 61 MUL 1 * 02 = 0 2 PS = 0
: *****

005006 010701
005010 012702 000001
005014 070227 000002
005020 013767 177776 007430
005026 122767 000000 007422
005034 001401
005038 000000
005040 022702 000000
005044 001401
005046 000000
005050 022703 000002
005054 001401
005056 000000

SCOPE
MOV 01, X2
MUL 02, X2
MOV 02, PS, PSH
CMPB 00, PS, PSH
BEQ .+4
HLT
CMPB 00, X2
BEQ .+4
CMPB 02, X2!
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH 1
: MULTIPLY 1 * 02
: SAVE PS
: IS PS = 0
:
: PS IS WRONG
: IS HIGH ORDER = 0
:
: HIGH ORDER IS WRONG
: IS LOW ORDER = 2
:
: LOW ORDER IS WRONG

: TEST 62 MUL 2 * 02 = 0 4 PS = 0
: *****

005060 010701
005064 012702 000002
005068 070227 000002
005072 013767 177776 007356
005100 122767 000000 007350
005106 001401
005110 000000
005112 022702 000000
005116 001401
005120 000000
005122 022703 000004
005126 001401
005130 000000

SCOPE
MOV 02, X2
MUL 02, X2
MOV 02, PS, PSH
CMPB 00, PS, PSH
BEQ .+4
HLT
CMPB 00, X2
BEQ .+4
CMPB 04, X2!
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH 2
: MULTIPLY 2 * 02
: SAVE PS
: IS PS = 0
:
: PS IS WRONG
: IS HIGH ORDER = 0
:
: HIGH ORDER IS WRONG
: IS LOW ORDER = 4
:
: LOW ORDER IS WRONG

:TEST 63 MUL 1000 * #200 = 1 0 PS = 1

005132 010701
005134 012702 001000
005140 070227 000200
005142 013767 177776 007304
005144 122767 000001 007276
005146 001401
005148 000000
005150 000001
005152 001401
005154 000000
005156 000000
005158 000000
005160 000000
005162 000000
005164 000000
005166 000000
005168 000000
005170 000000
005172 000000
005174 000000
005176 000000
005178 000000
005180 000000

SCOPE
MOV #1000,x2
MUL #200,x2
MOV @PS,PSW
CHPB #1,PSW
BEQ .+4
HLT
CMP #1,x2
BEQ .+4
HLT
CMP #0,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1000
:MULTIPLY 1000 * #200
:SAVE PS
:IS PS = 1

:PS IS WRONG
:IS HIGH ORDER = 1

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 64 MUL 200 * #1000 = 1 0 PS = 1

005204 010701
005206 012702 000200
005212 070227 001000
005214 013767 177776 007232
005216 122767 000001 007224
005218 001401
005220 000000
005222 000000
005224 000000
005226 000001
005228 001401
005230 000000
005232 000000
005234 000000
005236 000000
005238 000000
005240 000000
005242 000000
005244 000000
005246 000000
005248 000000
005250 000000
005252 000000
005254 000000

SCOPE
MOV #200,x2
MUL #1000,x2
MOV @PS,PSW
CHPB #1,PSW
BEQ .+4
HLT
CMP #1,x2
BEQ .+4
HLT
CMP #0,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 200
:MULTIPLY 200 * #1000
:SAVE PS
:IS PS = 1

:PS IS WRONG
:IS HIGH ORDER = 1

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 65 MUL 77777 * 82 = 0 177776 PS = 1
:*****

005326 010701
005327 012702 077777
005328 070227 000002
005329 013767 177776 007160
005330 122767 000001 007152
005331 001401
005332 000000
005333 022702 000000
005334 001401
005335 000000
005336 012703 177776
005337 001401
005338 000000

SCOPE
MOV 877777,x2
MUL 82,x2
MOV 2#PS,PSW
CHPB 81,PSW
BEQ .+4
HLT
MOV 80,x2
CHPB 81,PSW
BEQ .+4
HLT
MOV 8177776,x2!1
CHPB 81,PSW
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 82
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 177776
:
:LOW ORDER IS WRONG

:TEST 66 MUL 2 * 877777 = 0 177776 PS = 1
:*****

005370 010701
005371 012702 000002
005372 013767 077777 007106
005373 014767 177776 007100
005374 000001
005375 000000
005376 022702 000000
005377 001401 177776
005378 001401
005379 000000

SCOPE
MOV 82,x2
MUL 877777,x2
MOV 2#PS,PSW
CHPB 81,PSW
BEQ .+4
HLT
MOV 80,x2
CHPB 81,PSW
BEQ .+4
HLT
MOV 8177776,x2!1
CHPB 81,PSW
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 2
:MULTIPLY 2 * 877777
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 177776
:
:LOW ORDER IS WRONG

: TEST 67 MUL 7777 * 810 = 0 77770 PS = 0
: *****

005402 010701
005404 012702 007777
005410 070227 000010
005414 013767 177776 007034
005416 122767 000000 007026
005418 001401
005420 000000
005422 022702 000000
005440 001401
005442 000000
005444 022703 077770
005450 001401
005452 000000

SCOPE
MOV 87777,x2
MUL 810,x2
MOV 2:PS,PSW
CMPB 80,PSW
BEQ .+4
HLT
CMP 80,x2
BEQ .+4
HLT
CMP 877770,%2!1
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH 7777
: MULTIPLY 7777 * 810
: SAVE PS
: IS PS = 0

: PS IS WRONG
: IS HIGH ORDER = 0

: HIGH ORDER IS WRONG
: IS LOW ORDER = 77770

: LOW ORDER IS WRONG

: TEST 70 MUL 10 * 87777 = 0 77770 PS = 0
: *****

005454 010701
005456 012702 000010
005462 070227 007777
005466 013767 177776 006762
005474 122767 000000 006754
005502 001401
005504 000000
005506 022702 000000
005512 001401
005514 000000
005516 022703 077770
005522 001401
005524 000000

SCOPE
MOV 810,x2
MUL 87777,x2
MOV 2:PS,PSW
CMPB 80,PSW
BEQ .+4
HLT
CMP 80,x2
BEQ .+4
HLT
CMP 877770,%2!1
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH 10
: MULTIPLY 10 * 87777
: SAVE PS
: IS PS = 0

: PS IS WRONG
: IS HIGH ORDER = 0

: HIGH ORDER IS WRONG
: IS LOW ORDER = 77770

: LOW ORDER IS WRONG

:TEST 71 MUL 7777 * 87777 = 37777 ! PS = 1
:*****

005528 010701
005530 012702 077777
005534 070227 077777
005540 013767 177776 006710
005546 122767 000001 006702
005550 001401
005554 001000
005558 022702 037777
005564 001401
005566 000000
005570 022703 000001
005574 001401
005576 000000

SCOPE
MOV 877777,x2
MUL 877777,x2
MOV 28PS,PSW
CMPB 81,PSW
BEQ .+4
HLT
CMP 837777,x2
BEQ .+4
HLT
CMP 81,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 77777
:MULTIPLY 77777 * 87777
:SAVE PS
:IS PS = 1

:PS IS WRONG
:IS HIGH ORDER = 37777

:HIGH ORDER IS WRONG
:IS LOW ORDER = 1

:LOW ORDER IS WRONG

:TEST 72 MUL 7777 * 81 = 0 77777 PS = 0
:*****

005600 010701
005604 012702 077777
005608 070227 000001 006636
005612 013767 177776 006630
005616 122767 000000
005620 001401
005624 001000
005628 022702 000000
005632 001401
005636 022703 077777
005640 001401
005644 000000

SCOPE
MOV 877777,x2
MUL 81,x2
MOV 28PS,PSW
CMPB 80,PSW
BEQ .+4
HLT
CMP 80,x2
BEQ .+4
HLT
CMP 877777,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 77777
:MULTIPLY 77777 * 81
:SAVE PS
:IS PS = 0

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 77777

:LOW ORDER IS WRONG

: TEST 75 MUL -1 * 877777 = -1 100001 PS = 10
: *****

005776 010701
0 070 012702 177777
006010 013767 077777
0 016 013767 177776 006440
0 01401 000010 006432
006030 0 2702 177777
0 036 0 1401
0 036 0 0
006044 0 2703 100001
006046 001401
006046 000000

SCOPE
MOV 8-1,x2
MUL 877777,x2
MOV 2#PS,PSW
CMPB 810,PSW
BEQ .+4
HLT
CMP 8-1,x2
BEQ .+4
HLT
CMP 8100001,x2!1
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH -1
: MULTIPLY -1 * 877777
: SAVE PS
: IS PS = 10
: PS IS WRONG
: IS HIGH ORDER = -1
: HIGH ORDER IS WRONG
: IS LOW ORDER = 100001
: LOW ORDER IS WRONG

: TEST 76 MUL -2 * 877777 = -1 2 PS = 11
: *****

006050 010701
006052 012702 177776
006056 070227 077777
006062 013767 177776 006366
006070 122767 000011 006360
006076 001401
006100 000000
006102 022702 177777
006106 001401
006110 000000
006112 022703 000002
006116 001401
006120 000000

SCOPE
MOV 8-2,x2
MUL 877777,x2
MOV 2#PS,PSW
CMPB 811,PSW
BEQ .+4
HLT
CMP 8-1,x2
BEQ .+4
HLT
CMP 82,x2!1
BEQ .+4
HLT

: TEST OF MULTIPLY
: LOAD MULTIPLICAN WITH -2
: MULTIPLY -2 * 877777
: SAVE PS
: IS PS = 11
: PS IS WRONG
: IS HIGH ORDER = -1
: HIGH ORDER IS WRONG
: IS LOW ORDER = 2
: LOW ORDER IS WRONG

