

**SDS 940 OLDS DIAGNOSTIC  
SYSTEM**

**UNIT 1 CPU EXERCISER LISTING**

SDS 870031-51A

February 1969



SCIENTIFIC DATA SYSTEMS • 701 South Aviation Boulevard • El Segundo, Calif., 90245 • 213/772-4511



CPU1 TAP=3.0

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```
      00010      OCTAL
*
0 01 00000 ONE      OPD      0100000,1
0 02 00000 TWO      OPD      0200000,1
0 03 00000 THREE    OPD      0300000,1
0 04 00000 FOUR     OPD      0400000,1
0 05 00000 FIVE     OPD      0500000,1
0 06 00000 SIX      OPD      0600000,1
0 07 00000 SEVEN    OPD      0700000,1
0 10 00000 EIGHT    OPD      01000000,1
*
00000242 INT31 EQU      242
00000243 I31 EQU      243
00000246 INT33 EQU      246
00000247 I33 EQU      247
00000332 FLAGS EQU     332
00000400 UAW EQU      400
00000401 STATUS EQU    401
00000402 LOCKS EQU     402
00000403 RADSIZ EQU    403
00000404 DSCSIZ EQU    404
00000405 SYSIZE EQU    405
00000406 SEED EQU      406
00000407 TIME EQU      407
00000410 AREG EQU     410
00000411 BREG EQU     411
00000412 XREG EQU     412
00000413 SVRFL0 EQU   413
00000414 ERRORS EQU   414
00000415 RL1 EQU      415
00000416 RL2 EQU      416
00000417 RL4 EQU      417
00000420 UNIT EQU     420
00000424 FUNCTN EQU   424
00000430 SUBJECT EQU  430
00000434 END EQU      434
```

CPU1 TAP=3.0

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```
00000440 RETURN EQU    440
00000450 DIVERT EQU    450
00000452 DONE EQU     452
00000454 REPORT EQU   454
00000456 FDBNE EQU    456
00000460 ERROR EQU    460
```

CPU1	TAP-3.0		PAGE 3
	00010		
	1 00 00000	CPU1	OCTAL
	00000261	PPPS	IDENT
		T40	10000000,1
00000	04200		EQU 261
04000	0 43 00420		BSS 4000
04001	0 20 22002		BRM UNIT
04002	0 76 00401		NBP UPT
04003	0 72 22251		LDA STATUS
04004	0 01 04006		SKA *4
04005	0 43 00452		BRU **2
			BRM DONE

CPU1	TAP-3.0		PAGE 4
04006	0 43 00424	FUNCO	BRM FUNCTN
04007	0 20 22210		NBP FPTC
04010	0 43 00440		BRM RETURN
04011	0 20 04050		NBP POP
04012	0 76 22252		LDA #00010203
04013	0 35 00415		STA RL1
04014	0 02 20400		ESM 20400
04015	0 13 00415		PBT RL1
04016	0 76 22253		LDA #04C50407
04017	0 35 00416		STA RL2
04020	0 02 21000		ESM 21000
04021	0 13 00416		PBT RL2
04022	0 76 22262		LDA FIX
04023	0 43 05045		BRM CNASIM
04024	0 46 00400		CAX
04025	0 37 22151	AGAINO	STX Iw

CPU1	TAP=3.0		PAGE 5	
04026	0 71 22163	MSDLUP LDX	MODULE	
04027	0 43 00430	BRM	OBJECT	
04030	0 06 20332	EOD	20332	SET EM REGISTERS TO NORMAL
04031	0 22 00001	R0V		
04032	2 75 00001	LDB	1,2	
04033	0 36 22067	STB	INST	PUT IN VARIABLE TABLE
04034	0 36 04074	STB	SKIP+2	EXECUTION CELL
04035	0 36 04102	STB	NSKIP+2	
04036	2 75 00010	LDB	10,2	
04037	0 36 04046	STB	MEMORY	OPERAND
04040	0 36 22063	STB	CCC	PUT IN VARIABLE TABLE
04041	2 76 00002	LDA	2,2	A(0)
04042	0 35 22064	STA	AAA	PUT IN VARIABLE TABLE
04043	2 75 00004	LDB	4,2	B(0)
04044	0 36 22065	STB	BBB	PUT IN OPERAND TABLE
04045	2 51 00012	BRR	12,2	SET OVERFLOW AND BRANCH