:TEST 77 MUL 77777 * 0-2 = -1 2 PS = 11

006122 010701
006124 012702 077777
006130 070227 177776
006134 013767 177776 006314
006142 122767 000011 006306
006150 001401
006152 000000
006154 022702 177777
006160 001401
006162 000000
006164 022703 000002
006170 001401
006172 000000

SCOPE
MOV #77777,%2
MUL #2,%2
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #-1,%2
BEQ .+4
HLT
CMP #2,%2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 0-2
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 2
:
:LOW ORDER IS WRONG

:TEST 100 MUL 125252 * #2 = -1 52524 PS = 11

006174 010701
006176 012702 125252
006202 070227 000002
006206 013767 177776 006242
006214 122767 000011 006234
006222 001401
006234 000000
006236 022702 177777
006242 001401
006244 000000
006234 000000
006236 022703 052524
006242 001401
006244 000000

SCOPE
MOV #125252,%2
MUL #2,%2
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #-1,%2
BEQ .+4
HLT
CMP #52524,%2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 125252
:MULTIPLY 125252 * #2
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 52524
:
:LOW ORDER IS WRONG

:TEST 101 MUL 2 * #125252 = -1 52524 PS = 11

006246 010701
006250 012702 000002
006254 070227 125252
006260 013767 177776 006170
006266 122767 000011 006162
006274 001401
006276 000000
006300 000702 177777
006304 001401
006306 000000
006310 002703 052524
006314 001401
006316 000000

SCOPE
MOV #2,%2
MUL #125252,%2
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #-1,%2
BEQ .+4
HLT
CMP #52524,%2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 2
:MULTIPLY 2 * #125252
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = -1
:HIGH ORDER IS WRONG
:IS LOW ORDER = 52524
:LOW ORDER IS WRONG

:TEST 102 MUL 52525 * #2 = 0 125252 PS = 1

006320 010701
006322 012702 052525
006326 070227 000002
006332 013767 177776 006116
006340 122767 000001 006110
006346 001401
006350 000000
006352 000702 000000
006356 001401
006360 000000
006362 022703 125252
006366 001401
006370 000000

SCOPE
MOV #52525,%2
MUL #2,%2
MOV 2#PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #0,%2
BEQ .+4
HLT
CMP #125252,%2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 52525
:MULTIPLY 52525 * #2
:SAVE PS
:IS PS = 1
:PS IS WRONG
:IS HIGH ORDER = 0
:HIGH ORDER IS WRONG
:IS LOW ORDER = 125252
:LOW ORDER IS WRONG

4.0

M03

```

:*****
:TEST 103 MUL 2 * #52525 = 0 125252 PS = 1
:*****
  
```

006372	010701			SCOPE		:TEST OF MULTIPLY
006374	012702	000002		MOV	#2,%2	:LOAD MULTIPlicAN WITH 2
006400	070227	052525		MUL	#52525,%2	:MULTIPLY 2 * #52525
006404	013767	177776	006044	MOV	2#PS,PSW	:SAVE PS
006412	122767	000001	006036	CMPB	#1,PSW	:IS PS = 1
006420	001401			BEQ	+.4	
006422	000000			HLT		:PS IS WRONG
006424	012702	000000		CMP	#0,%2	:IS HIGH ORDER = 0
006430	001401			BEQ	+.4	
006432	000000			HLT		:HIGH ORDER IS WRONG
006434	022703	125252		CMP	#125252,%2!1	:IS LOW ORDER = 125252
006440	001401			BEQ	+.4	
006442	000000			HLT		:LOW ORDER IS WRONG

```

:*****
:TEST 104 MUL 125252 * #40000 = 165252 100000 PS = 11
:*****
  
```

006444	010701			SCOPE		:TEST OF MULTIPLY
006446	012702	125252		MOV	#125252,%2	:LOAD MULTIPlicAN WITH 125252
006452	070227	040000		MUL	#40000,%2	:MULTIPLY 125252 * #40000
006456	013767	177776	005772	MOV	2#PS,PSW	:SAVE PS
006464	122767	000011	005764	CMPB	#11,PSW	:IS PS = 11
006472	001401			BEQ	+.4	
006474	000000			HLT		:PS IS WRONG
006476	022702	165252		CMP	#165252,%2	:IS HIGH ORDER = 165252
006502	001401			BEQ	+.4	
006504	000000			HLT		:HIGH ORDER IS WRONG
006506	022703	100000		CMP	#100000,%2!1	:IS LOW ORDER = 100000
006512	001401			BEQ	+.4	
006514	000000			HLT		:LOW ORDER IS WRONG

;TEST 105 MUL 40000 * #125252 = 165252 100000 PS = 11

006516	010701			SCOPE		;TEST OF MULTIPLY
006520	012702	040000		MOV	#40000,%2	;LOAD MULTIPLICAN WITH 40000
006524	070227	125252		MUL	#125252,%2	;MULTIPLY 40000 * #125252
006530	013767	177776	005720	MOV	@#PS,PSW	;SAVE PS
006536	122767	000011	005712	CMPB	#11,PSW	;IS PS = 11
006544	001401			BEQ	+.4	
006546	000000			HLT		;PS IS WRONG
006550	022702	165252		CMP	#165252,%2	;IS HIGH ORDER = 165252
006554	001401			BEQ	+.4	
006556	000000			HLT		;HIGH ORDER IS WRONG
006560	012703	100000		CMP	#100000,%2!1	;IS LOW ORDER = 100000
006564	001401			BEQ	+.4	
006566	000000			HLT		;LOW ORDER IS WRONG

;TEST 106 MUL 100000 * #100000 = 40000 0 PS = 1

006570	010701			SCOPE		;TEST OF MULTIPLY
006572	012702	100000		MOV	#100000,%2	;LOAD MULTIPLICAN WITH 100000
006576	070227	100000		MUL	#100000,%2	;MULTIPLY 100000 * #100000
006580	013767	177776	005646	MOV	@#PS,PSW	;SAVE PS
006584	122767	000001	005640	CMPB	#1,PSW	;IS PS = 1
006588	001401			BEQ	+.4	
006592	000000			HLT		;PS IS WRONG
006596	012702	040000		CMP	#40000,%2	;IS HIGH ORDER = 40000
006600	001401			BEQ	+.4	
006604	000000			HLT		;HIGH ORDER IS WRONG
006608	012703	000000		CMP	#0,%2!1	;IS LOW ORDER = 0
006612	001401			BEQ	+.4	
006616	000000			HLT		;LOW ORDER IS WRONG

:TEST 107 MUL 70707 * 870707 = 31221 44261 PS = 1

006642	010701			SCOPE		:TEST OF MULTIPLY
006644	012702	070707		MOV	870707,x2	:LOAD MULTIPLICAN WITH 70707
006650	070227	070707		MUL	870707,x2	:MULTIPLY 70707 * 870707
006654	013767	177776	005574	MOV	8PS,PSW	:SAVE PS
006662	122767	000001	005566	CMPB	81,PSW	:IS PS = 1
006670	001401			BEQ	.+4	
006672	000000			HLT		:PS IS WRONG
006674	022702	031221		CMP	831221,x2	:IS HIGH ORDER = 31221
006700	001401			BEQ	.+4	
006702	000000			HLT		:HIGH ORDER IS WRONG
006704	022703	044261		CMP	844261,x2!1	:IS LOW ORDER = 44261
006710	001401			BEQ	.+4	
006712	000000			HLT		:LOW ORDER IS WRONG

:TEST 110 MUL 107070 * 8107070 = 31222 26100 PS = 1

006714	010701			SCOPE		:TEST OF MULTIPLY
006716	012702	107070		MOV	8107070,x2	:LOAD MULTIPLICAN WITH 107070
006722	070227	107070		MUL	8107070,x2	:MULTIPLY 107070 * 8107070
006726	013767	177776	005522	MOV	8PS,PSW	:SAVE PS
006734	122767	000001	005514	CMPB	81,PSW	:IS PS = 1
006742	001401			BEQ	.+4	
006744	000000			HLT		:PS IS WRONG
006746	022702	031222		CMP	831222,x2	:IS HIGH ORDER = 31222
006752	001401			BEQ	.+4	
006754	000000			HLT		:HIGH ORDER IS WRONG
006756	022703	026100		CMP	826100,x2!1	:IS LOW ORDER = 26100
006762	001401			BEQ	.+4	
006764	000000			HLT		:LOW ORDER IS WRONG

:TEST 111 MUL 100000 * 877777 = 140000 100000 PS = 11

006766 010701
006770 012702 100000
006774 013703 077777
007000 013767 177776 005450
007006 122767 000011 005442
007014 001401
007016 000000
007020 012702 140000
007024 001401
007026 000000
007030 012703 100000
007034 001401
007036 000000

SCOPE
MOV #100000,x2
MUL #77777,x2
MOV @PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #140000,x2
BEQ .+4
HLT
CMP #100000,x2!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 100000
:MULTIPLY 100000 * 877777
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = 140000
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:LOW ORDER IS WRONG

:TEST 112 MUL 77777 * #100000 = 140000 100000 PS = 11

007040 010701
007042 012702 077777
007046 013703 100000
007052 013767 177776 005376
007058 122767 000011 005370
007066 001401
007070 000000
007072 022702 140000
007076 001401
007100 012703 100000
007102 022703
007106 001401
007110 000000

SCOPE
MOV #77777,x2
MUL #100000,x2
MOV @PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #140000,x2
BEQ .+4
HLT
CMP #100000,x2!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * #100000
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = 140000
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:LOW ORDER IS WRONG

:TEST 113 MUL 157634 * 0104031 = 7453 133074 PS = 1

007112 010701
007114 012702 157634
007120 070227 104031
007124 013767 177776 005324
007130 122767 000001 005316
007140 001401
007142 000000
007144 022702 007453
007150 001401
007152 000000
007154 022703 133074
007160 001401
007162 000000

SCOPE
MOV #157634,X2
MUL #104031,X2
MOV @PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #7453,X2
BEQ .+4
HLT
CMP #133074,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 157634
:MULTIPLY 157634 * 0104031
:SAVE PS
:IS PS = 1
:PS IS WRONG
:IS HIGH ORDER = 7453
:HIGH ORDER IS WRONG
:IS LOW ORDER = 133074
:LOW ORDER IS WRONG

:TEST 114 MUL 104031 * 0157634 = 7453 133074 PS = 1

007164 010701
007166 012702 104031
007172 070227 157634
007176 013767 177776 005252
007204 122767 000001 005244
007212 001401
007214 000000
007216 022702 007453
007222 001401
007224 000000
007230 022703 133074
007232 001401
007234 000000

SCOPE
MOV #104031,X2
MUL #157634,X2
MOV @PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #7453,X2
BEQ .+4
HLT
CMP #133074,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 104031
:MULTIPLY 104031 * 0157634
:SAVE PS
:IS PS = 1
:PS IS WRONG
:IS HIGH ORDER = 7453
:HIGH ORDER IS WRONG
:IS LOW ORDER = 133074
:LOW ORDER IS WRONG

:TEST 115 MUL 152210 * 80 = 0 0 PS = 4

007275 010701
007276 012702 152210
007277 013767 000000
007278 013767 177776 005200
007279 122767 000004 005172
007280 000000
007281 001401
007282 000000
007283 000000
007284 002702 000000
007285 001401
007286 000000

SCOPE
MOV #152210,x2
MUL #0,x2
MOV @PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,x2
BEQ .+4
HLT
CMP #0,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 152210
:MULTIPLY 152210 * 80
:SAVE PS
:IS PS = 4

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 116 MUL 0 * #152210 = 0 0 PS = 4

007310 010701
007311 012702 000000
007312 013767 152210
007313 013767 177776 005126
007314 122767 000004 005120
007315 001401
007316 000000
007317 000000
007318 002702 000000
007319 001401
007320 000000
007321 002702 000000
007322 001401
007323 000000
007324 002702 000000
007325 001401
007326 000000

SCOPE
MOV #0,x2
MUL #152210,x2
MOV @PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,x2
BEQ .+4
HLT
CMP #0,x2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * #152210
:SAVE PS
:IS PS = 4

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 117 MUL -1 * #0 = 0 0 PS = 4

007362 010701
007364 012702 177777
007370 070 37 000000
007374 013767 177776 000054
007402 122767 000004 000046
007410 001401
007412 000000
007414 000000
007420 001401 000000
007422 000000
007424 000000
007430 001401 000000
007432 000000

SCOPE
MOV # -1 X2
MUL #0 X2
MOV @PS,PSW
C B #4,PSW
EQU .+4
HLT
CMP #0,X2
BEQ .+4
HLT
CMP #0,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * #0
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 120 MUL 0 * # -1 = 0 0 PS = 4

007434 010701
007436 012702 000000
007442 000000 177777
007446 013767 177776 000052
007454 122767 000004 000074
007462 001401
007464 000000
007466 000000
007472 001401 000000
007474 000000
007476 002703 000000
007502 001401
007504 000000

SCOPE
MOV #0,X2
MUL # -1 X2
MOV @PS,PSW
C B #4,PSW
EQU .+4
HLT
CMP #0,X2
BEQ .+4
HLT
CMP #0,X2!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * # -1
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 121 MUL -1 * 01 = -1 -1 PS = 10
:*****

007506 010701
007510 012703 177777
007514 070327 000001
007520 013767 177776 004730
007526 122767 000010 004722
007534 001401
007536 000000
007540 022703 177777
007544 001401
007546 000000
007550 022703 177777
007554 001401
007556 000000

SCOPE
MOV 0-1,x3
MUL 01,x3
MOV 00PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,x3
BEQ .+4
HLT
CMP 0-1,x3!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 01
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = -1
:
:LOW ORDER IS WRONG

:TEST 122 MUL -1 * 00 = 0 0 PS = 4
:*****

007560 010701
007562 012703 177777
007566 070327 000000
007572 013767 177776 004656
007600 122767 000004 004650
007606 001401
007610 000000
007612 022703 000000
007616 001401
007620 000000
007622 022703 000000
007626 001401
007630 000000

SCOPE
MOV 0-1,x3
MUL 00,x3
MOV 00PS,PSW
CMPB 04,PSW
BEQ .+4
HLT
CMP 00,x3
BEQ .+4
HLT
CMP 00,x3!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 00
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 123 MUL 77777 * #100000 = 100000 100000 PS = 11
:*****

007632 010701
007634 012703 077777
007640 070000 100000
007644 013767 177776 004604
007650 177767 000011 004576
007654 000000
007656 000000
007660 000000
007670 000000 100000
007672 000000
007674 000000 100000
007700 001401
007702 000000

SCOPE
MOV #77777,x3
MUL #100000,x3
MOV #PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
MOV #100000,x3
BEQ .+4
MOV #100000,x3!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * #100000
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = 100000
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:LOW ORDER IS WRONG

:TEST 124 MUL -1 * #77777 = 100001 100001 PS = 10
:*****

007704 010701
007706 012703 177777
007712 070000 077777
007716 013767 177776 004532
007724 177767 000010 004524
007732 000000
007734 000000
007736 000000 100001
007742 000000
007744 000000
007746 000000 100001
007752 001401
007754 000000

SCOPE
MOV #-1,x3
MUL #77777,x3
MOV #PS,PSW
CMPB #10,PSW
BEQ .+4
HLT
MOV #100001,x3
BEQ .+4
MOV #100001,x3!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * #77777
:SAVE PS
:IS PS = 10
:PS IS WRONG
:IS HIGH ORDER = 100001
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100001
:LOW ORDER IS WRONG

:TEST 125 MUL 77777 * 877777 = 1 1 PS = 1
:*****

007756 010701
C 7760 012703 077777
C 7764 070327 077777
007770 013767 177776 004460
007776 12767 000001 004452
010774 C 7703
010776 C 7703
010010 0 2703 000001
010014 001401
010016 07770
010730 C 2703 000001
010024 001401
010026 000000

SCOPE
MOV 877777,X3
MUL 877777,X3
MOV 2=PS,PSW
CMB 81,PSW
EQU .+4
HLT
CMP 81,X3
EQU .+4
HLT
CMP 81,X3!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 77777
:MULTIPLY 77777 * 877777
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 1
:
:LOW ORDER IS WRONG

:TEST 126 MUL 2 * 82 = 4 4 PS = 0
:*****

010030 010701
010732 012703 000002
010736 070327 0 2
010042 013767 177776 004406
010050 122767 000000 004400
010756 001401
010730 C 7703
010732 C 2703 000004
010756 001401
010070 000000
010072 0 2703 000004
010076 001401
010100 000000

SCOPE
MOV 82,X3
MUL 82,X3
MOV 2=PS,PSW
CMB 80,PSW
EQU .+4
HLT
CMP 84,X3
EQU .+4
HLT
CMP 84,X3!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 2
:MULTIPLY 2 * 82
:SAVE PS
:IS PS = 0
:
:PS IS WRONG
:IS HIGH ORDER = 4
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 4
:
:LOW ORDER IS WRONG

:TEST 127 MUL 0 * 80 = 0 0 PS = 4

010102	010701			SCOPE		:TEST OF MULTIPLY
010104	012704	000000		MOV	80,X4	:LOAD MULTIPLICAN WITH 0
010110	070427	000000		MUL	80,X4	:MULTIPLY 0 * 80
010114	013767	177776	004334	MOV	2*PS,PSW	:SAVE PS
010122	122767	000004	004326	CMPB	84,PSW	:IS PS = 4
010130	001401			BEQ	.+4	
010138	000000			HLT		:PS IS WRONG
010134	022704	000000		CMP	80,X4	:IS HIGH ORDER = 0
010140	001401			BEQ	.+4	
010148	000000			HLT		:HIGH ORDER IS WRONG
010144	022705	000000		CMP	80,X4!1	:IS LOW ORDER = 0
010150	001401			BEQ	.+4	
010152	000000			HLT		:LOW ORDER IS WRONG

:TEST 130 MUL 0 * 81 = 0 0 PS = 4

010154	010701			SCOPE		:TEST OF MULTIPLY
010156	012704	000000		MOV	80,X4	:LOAD MULTIPLICAN WITH 0
010162	070427	000001		MUL	81,X4	:MULTIPLY 0 * 81
010166	013767	177776	004262	MOV	2*PS,PSW	:SAVE PS
010174	122767	000004	004254	CMPB	84,PSW	:IS PS = 4
010182	001401			BEQ	.+4	
010190	000000			HLT		:PS IS WRONG
010186	022704	000000		CMP	80,X4	:IS HIGH ORDER = 0
010192	001401			BEQ	.+4	
010200	000000			HLT		:HIGH ORDER IS WRONG
010206	022705	000000		CMP	80,X4!1	:IS LOW ORDER = 0
010212	001401			BEQ	.+4	
010218	000000			HLT		:LOW ORDER IS WRONG

:TEST 131 MUL 1 * 80 = 0 0 PS = 4

010226 010701
010230 012704 000001
010234 070427 000000
010240 013767 177776 004210
010246 122767 000004 004202
010250 001401
010254 000000
010260 000000
010270 022705 000000
010274 001401
010276 000000

SCOPE
MOV 81,X4
MUL 80,X4
MOV 2#PS,PSW
CMPB 84,PSW
BEQ .+4
HLT
CMP 80,X4
BEQ .+4
HLT
CMP 80,X4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1
:MULTIPLY 1 * 80
:SAVE PS
:IS PS = 4