CPU1	TAP=3.0		PAGE 6	
		* EXECUTION		
04046	0 00 00000	MEMORY PZE		
04047	0 01 04106	BRU	NOERR	
		* POP		
04050	0 02 20004	DIR		
04051	0 35 22070	STA	A2	
04052	0 76 00450	LDA	DIVERT	GET POP LOCATION
04053	0 14 22254	ETR	#37777	
04054	0 50 22255	SKE	#T40	
04055	0 01 04061	BRU	POPTST	
04056	0 76 22070	LDA	A2	
04057	0 02 20002	EIR		
04060	0 01 04106	BRU	NOERR	
04061	0 73 22256	POPTST SKG	#100	
04062	0 73 22257	SKG	#77	
04063	0 43 05736	BRM	SPURI	NOT A 100 POP
04064	0 20 22256	NOP	#100	
04065	0 76 00000	LDA	0	
04066	0 35 04046	STA	MEMORY	
04067	0 76 22070	LDA	A2	
04070	0 02 20002	EIR		
04071	0 01 04106	BRU	NOERR	
		* SKIP		
04072	2 71 00006	LDX	6,2	X(0)
04073	0 37 22066	STX	XXX	PUT IN VARIABLE TABLE
04074	0 00 00000	PZE	0	INSTRUCTION
04075	0 43 00460	BRM	ERROR	
04076	0 20 21644	NOP	SKPER	
04077	0 01 04106	BRU	NOERR	
		* NSKIP		
04100	2 71 00006	LDX	6,2	X(0)
04101	0 37 22066	STX	XXX	PUT IN VARIABLE TABLE
04102	0 00 00000	PZE	0	INSTRUCTION
04103	0 01 04106	BRU	NOERR	
04104	0 43 00460	BRM	ERROR	
04105	0 20 21653	NOP	NSKPER	

CPU1 TAP=3.0

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```
* RESULT TEST
04106 0 02 22000 NBERR ESM 22000
04107 0 35 22070 STA A2
04110 0 36 22071 STB B2
04111 0 37 22104 STX X2
04112 0 71 22163 LDX MODULE

*
04113 2 75 00003 TESTA LDB 3,2 CORRECT A RESULT
04114 2 50 00003 SKE 3,2
04115 0 43 00460 BRM ERROR
04116 4 20 21664 NOP AERROR,4
04117 2 20 21630 NOP ISSBX,2
04120 0 76 22071 TESTB LDA B2
04121 2 75 00005 LDB 5,2 CORRECT B RESULT
04122 2 50 00005 SKE 5,2
04123 0 43 00460 BRM ERROR
04124 4 20 21671 NOP BERROR,4
04125 2 20 21630 NOP ISSBX,2
04126 0 76 22104 TESTX LDA X2
04127 2 75 00007 LDB 7,2 CORRECT X RESULT
04130 2 50 00007 SKE 7,2
04131 0 43 00460 BRM ERROR
04132 4 20 21676 NOP XERROR,4
04133 2 20 21630 NOP ISSBX,2
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04134 0 76 04046 TESTM LDA MEMORY
04135 2 75 00011 LDB 11,2 CORRECT M RESULT
04136 2 50 00011 SKE 11,2
04137 0 43 00460 BRM ERROR
04140 4 20 21703 NOP AERROR,4
04141 2 20 21630 NOP ISSBX,2
04142 2 01 00013 BRU 13,2 BRU TO PROPER OVERFLOW TEST
04143 0 22 00100 NBVFLB STB
04144 0 01 04146 BRU **2
04145 0 01 04163 BRU 0K
04146 0 76 22260 LDA #40000000
04147 0 75 22261 LDB #0
04150 0 43 00460 BRM ERROR
04151 4 20 21707 NOP NBVERR,4
04152 2 20 21630 NOP ISSBX,2
04153 0 01 04163 BRU 0K

*
04154 0 22 00100 NBVFLB STB
04155 0 01 04163 BRU 0K
04156 0 76 22261 LDA #0
04157 0 75 22260 LDB #40000000
04160 0 43 00460 BRM ERROR
04161 4 20 21716 NOP BERROR,4
04162 2 20 21630 NOP ISSBX,2
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04163	0 43	00434	OK	BRM	END
04164	2 71	00014		LDX	1422
04165	0 37	22163		STX	MODULE
04166	0 41	04026		BRX	MODLUP
04167	0 71	22151		LDX	IW
04170	0 41	04025		BRX	AGAINO
04171	0 43	00456		BRM	FOBNE

ITERATE ON EXERCISE

CPU1 TAP-3.0

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04172	0 43	00424	FUNC1	BRM	FUNCTN
04173	0 20	22016		NOP	FRT1
04174	0 43	00440		BRM	RETURN
04175	0 20	05731		NOP	SPUR
04176	0 76	22062		LDA	FIW
04177	0 43	05045		BRM	CNASIM
04200	0 46	00400		CAX	