:PS IS WRONG
:IS HIGH ORDER = 0

:HIGH ORDER IS WRONG
:IS LOW ORDER = 0

:LOW ORDER IS WRONG

:TEST 132 MUL -1 * 81 = -1 -1 PS = 10

010300 010701
010302 012704 177777
010306 070427 000001
010312 013767 177776 004136
010320 122767 000010 004130
010326 001401
010330 000000
010332 022704 177777
010336 001401
010340 000000
010342 022705 177777
010346 001401
010350 000000

SCOPE
MOV 8-1,X4
MUL 81,X4
MOV 2#PS,PSW
CMPB 810,PSW
BEQ .+4
HLT
CMP 8-1,X4
BEQ .+4
HLT
CMP 8-1,X4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 81
:SAVE PS
:IS PS = 10

:PS IS WRONG
:IS HIGH ORDER = -1

:HIGH ORDER IS WRONG
:IS LOW ORDER = -1

:LOW ORDER IS WRONG

:TEST 133 MUL 1 * 8-1 = -1 -1 PS = 10

010352	010701			SCOPE		:TEST OF MULTIPLY
010354	012704	000001		MOV	#1,%4	:LOAD MULTIPLICAN WITH 1
010360	070427	177777		MUL	#-1,%4	:MULTIPLY 1 * 8-1
010364	013767	177776	004064	MOV	2#PS,PSW	:SAVE PS
010372	122767	000010	004056	CMPS	#10,PSW	:IS PS = 10
010400	001401			BEQ	+.4	
010402	000000			HLT		:PS IS WRONG
010404	022704	177777		CMPS	#-1,%4	:IS HIGH ORDER = -1
010410	001401			BEQ	+.4	
010412	000000			HLT		:HIGH ORDER IS WRONG
010414	022705	177777		CMPS	#-1,%4!1	:IS LOW ORDER = -1
010420	001401			BEQ	+.4	
010422	000000			HLT		:LOW ORDER IS WRONG

:TEST 134 MUL 1 * 82 = 0 2 PS = 0

010424	010701			SCOPE		:TEST OF MULTIPLY
010426	012704	000001		MOV	#1,%4	:LOAD MULTIPLICAN WITH 1
010432	070427	000002		MUL	#2,%4	:MULTIPLY 1 * 82
010436	013767	177776	004012	MOV	2#PS,PSW	:SAVE PS
010444	122767	000000	004004	CMPS	#0,PSW	:IS PS = 0
010452	001401			BEQ	+.4	
010454	000000			HLT		:PS IS WRONG
010456	022704	000000		CMPS	#0,%4	:IS HIGH ORDER = 0
010462	001401			BEQ	+.4	
010464	000000			HLT		:HIGH ORDER IS WRONG
010466	022705	000002		CMPS	#2,%4!1	:IS LOW ORDER = 2
010472	001401			BEQ	+.4	
010474	000000			HLT		:LOW ORDER IS WRONG

:TEST 135 MUL 2 * #2 = 0 4 PS = 0

010476	010701			SCOPE		:TEST OF MULTIPLY
010500	012704	000002		MOV	#2,%4	:LOAD MULTIPLICAN WITH 2
010504	070427	000002		MUL	#2,%4	:MULTIPLY 2 * #2
010510	013767	177776	003740	MOV	@#PS,PSW	:SAVE PS
010516	122767	000000	003732	CMPB	#0,PSW	:IS PS = 0
010524	001401			BEQ	.+4	
010526	000000			HLT		:PS IS WRONG
010530	022704	000000		CMP	#0,%4	:IS HIGH ORDER = 0
010534	001401			BEQ	.+4	
010536	000000			HLT		:HIGH ORDER IS WRONG
010540	022705	000004		CMP	#4,%4!1	:IS LOW ORDER = 4
010544	001401			BEQ	.+4	
010546	000000			HLT		:LOW ORDER IS WRONG

:TEST 136 MUL 1000 * #200 = 1 0 PS = 1

010550	010701			SCOPE		:TEST OF MULTIPLY
010552	012704	001000		MOV	#1000,%4	:LOAD MULTIPLICAN WITH 1000
010556	070427	000200		MUL	#200,%4	:MULTIPLY 1000 * #200
010562	013767	177776	003666	MOV	@#PS,PSW	:SAVE PS
010570	122767	000001	003660	CMPB	#1,PSW	:IS PS = 1
010576	001401			BEQ	.+4	
010600	000000			HLT		:PS IS WRONG
010602	002704	000001		CMP	#1,%4	:IS HIGH ORDER = 1
010606	001401			BEQ	.+4	
010610	000000			HLT		:HIGH ORDER IS WRONG
010612	002705	000000		CMP	#0,%4!1	:IS LOW ORDER = 0
010616	001401			BEQ	.+4	
010620	000000			HLT		:LOW ORDER IS WRONG

:TEST 137 MUL 200 * #1000 = 1 0 PS = 1

010622	010701			SCOPE		:TEST OF MULTIPLY
010624	012704	000200		MOV	#200,%4	:LOAD MULTIPLICAN WITH 200
010630	070427	001000		MUL	#1000,%4	:MULTIPLY 200 * #1000
010634	013767	177776	003614	MOV	@#PS,PSW	:SAVE PS
010642	122767	000001	003606	CMPB	#1,PSW	:IS PS = 1
010650	001401			BEQ	+.4	
010652	000000			HLT		:PS IS WRONG
010654	022704	000001		CMP	#1,%4	:IS HIGH ORDER = 1
010660	001401			BEQ	+.4	
010662	000000			HLT		:HIGH ORDER IS WRONG
010664	022705	000000		CMP	#0,%4!1	:IS LOW ORDER = 0
010670	001401			BEQ	+.4	
010672	000000			HLT		:LOW ORDER IS WRONG

:TEST 140 MUL 77777 * #2 = 0 177776 PS = 1

010674	010701			SCOPE		:TEST OF MULTIPLY
010676	012704	077777		MOV	#77777,%4	:LOAD MULTIPLICAN WITH 77777
010702	070427	000002		MUL	#2,%4	:MULTIPLY 77777 * #2
010706	013767	177776	003542	MOV	@#PS,PSW	:SAVE PS
010714	122767	000001	003534	CMPB	#1,PSW	:IS PS = 1
010722	001401			BEQ	+.4	
010724	000000			HLT		:PS IS WRONG
010726	022704	000000		CMP	#0,%4	:IS HIGH ORDER = 0
010732	001401			BEQ	+.4	
010734	000000			HLT		:HIGH ORDER IS WRONG
010736	022705	177776		CMP	#177776,%4!1	:IS LOW ORDER = 177776
010742	001401			BEQ	+.4	
010744	000000			HLT		:LOW ORDER IS WRONG

:TEST 141 MUL 2 * 077777 = 0 177776 PS = 1

010746 010701
010750 012704 000002
010754 070427 077777
010760 013767 177776 003470
010766 122767 000001 003462
010774 001401
010776 000000
011000 000000
011004 001401
011006 000000
011010 022705 177776
011014 001401
011016 000000

SCOPE
MOV 02,x4
MUL 077777,x4
MOV 2#PS,PSW
CMPB 01,PSW
BEQ .+4
HLT
CMP 00,x4
BEQ .+4
HLT
CMP 0177776,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 2
:MULTIPLY 2 * 077777
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 177776
:
:LOW ORDER IS WRONG

:TEST 142 MUL 7777 * 010 = 0 77770 PS = 0

011020 010701
011022 012704 007777
011026 070427 000010
011032 013767 177776 003416
011040 122767 000000 003410
011046 001401
011050 000000
011052 022704 000000
011056 001401
011060 000000
011062 022705 077770
011066 001401
011070 000000

SCOPE
MOV 077777,x4
MUL 010,x4
MOV 2#PS,PSW
CMPB 00,PSW
BEQ .+4
HLT
CMP 00,x4
BEQ .+4
HLT
CMP 077770,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 7777
:MULTIPLY 7777 * 010
:SAVE PS
:IS PS = 0
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 77770
:
:LOW ORDER IS WRONG

:TEST 143 MUL 10 * 07777 = 0 77770 PS = 0

011072	010701			SCOPE		:TEST OF MULTIPLY
011074	012704	000010		MOV	010,x4	:LOAD MULTIPICAN WITH 10
011100	070427	007777		MUL	07777,x4	:MULTIPLY 10 * 07777
011104	013767	177776	003344	MOV	00PS,PSH	:SAVE PS
011112	122767	000000	003336	CMPB	00,PSH	:IS PS = 0
011112	001401			BEQ	.+4	
011112	000000			HLT		:PS IS WRONG
011112	012704	000000		CMP	00,x4	:IS HIGH ORDER = 0
011112	001401			BEQ	.+4	
011112	000000			HLT		:HIGH ORDER IS WRONG
011113	002705	077770		CMP	077770,x4!1	:IS LOW ORDER = 77770
011113	001401			BEQ	.+4	
011113	000000			HLT		:LOW ORDER IS WRONG

:TEST 144 MUL 7777 * 07777 = 37777 1 PS = 1

011144	010701			SCOPE		:TEST OF MULTIPLY
011146	012704	077777		MOV	077777,x4	:LOAD MULTIPICAN WITH 77777
011152	013767	077777		MUL	077777,x4	:MULTIPLY 77777 * 077777
011156	013767	177776	003272	MOV	00PS,PSH	:SAVE PS
011164	122767	000001	003264	CMPB	01,PSH	:IS PS = 1
011172	001401			BEQ	.+4	
011174	000000			HLT		:PS IS WRONG
011176	012704	037777		CMP	037777,x4	:IS HIGH ORDER = 37777
011202	001401			BEQ	.+4	
011204	000000			HLT		:HIGH ORDER IS WRONG
011206	002705	000001		CMP	01,x4!1	:IS LOW ORDER = 1
011212	001401			BEQ	.+4	
011214	000000			HLT		:LOW ORDER IS WRONG

:TEST 145 MUL 77777 * 81 = 0 77777 PS = 0

011216 010701
011218 012704 077777
011220 013767 000001
011222 013767 177776 003220
011224 122767 000000 003212
011226 001401
011228 000000
011230 022704 000000
011232 001401
011234 000000
011236 000000
011238 022705 077777
011240 001401
011242 000000

SCOPE
MOV 877777,x4
MUL 81,x4
MOV 2#PS,PSW
CMPB 80,PSW
BEQ .+4
HLT
CMP 80,x4
BEQ .+4
HLT
CMP 877777,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 81
:SAVE PS
:IS PS = 0
:PS IS WRONG
:IS HIGH ORDER = 0
:HIGH ORDER IS WRONG
:IS LOW ORDER = 77777
:LOW ORDER IS WRONG

:TEST 146 MUL 1 * 877777 = 0 77777 PS = 0

011270 010701
011272 012704 000001
011274 070427 077777
011302 013767 177776 003146
011310 122767 000000 003140
011316 001401
011320 000000
011322 022704 000000
011324 001401
011326 000000
011330 000000
011332 022705 077777
011334 001401
011340 000000

SCOPE
MOV 81,x4
MUL 877777,x4
MOV 2#PS,PSW
CMPB 80,PSW
BEQ .+4
HLT
CMP 80,x4
BEQ .+4
HLT
CMP 877777,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 1
:MULTIPLY 1 * 877777
:SAVE PS
:IS PS = 0
:PS IS WRONG
:IS HIGH ORDER = 0
:HIGH ORDER IS WRONG
:IS LOW ORDER = 77777
:LOW ORDER IS WRONG

:TEST 147 MUL 77777 * 0-1 = -1 100001 PS = 10
:*****

011342 010701
011344 012704 077777
011346 070427 177777
011354 013767 177776 003074
011352 122767 000010 003066
011350 001401
011372 000000
011374 012704 177777
011376 001401
011378 000000
011434 000000 100001
011410 001401
011412 000000

SCOPE
MOV 077777,x4
MUL 0-1,x4
MOV 2@PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,x4
BEQ .+4
HLT
CMP 0100001,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 0-1
:SAVE PS
:IS PS = 10
:PS IS WRONG
:IS HIGH ORDER = -1
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100001
:LOW ORDER IS WRONG

:TEST 150 MUL -1 * 077777 = -1 100001 PS = 10
:*****

011414 010701
011416 012704 177777
011418 070427 077777
011420 013767 177776 003022
011422 122767 000010 003014
011424 001401
011426 000000
011428 012704 177777
011430 001401
011432 000000
011434 000000 100001
011436 001401
011438 000000

SCOPE
MOV 0-1,x4
MUL 077777,x4
MOV 2@PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0-1,x4
BEQ .+4
HLT
CMP 0100001,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 077777
:SAVE PS
:IS PS = 10
:PS IS WRONG
:IS HIGH ORDER = -1
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100001
:LOW ORDER IS WRONG

:TEST 151 MUL -2 * 877777 = -1 2 PS = 11

011445 010701
011446 012704 177776
011474 012704 077777
011570 013767 177776 002750
011526 122767 000011 002742
011514 012704
011516 012704
011528 012704 177777
011524 001401
011523 012704
011525 012704 000002
011534 001401
011536 000000

SCOPE
MOV 8-2,x4
MUL 877777,x4
MOV 28PS,PSW
CMPB 811,PSW
BEQ .+4
HLT
CMP 8-1,x4
BEQ .+4
HLT
C.P 82,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH -2
:MULTIPLY -2 * 877777
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 2
:
:LOW ORDER IS WRONG

:TEST 152 MUL 77777 * 8-2 = -1 2 PS = 11

011540 010701
011542 012704 077777
011546 070427 177776
011552 013767 177776 002676
011550 122767 000011 002670
011556 001401
011570 012704
011572 012704 177777
011576 001401
011600 000000
011602 012705 000002
011606 001401
011610 000000

SCOPE
MOV 877777,x4
MUL 8-2,x4
MOV 28PS,PSW
CMPB 811,PSW
BEQ .+4
HLT
CMP 8-1,x4
BEQ .+4
HLT
C.P 82,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 77777
:MULTIPLY 77777 * 8-2
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 2
:
:LOW ORDER IS WRONG

:TEST 153 MUL 125252 * 02 = -1 52524 PS = 11

011612	010701			SCOPE		:TEST OF MULTIPLY
011614	012704	125252		MOV	#125252,x4	:LOAD MULTIPICAN WITH 125252
011620	070427	0	2	MUL	#2,x4	:MULTIPLY 125252 * 02
011624	013767	177776	002624	MOV	#PS,PSW	:SAVE PS
011632	122767	000011	002616	CMPB	#11,PSW	:IS PS = 11
011640	001401			BEQ	.+4	
011642	000000			HLT		:PS IS WRONG
011644	000004	177777		CMP	#-1,x4	:IS HIGH ORDER = -1
011650	001401			BEQ	.+4	
011652	000000			HLT		:HIGH ORDER IS WRONG
011654	022705	052524		CMP	#52524,x4!1	:IS LOW ORDER = 52524
011660	001401			BEQ	.+4	
011662	000000			HLT		:LOW ORDER IS WRONG

:TEST 154 MUL 2 * #125252 = -1 52524 PS = 11

011664	010701			SCOPE		:TEST OF MULTIPLY
011666	012704	000002		MOV	#2,x4	:LOAD MULTIPICAN WITH 2
011672	070427	125252		MUL	#125252,x4	:MULTIPLY 2 * #125252
011676	013767	177776	002552	MOV	#PS,PSW	:SAVE PS
011704	122767	000011	002544	CMPB	#11,PSW	:IS PS = 11
011712	001401			BEQ	.+4	
011714	000000			HLT		:PS IS WRONG
011716	022704	177777		CMP	#-1,x4	:IS HIGH ORDER = -1
011722	001401			BEQ	.+4	
011724	000000			HLT		:HIGH ORDER IS WRONG
011726	022705	052524		CMP	#52524,x4!1	:IS LOW ORDER = 52524
011732	001401			BEQ	.+4	
011734	000000			HLT		:LOW ORDER IS WRONG

:TEST 155 MUL 52525 * 02 = 0 125252 PS = 1
:*****

011736 010701
011740 012704 052525
011744 070427 000002
011750 013767 177776 002500
011756 122767 000001 002472
011764 001401
011766 000000
011770 000000
011774 001401
011776 000000
012000 000000 125252
012004 001401
012006 000000

SCOPE
MOV 052525,X4
MUL 02,X4
MOV 0,PS,PSW
CMPB 01,PSW
BCB .+4
HLT
CMP 00,X4
BCB .+4
HLT
CMP 0125252,X4!1
BCB .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 52525
:MULTIPLY 52525 * 02
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 125252
:
:LOW ORDER IS WRONG

:TEST 156 MUL 2 * 1 5 = 0 125252 PS = 1
:*****

012010 010701
012012 012704 000002
012016 070427 052525
012020 013767 177776 002426
012024 122767 000001 002420
012026 001401
012030 000000
012042 000000
012046 001401
012050 000000
012054 002705 125252
012056 001401
012060 000000

SCOPE
MOV 02,X4
MUL 1,525,X4
MOV 0,PS,PSW
CMPB 01,PSW
BCB .+4
HLT
CMP 00,X4
BCB .+4
HLT
CMP 0125252,X4!1
BCB .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 2
:MULTIPLY 2 * 052525
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 125252
:
:LOW ORDER IS WRONG

:TEST 157 MUL 125252 * #40000 = 165252 100000 PS = 11
:*****

012072 010701 125252
012074 012704 000000
012102 013767 177776 002354
012110 012767 000011 002346
012112 012767 165252
012114 012767 165252
012116 012767 165252
012118 012767 165252
012120 012767 165252
012122 012767 165252
012124 012767 165252
012126 012767 165252
012128 012767 165252
012130 012767 165252
012132 012767 165252

SCOPE
MOV #125252,X4
MUL #40000,X4
MOV #PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X4
BEQ .+4
HLT
CMP #100000,X4!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 125252
:MULTIPLY 125252 * #40000
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 165252
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 160 MUL 40000 * #125252 = 165252 100000 PS = 11
:*****

012134 010701 040000
012136 012704 125252
012142 070427 177776 002302
012146 013767 000011 002274
012154 122767 165252
012162 001401 165252
012164 001401 165252
012166 001401 165252
012172 001401 165252
012174 001401 165252
012176 001401 165252
012202 001401 100000
012204 000000 100000

SCOPE
MOV #40000,X4
MUL #125252,X4
MOV #PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X4
BEQ .+4
HLT
CMP #100000,X4!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 40000
:MULTIPLY 40000 * #125252
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 165252
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 161 MUL 100000 * #100000 = 40000 0 PS = 1

012206	010701			SCOPE		:TEST OF MULTIPLY
012210	012704	100000		MOV	#100000,X4	:LOAD MULTIPLICAN WITH 100000
012214	070427	100000		MUL	#100000,X4	:MULTIPLY 100000 * #100000
012220	013767	177776	002230	MOV	2#PS,PSW	:SAVE PS
012226	122767	000001	002222	CMPS	#1,PSW	:IS PS = 1
012232	001401			BEQ	.+4	
012238	000000			HLT		:PS IS WRONG
012244	000000	040000		CMP	#40000,X4	:IS HIGH ORDER = 40000
012250	001401			BEQ	.+4	
012256	000000			HLT		:HIGH ORDER IS WRONG
012262	000000	000000		CMP	#0,X4!1	:IS LOW ORDER = 0
012268	001401			BEQ	.+4	
012274	000000			HLT		:LOW ORDER IS WRONG

:TEST 162 MUL 70707 * #70707 = 31221 44261 PS = 1

012260	010701			SCOPE		:TEST OF MULTIPLY
012266	012704	070707		MOV	#70707,X4	:LOAD MULTIPLICAN WITH 70707
012272	070427	070707		MUL	#70707,X4	:MULTIPLY 70707 * #70707
012278	013767	177776	002156	MOV	2#PS,PSW	:SAVE PS
012284	122767	000001	002150	CMPS	#1,PSW	:IS PS = 1
012290	001401			BEQ	.+4	
012296	000000			HLT		:PS IS WRONG
012302	000000	031221		CMP	#31221,X4	:IS HIGH ORDER = 31221
012308	001401			BEQ	.+4	
012314	000000			HLT		:HIGH ORDER IS WRONG
012320	000000	044261		CMP	#44261,X4!1	:IS LOW ORDER = 44261
012326	001401			BEQ	.+4	
012332	000000			HLT		:LOW ORDER IS WRONG

:TEST 163 MUL 107070 * #107070 = 31222 26100 PS = 1
:*****

012332 010701
012334 012704 107070
012340 070427 107070
012344 013767 177776 002104
012348 122767 000001 002076
012352 001401
012354 031222
012356 001401
012358 026100
012400 001401
012402 000000

SCOPE
MOV #107070,x4
MUL #107070,x4
MOV 2#PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #31222,x4
BEQ .+4
HLT
CMP #26100,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 107070
:MULTIPLY 107070 * #107070
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 31222
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 26100
:
:LOW ORDER IS WRONG

:TEST 164 MUL 100000 * #77777 = 140000 100000 PS = 11
:*****

012404 010701
012406 012704 100000
012412 070427 077777
012416 013767 177776 002032
012420 122767 000011 002024
012424 001401
012426 000000
012428 022704 140000
012430 001401
012432 000000
012434 022705 100000
012436 001401
012438 000000

SCOPE
MOV #100000,x4
MUL #77777,x4
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #140000,x4
BEQ .+4
HLT
CMP #100000,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 100000
:MULTIPLY 100000 * #77777
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 140000
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

;TEST 165 MUL 77777 * #100000 = 140000 100000 PS = 11

012456 010701
012460 012704 077777
012464 070427 100000
012470 013767 177776 001760
012476 122767 000011 001752
012504 001401
012506 000000
012510 022704 140000
012514 001401
012516 000000
012520 022705 100000
012524 001401
012526 000000

SCOPE
MOV #77777,X4
MUL #100000,X4
MOV @#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #140000,X4
BEQ .+4
HLT
CMP #100000,X4!1
BEQ .+4
HLT

;TEST OF MULTIPLY
;LOAD MULTIPLICAN WITH 77777
;MULTIPLY 77777 * #100000
;SAVE PS
;IS PS = 11
;PS IS WRONG
;IS HIGH ORDER = 140000
;HIGH ORDER IS WRONG
;IS LOW ORDER = 100000
;LOW ORDER IS WRONG

;TEST 166 MUL 157634 * #104031 = 7453 133074 PS = 1

012530 010701
012532 012704 157634
012536 070427 104031
012540 013767 177776 001706
012544 122767 000001 001700
012548 001401
012552 000000
012556 022704 007453
012560 001401
012570 000000
012572 022705 133074
012576 001401
012600 000000

SCOPE
MOV #157634,X4
MUL #104031,X4
MOV @#PS,PSW
CMPB #1,PSW
BEQ .+4
HLT
CMP #7453,X4
BEQ .+4
HLT
CMP #133074,X4!1
BEQ .+4
HLT

;TEST OF MULTIPLY
;LOAD MULTIPLICAN WITH 157634
;MULTIPLY 157634 * #104031
;SAVE PS
;IS PS = 1
;PS IS WRONG
;IS HIGH ORDER = 7453
;HIGH ORDER IS WRONG
;IS LOW ORDER = 133074
;LOW ORDER IS WRONG

M05

MAINDEC-11-DCKBK-A MUL TEST
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:TEST 167 MUL 104031 * #157634 = 7453 133074 PS = 1
:*****

012602	010701			SCOPE		:TEST OF MULTIPLY
012604	012704	104031		MOV	#104031,x4	:LOAD MULTIPLICAN WITH 104031
012610	070427	157634		MUL	#157634,x4	:MULTIPLY 104031 * #157634
012614	013767	177776	001634	MOV	@#PS,PSW	:SAVE PS
012622	122767	000001	001626	CMPB	#1,PSW	:IS PS = 1
012630	001401			BEQ	.+4	
012632	000000			HLT		:PS IS WRONG
012634	022704	007453		CMP	#7453,x4	:IS HIGH ORDER = 7453
012640	001401			BEQ	.+4	
012642	000000			HLT		:HIGH ORDER IS WRONG
012644	022705	133074		CMP	#133074,x4!1	:IS LOW ORDER = 133074
012650	001401			BEQ	.+4	
012652	000000			HLT		:LOW ORDER IS WRONG

:TEST 170 MUL 152210 * #0 = 0 0 PS = 4
:*****

012654	010701			SCOPE		:TEST OF MULTIPLY
012656	012704	152210		MOV	#152210,x4	:LOAD MULTIPLICAN WITH 152210
012662	070427	000000		MUL	#0,x4	:MULTIPLY 152210 * #0
012666	013767	177776	001562	MOV	@#PS,PSW	:SAVE PS
012674	122767	000004	001554	CMPB	#4,PSW	:IS PS = 4
012702	001401			BEQ	.+4	
012704	010000			HLT		:PS IS WRONG
012706	02704	000000		CMP	#0,x4	:IS HIGH ORDER = 0
012712	001401			BEQ	.+4	
012714	000000			HLT		:HIGH ORDER IS WRONG
012716	022705	000000		CMP	#0,x4!1	:IS LOW ORDER = 0
012722	001401			BEQ	.+4	
012724	000000			HLT		:LOW ORDER IS WRONG

:TEST 171 MUL 0 * #152210 = 0 0 PS = 4
:*****

012726 010701
012730 012704 000000
012734 070427 152210
012740 013767 177776 001510
012746 122767 000004 001502
012754 001401
012756 000000
012760 022704 000000
012764 001401
012766 000000
012770 022705 000000
012774 001401
012776 000000

SCOPE
MOV #0,%4
MUL #152210,%4
MOV @#PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,%4
BEQ .+4
HLT
CMP #0,%4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * #152210
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 172 MUL -1 * #0 = 0 0 PS = 4
:*****

013000 010701
013002 012704 177777
013006 070427 000000
013012 013767 177776 001436
013020 122767 000004 001430
013026 001401
013030 000000
013032 022704 000000
013036 001401
013040 000000
013042 022705 000000
013046 001401
013050 000000

SCOPE
MOV #-1,%4
MUL #0,%4
MOV @#PS,PSW
CMPB #4,PSW
BEQ .+4
HLT
CMP #0,%4
BEQ .+4
HLT
CMP #0,%4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * #0
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 173 MUL 0 * 0-1 = 0 0 PS = 4
:*****

013052 010701
013053 012704 000000
013054 070427 177777
013055 013767 177776 001364
013072 122767 000004 001356
013108 001401
013109 000000
013109 012704 000000
013110 001401
013111 000000
013112 000000
013120 001401
013122 000000

SCOPE
MOV 00,x4
MUL 0-1,x4
MOV 00,PS,PSM
CMPB 0-1,PSM
BEQ .+4
HLT
MOV 00,x4
MUL 0-1,x4
BEQ .+4
CMP 00,x4!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 0
:MULTIPLY 0 * 0-1
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 174 MUL -1 * 01 = -1 -1 PS = 10
:*****

013124 010701
013125 012705 177777
013126 000001
013127 010007 177776 001312
013128 010007 000010 001304
013129 000000
013130 000000
013131 000000
013132 000000
013133 000000
013134 000000
013135 000000
013136 000000
013137 000000

SCOPE
MOV 0-1,x5
MUL 01,x5
MOV 00,PS,PSM
CMPB 010,PSM
BEQ .+4
HLT
MOV 0-1,x5
MUL 0-1,x5
BEQ .+4
CMP 0-1,x5!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 01
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = -1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = -1
:
:LOW ORDER IS WRONG

:TEST 175 MUL -1 * 80 = 0 0 PS = 4
:*****

013176 010701
013177 012705 177777
013178 012705 000070
013179 013167 177776 001240
013180 122767 000004 001232
013181 001401
013182 000000
013183 000000
013184 000000
013185 001401
013186 000000

SCOPE
MOV @-1,XS
MUL 80,XS
MOV @,PS,PSW
CMPB @,PSW
BEQ .+4
HLT
CMP 80,XS
BEQ .+4
HLT
CMP 80,XS!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 80
:SAVE PS
:IS PS = 4
:
:PS IS WRONG
:IS HIGH ORDER = 0
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 0
:
:LOW ORDER IS WRONG

:TEST 176 MUL 77777 * 810000 = 100000 100000 PS = 11
:*****

013250 010701
013251 012705 077777
013252 012705 100000
013253 013767 177776 001166
013254 122767 000011 001160
013255 001401
013256 000000
013257 000000
013258 000000
013259 001401
013260 000000
013261 000000
013262 000000
013263 001401
013264 000000

SCOPE
MOV @77777,XS
MUL @100000,XS
MOV @,PS,PSW
CMPB @,PSW
BEQ .+4
HLT
CMP @100000,XS
BEQ .+4
HLT
CMP @100000,XS!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 810000
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 100000
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 177 MUL -1 * 877777 = 100001 100001 PS = 10

013322 010701
013324 012705 177777
013325 070527 077777
013326 013367 177776 001114
013342 122767 000010 001106
013353 001401
013354 022705 100001
013360 001401
013362 022705 100001
013370 001401
013372 000000

SCOPE
MOV 0-1,XS
MUL 877777,XS
MOV 28PS,PSW
CMPB 010,PSW
BEQ .+4
HLT
CMP 0100001,XS
BEQ .+4
HLT
CMP 0100001,XS!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH -1
:MULTIPLY -1 * 877777
:SAVE PS
:IS PS = 10
:
:PS IS WRONG
:IS HIGH ORDER = 100001
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100001
:
:LOW ORDER IS WRONG

:TEST 200 MUL 77777 * 877777 = 1 1 PS = 1

013374 010701
013376 012705 077777
013422 070527 077777
013426 013767 177776 001042
013428 122767 000001 001034
013429 001401
013429 022705 000001
013432 001401
013434 000000
013436 022705 000001
013442 001401
013444 000000

SCOPE
MOV 877777,XS
MUL 877777,XS
MOV 28PS,PSW
CMPB 01,PSW
BEQ .+4
HLT
CMP 01,XS
BEQ .+4
HLT
CMP 01,XS!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 77777
:MULTIPLY 77777 * 877777
:SAVE PS
:IS PS = 1
:
:PS IS WRONG
:IS HIGH ORDER = 1
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 1
:
:LOW ORDER IS WRONG

:TEST 201 MUL 2 * 82 = 44 PS = 0
:*****

013446	010701	000002		SCOPE		:TEST OF MULTIPLY
013447	010701	000002		MOV	#2, X5	:LOAD MULTIPICAN WITH 2
013448	010701	000002		MUL	#2, X5	:MULTIPLY 2 * 82
013450	013767	177776	000770	MOV	#PS, PSW	:SAVE PS
013451	013767	000000	000762	CMPB	#0, PSW	:IS PS = 0
013452	001401			BEQ	.+4	
013476	010000			HLT		:PS IS WRONG
013477	010000			CMP	#4, X5	:IS HIGH ORDER = 4
013478	001401			BEQ	.+4	
013479	010000			HLT		:HIGH ORDER IS WRONG
013510	012705	000004		CMP	#4, X5!1	:IS LOW ORDER = 4
013514	001401			BEQ	.+4	
013516	000000			HLT		:LOW ORDER IS WRONG
013520	012702	040000		MOV	#40000, X2	
013524	012703	014462		MOV	#51, X3	
013530	012704	014464		MOV	#52, X4	

:TEST 202 MUL 125252 * 51 = 165252 100000 PS = 11
:*****

013534	010701			SCOPE		:TEST OF MULTIPLY
013536	012700	125252		MOV	#125252, X0	:LOAD MULTIPICAN WITH 125252
013542	070067	000714		MUL	S1, X0	:MULTIPLY 125252 * 51
013546	013767	177776	000702	MOV	#PS, PSW	:SAVE PS
013554	012767	000011	000674	CMPB	#11, PSW	:IS PS = 11
013555	001401			BEQ	.+4	
013557	000000			HLT		:PS IS WRONG
013558	022700	165252		CMP	#165252, X0	:IS HIGH ORDER = 165252
013572	001401			BEQ	.+4	
013574	000000			HLT		:HIGH ORDER IS WRONG
013576	022701	100000		CMP	#100000, X0!1	:IS LOW ORDER = 100000
013602	001401			BEQ	.+4	
013604	000000			HLT		:LOW ORDER IS WRONG

:TEST 203 MUL 125252 * 252 = 165252 100000 PS = 11
:*****

013706 010701
013707 010700 125252
013708 010700 000000
013709 010700 177776 000630
013710 010700 000011 000622
013711 010700
013712 010700 165252
013713 010700
013714 010700
013715 010700 100000
013716 010700
013717 010700
013718 010700
013719 010700
013720 010700
013721 010700
013722 010700 100000
013723 010700
013724 010700
013725 010700
013726 010700
013727 010700
013728 010700
013729 010700
013730 010700

SCOPE
MOV #125252,XD ;TEST OF MULTIPLY
MUL #252,XD ;LOAD MULTIPLICAN WITH 125252
MOV #PS,PSH ;MULTIPLY 125252 * 252
CMB #11,PSH ;SAVE PS
BREQ .+4 ;IS PS = 11
CMB #165252,XD ;PS IS WRONG
BREQ .+4 ;IS HIGH ORDER = 165252
CMB #100000,XD!1 ;HIGH ORDER IS WRONG
BREQ .+4 ;IS LOW ORDER = 100000
HLT ;LOW ORDER IS WRONG

:TEST 204 MUL 125252 * 251 = 165252 100000 PS = 11
:*****

013660 010701
013661 012700 125252
013662 010700 014 2
013663 013 67 177776 000656
013664 010700 000011 000630
013665 010700
013666 010700
013667 010700 165252
013668 010700
013669 010700
013670 010700
013671 010700
013672 010700 100000
013673 010700
013674 010700
013675 010700
013676 010700
013677 010700
013678 010700
013679 010700
013680 010700
013681 010700
013682 010700
013683 010700
013684 010700
013685 010700
013686 010700
013687 010700
013688 010700
013689 010700
013690 010700
013691 010700
013692 010700
013693 010700
013694 010700
013695 010700
013696 010700
013697 010700
013698 010700
013699 010700
013700 010700

SCOPE
MOV #125252,XD ;TEST OF MULTIPLY
MUL #251,XD ;LOAD MULTIPLICAN WITH 125252
MOV #PS,PSH ;MULTIPLY 125252 * 251
CMB #11,PSH ;SAVE PS
BREQ .+4 ;IS PS = 11
CMB #165252,XD ;PS IS WRONG
BREQ .+4 ;IS HIGH ORDER = 165252
CMB #100000,XD!1 ;HIGH ORDER IS WRONG
BREQ .+4 ;IS LOW ORDER = 100000
HLT ;LOW ORDER IS WRONG

:TEST 205 MUL 125252 * X2 = 165252 100000 PS = 11

013732 010701
013734 012700 125252
013740 070023
013742 013767 177776 000506
013750 122767 000011 000500
013755 001401
013760 000000
013762 0 165252
013765 001401
013770 0 100000
013772 0 01
013776 001401
014000 000000

SCOPE
MOV #125252,X0
MUL X2,X0
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X0
BEQ .+4
HLT
CMP #100000,X0!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 125252
:MULTIPLY 125252 * X2
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 165252
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 206 MUL 125252 * (3)+ = 165252 100000 PS = 11

014002 010701
014004 012700 125252
014010 070023
014012 013767 177776 000436
014020 122767 000011 000430
014026 001401
014030 000000
014032 022700 165252
014036 001401
014040 000000
014042 022701 100000
014046 001401
014050 000000

SCOPE
MOV #125252,X0
MUL (3)+,X0
MOV 2#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X0
BEQ .+4
HLT
CMP #100000,X0!
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPLICAN WITH 125252
:MULTIPLY 125252 * (3)+
:SAVE PS
:IS PS = 11
:
:PS IS WRONG
:IS HIGH ORDER = 165252
:
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:
:LOW ORDER IS WRONG

:TEST 207 MUL 125252 * -(3) = 165252 100000 PS = 11

014052 010701
014054 012700 125252
014060 070043
014062 013767 177776 000366
014070 122767 000011 000360
014076 001401
014100 000000
014102 000700 165252
014106 001401
014110 000000
014112 002701 100000
014116 001401
014120 000000

SCOPE
MOV #125252,X0
MUL -(3),X0
MOV @#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X0
BEQ .+4
HLT
CMP #100000,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 125252
:MULTIPLY 125252 * -(3)
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = 165252
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:LOW ORDER IS WRONG

:TEST 210 MUL 125252 * 2(4) = 165252 100000 PS = 11

014122 010701
014124 012700 125252
014130 070064 000002
014134 013767 177776 000314
014142 122767 000011 000306
014150 001401
014152 000000
014154 002700 165252
014160 001401
014162 000000
014164 002701 100000
014170 001401
014172 000000

SCOPE
MOV #125252,X0
MUL 2(4),X0
MOV @#PS,PSW
CMPB #11,PSW
BEQ .+4
HLT
CMP #165252,X0
BEQ .+4
HLT
CMP #100000,X0!1
BEQ .+4
HLT

:TEST OF MULTIPLY
:LOAD MULTIPICAN WITH 125252
:MULTIPLY 125252 * 2(4)
:SAVE PS
:IS PS = 11
:PS IS WRONG
:IS HIGH ORDER = 165252
:HIGH ORDER IS WRONG
:IS LOW ORDER = 100000
:LOW ORDER IS WRONG

:TEST 211 MUL 125252 * 2(4) = 165252 100000 PS = 11

014174	010701			SCOPE		:TEST OF MULTIPLY
014176	012700	125252		MOV	#125252,x0	:LOAD MULTIPLICAN WITH 125252
014202	070074	000000		MUL	2(4),x0	:MULTIPLY 125252 * 2(4)
014206	013767	177776	000242	MOV	2#PS,PSW	:SAVE PS
014214	122767	000011	000234	CHPB	#11,PSW	:IS PS = 11
014222	001401			BEQ	.+4	
014224	000000			HLT		:PS IS WRONG
014226	022700	165252		CHPB	#165252,x0	:IS HIGH ORDER = 165252
014232	001401			BEQ	.+4	
014234	000000			HLT		:HIGH ORDER IS WRONG
014236	022701	100000		CHPB	#100000,x0!1	:IS LOW ORDER = 100000
014242	001401			BEQ	.+4	
014244	000000			HLT		:LOW ORDER IS WRONG

:TEST 212 MUL 125252 * 2(4)+ = 165252 100000 PS = 11

014246	010701			SCOPE		:TEST OF MULTIPLY
014250	012700	125252		MOV	#125252,x0	:LOAD MULTIPLICAN WITH 125252
014254	070034			MUL	2(4)+,x0	:MULTIPLY 125252 * 2(4)+
014256	013767	177776	000172	MOV	2#PS,PSW	:SAVE PS
014264	122767	000011	000164	CHPB	#11,PSW	:IS PS = 11
014272	001401			BEQ	.+4	
014274	000000			HLT		:PS IS WRONG
014276	022700	165252		CHPB	#165252,x0	:IS HIGH ORDER = 165252
014302	001401			BEQ	.+4	
014304	000000			HLT		:HIGH ORDER IS WRONG
014306	022701	100000		CHPB	#100000,x0!1	:IS LOW ORDER = 100000
014312	001401			BEQ	.+4	
014314	000000			HLT		:LOW ORDER IS WRONG

	2354#	2373#	2392#	2411#	2430#	2449#	2468#	2487#	2506#	2525#	2544#	2563#	2582#
PC	2601#	2605#	2624#	2643#	2662#	2681#	2700#	2719#	2738#	2757#	2776#	2795#	2814#
PS	130#	143#	145#	157	176	195	214	233	252	271	290	309	328
	347	366#	385#	404	423	442	461	480	499	518	537	556	575
	594	613	632	651	670	689	709	727	746	765	784	803	822
	841	850	879	898	917	936	955	974	993	1012	1031	1050	1069
	1088	1107	1126	1145	1164	1183	1202	1221	1240	1259	1278	1297	1316
	1335	1354	1373	1392	1411	1430	1449	1468	1487	1506	1525	1544	1563
	1572	1591	1610	1629	1648	1667	1686	1705	1724	1743	1762	1781	1800
	1819	1838	1857	1876	1895	1914	1933	1952	1971	1990	2009	2028	2047
	2076	2095	2114	2133	2152	2171	2190	2209	2228	2247	2266	2285	2304
	2323	2342	2361	2380	2399	2418	2437	2456	2475	2494	2513	2532	2551
	2570	2589	2608	2627	2646	2665	2684	2703	2722	2741	2760	2779	2798
PSM	157#	176#	178#	177	196	215	234	253	272	291	310	329	348
	272	291	291	309#	328	347	366#	385	404	423	442	461	480
	404#	423#	423#	442	461	480	499	518	537	556	575	594	613
	519	538	538	557#	576	595	614	633	652	671	690	709	728
	651#	670#	670#	689	708	727	746	765	784	803	822	841	860
	766	785	785	804	823	842	861	880	899	918	937	956	975
	898#	917#	917#	936	955	974	993	1012	1031	1050	1069	1088	1107
	1013	1032	1032	1051	1070	1089	1108	1127	1146	1165	1184	1203	1222
	1145#	1164#	1164#	1183	1202	1221	1240	1259	1278	1297	1316	1335	1354
	1260	1279	1279	1298	1317	1336	1355	1374	1393	1412	1431	1450	1469
	1392#	1411#	1411#	1430	1449	1468	1487	1506	1525	1544	1563	1582	1601
	1507	1526	1526	1545	1564	1583	1602	1621	1640	1659	1678	1697	1716
	1639#	1658#	1658#	1677	1696	1715	1734	1753	1772	1791	1810	1829	1848
	1754	1773	1773	1792	1811	1830	1849	1868	1887	1906	1925	1944	1963
	1886#	1905#	1905#	1924	1943	1962	1981	2000	2019	2038	2057	2076	2095
	2001	2020	2020	2039	2058	2077	2096	2115	2134	2153	2172	2191	2210
	2133#	2152#	2152#	2171	2190	2209	2228	2247	2266	2285	2304	2323	2342
	2248	2267	2267	2286	2305	2324	2343	2362	2381	2400	2419	2438	2457
	2370#	2389#	2389#	2408	2427	2446	2465	2484	2503	2522	2541	2560	2579
	2495	2514	2514	2533	2552	2571	2590	2609	2628	2647	2666	2685	2704
	2631#	2650#	2650#	2669	2688	2707	2726	2745	2764	2783	2802	2821	2840
	2746	2765	2765	2784	2803	2822	2841	2860	2879	2898	2917	2936	2955
SCOPE	127#	154	173	192	211	230	249	268	287	306	325	344	363
	382	401	420	439	458	477	496	515	534	553	572	591	610
	629	648	667	686	705	724	743	762	781	800	819	838	857
	876	895	914	933	952	971	990	1009	1028	1047	1066	1085	1104
	1123	1142	1161	1180	1199	1218	1237	1256	1275	1294	1313	1332	1351
	1370	1389	1408	1427	1446	1465	1484	1503	1522	1541	1560	1579	1598
	1617	1636	1655	1674	1693	1712	1731	1750	1769	1788	1807	1826	1845
	1864	1883	1902	1921	1940	1959	1978	1997	2016	2035	2054	2073	2092
	2111	2130	2149	2168	2187	2206	2225	2244	2263	2282	2301	2320	2339
	2358	2377	2396	2415	2434	2453	2472	2491	2510	2529	2548	2567	2586
	2609	2628	2647	2666	2685	2704	2723	2742	2761	2780	2799	2818	2837
SP	129#	132	143	146	148	147	159	162	165	178	181	184	197
SS	131#	132	143	146	148	147	159	162	165	178	181	184	197
SS	2814#	2611	2649	2815#	2816	235	238	241	254	257	260	273	276
SS	2602	2630	2816#	2815#	2816	314	317	330	333	336	349	352	355
SS	2603	2630	2816#	2815#	2816	314	317	330	333	336	349	352	355
SS	2817#	2611	2649	2815#	2816	314	317	330	333	336	349	352	355
	124#	125	136#	138#	144	147	159	162	165	178	181	184	197
	200	203	216	219	222	235	238	241	254	257	260	273	276
	279	292	295	298	311	314	317	330	333	336	349	352	355

MO6

MAINDEC-11-DCKB 3 MUL TEST MACY11 27(732) 07-SEP-76 09:41 PAGE 78
DCKBKA.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

256	371	374	387	390	393	406	409	412	425	428	431	444
257	450	463	466	469	482	485	488	501	504	507	520	523
52	539	542	545	558	561	564	577	580	583	596	599	602
	618	621	634	637	640	653	656	659	672	675	678	691
	597	710	713	716	729	732	735	748	751	754	767	770
	786	789	792	805	808	811	824	827	830	843	846	849
	855	858	881	884	887	890	903	906	919	922	935	938
	94	957	960	963	976	979	982	995	998	1001	1014	1017
	1033	1036	1039	1052	1055	1058	1071	1074	1077	1090	1093	1096
1055	1112	1115	1128	1131	1134	1147	1150	1153	1166	1169	1172	1185
118	1191	1204	1207	1210	1223	1226	1229	1242	1245	1248	1261	1264
1267	1280	1283	1296	1299	1302	1305	1318	1321	1324	1337	1340	1343
1356	1359	1362	1375	1378	1381	1394	1397	1400	1413	1416	1419	1432
1435	1438	1451	1454	1457	1470	1473	1476	1489	1492	1495	1508	1511
1514	1527	1530	1533	1546	1549	1552	1565	1568	1571	1584	1587	1590
1603	1606	1609	1622	1625	1628	1641	1644	1647	1660	1663	1676	1679
1682	1685	1698	1701	1704	1717	1720	1723	1736	1739	1742	1755	1758
1761	1774	1777	1780	1793	1796	1799	1812	1815	1818	1831	1834	1837
1850	1853	1856	1869	1872	1875	1888	1891	1894	1907	1910	1913	1926
1929	1932	1945	1948	1951	1964	1967	1970	1983	1986	1989	2002	2005
2019	2021	2024	2027	2040	2043	2046	2059	2062	2065	2078	2081	2084
2097	2100	2103	2116	2119	2122	2135	2138	2141	2154	2157	2160	2173
2176	2179	2192	2195	2198	2211	2214	2217	2230	2233	2236	2249	2252
2255	2258	2271	2274	2287	2290	2293	2306	2309	2312	2325	2328	2331
2344	2347	2350	2363	2366	2369	2382	2385	2398	2401	2404	2407	2420
2423	2426	2439	2442	2445	2458	2461	2464	2477	2480	2483	2496	2499
2502	2515	2518	2521	2534	2537	2540	2553	2556	2559	2572	2575	2578
2591	2594	2597	2614	2617	2620	2633	2636	2639	2652	2655	2658	2671
2674	2677	2690	2693	2696	2709	2712	2715	2728	2731	2734	2747	2750
2753	2766	2769	2772	2785	2788	2791	2799	2803				

.MACR	1271	1005	1024	1043	1062	1081	1100	1119	1138	1157	1176	1195	1214	1233	1252
.MLIST	1556	1575	1594	1613	1632	1651	1670	1689	1708	1727	1746	1765	1784	1803	1822
	1841	1860	1879	1898	1917	1936	1955	1974	1993	2012	2031	2050	2069	2088	2107
	2126	2145	2164	2183	2202	2221	2240	2259	2278	2297	2316	2335	2354	2373	2392
	2411	2430	2449	2468	2487	2506	2525	2544	2563	2582	2601	2620	2639	2658	2677
.PAGE	150	150	169	188	207	226	245	264	283	302	321	340	359	378	397
	720	739	758	777	796	815	834	853	872	891	910	929	948	967	986
	1290	1309	1328	1347	1366	1385	1404	1423	1442	1461	1480	1499	1518	1537	1556
	1850	1869	1888	1907	1926	1945	1964	1983	2002	2021	2040	2059	2078	2097	2116
	2430	2449	2468	2487	2506	2525	2544	2563	2582	2601	2620	2639	2658	2677	2696
.REM	125	150													
.REPT	117														
.TITLE															

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

#DCKBKA,DCKBKA,SEQ/SOL/CRF/DS:ERFZ/EN:ABS=OSKM:DCKBKA.P11
RUN-TIME: 12 21 3 SECONDS
RUN-TIME RATIO: 102/37=2.7
CORE USED: 7K (14 PAGES)

E07