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CPU1  TAP=3.C  PAGE 11
04201 0 37 22151 AGAIN1 STX IW
04202 0 76 00406 LDA SEED
04203 0 43 05053 BRM RANDOM
04204 0 35 22064 STA AAA
04205 0 43 05053 BRM RANDOM
04206 0 35 22065 STA BBB
04207 0 43 05053 BRM RANDOM
04210 0 35 22066 STA XXX
04211 0 43 05053 BRM RANDOM
04212 0 35 22063 STA CCC
04213 0 43 00430 BRM SUBJECT
04214 0 76 22064 LDA AAA
04215 0 75 22065 LDB BBB
04216 0 71 22066 LDX XXX
04217 0 22 00001 RSV
04220 0 55 22063 ADD CCC
04221 0 35 22142 STA AIS
04222 0 34 22145 STB BIS
04223 0 37 22157 STX XIS
04224 0 46 00001 CLA
04225 0 22 00101 SVT
04226 0 76 22062 LDA #1
04227 0 35 22152 STA BFIS OVERFLOW IS

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CPU1  TAP=3.C  PAGE 12
04230 0 76 22064 LDA AAA
04231 0 75 22065 LDB BBB
04232 0 71 22066 LDX XXX
04233 0 43 04756 BRM ADDSIM SIMULATE ADD
04234 0 20 22063 XBP CCC
04235 0 35 22143 STA ASB A SHOULD BE
04236 0 34 22146 STB BSB B SHOULD BE
04237 0 37 22160 STX XSB X SHOULD BE
04240 0 46 00001 CLA
04241 0 22 00101 SVT
04242 0 76 22062 LDA #1
04243 0 35 22152 STA BFSB OVERFLOW SHOULD BE

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CPU1 TAP=3.0

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04244	2 46 00000	CLX		
04245	0 75 22143	LDB	ASB	
04246	0 76 22142	LDA	AIS	
04247	0 50 22143	SKE	ASB	IS A OK
04250	0 43 00460	BRM	ERROR	
04251	4 20 21424	NOP	AADD,4	
04252	2 20 21630	NOP	ISSBX,2	
04253	0 75 22146	LDB	BSB	
04254	0 76 22145	LDA	BIS	
04255	0 50 22146	SKE	BSB	IS B OK
04256	0 43 00460	BRM	ERROR	
04257	4 20 21434	NOP	BADD,4	
04260	2 20 21630	NOP	ISSBX,2	
04261	0 75 22160	LDB	XSB	
04262	0 76 22157	LDA	XIS	
04263	0 50 22160	SKE	XSB	IS X OK
04264	0 43 00460	BRM	ERROR	
04265	4 20 21444	NOP	XADD,4	
04266	2 20 21630	NOP	ISSBX,2	
04267	0 75 22153	LDB	OFBS	
04270	0 76 22152	LDA	OFIS	
04271	0 50 22153	SKE	OFBS	IS OVERFLOW OK
04272	0 43 00460	BRM	ERROR	
04273	4 20 21454	NOP	OFADD,4	
04274	2 20 21630	NOP	ISSBX,2	
04275	0 43 00434	BRM	END	LOOP IF BP1 SET

CPU1 TAP=3.0

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04276	0 71 22151	LDX	IN	
04277	0 76 22063	LDA	CCC	
04300	0 35 00406	STA	SEED	
04301	0 41 04201	BRX	AGAIN1	
04302	0 43 00456	BRM	FDONE	

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CPU1  TAP=3.C  PAGE 15
04303 0 43 07424  FUNC2 BRM  FUNCTN
04304 0 20 22724  XBP  FPTD
04305 0 43 07440  BRM  RETURN
04306 0 20 05731  XBP  SPUR
04307 0 76 22762  LDA  FIN
04310 0 43 05745  BRM  CNASIM
04311 0 46 07400  CAX

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CPU1  TAP=3.C  PAGE 16
04312 0 37 22151  AGAIN2 STX  IA
04313 0 74 07406  LDA  SEED
04314 0 43 05753  BRM  RAND9M
04315 0 35 22764  STA  AAA
04316 0 43 05753  BRM  RAND9M
04317 0 35 22765  STA  BBB
04320 0 43 05753  BRM  RAND9M
04321 0 35 22766  STA  XXX
04322 0 43 05753  BRM  RAND9M
04323 0 35 22763  STA  CCC
04324 0 14 22763  ETR  #06720777
04325 0 16 22764  XRG  #06600000
04326 0 75 22765  LDB  #700
04327 0 70 22765  SKM  #700
04330 0 01 04333  BRU  #+3
04331 0 14 22757  ETR  #00000077
04332 0 14 22766  XRG  #06710000
04333 0 70 22767  SKM  #600
04334 0 01 04337  BRU  ETRIT
04335 0 14 22757  ETR  #00000077
04336 0 16 22770  XRG  #06624000
04337 0 14 22271  FTRIT ETR  #06734077
04340 0 35 04350  STA  SHIFT1
04341 0 35 04364  STA  SHIFT2
04342 0 35 22767  STA  INST

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CPU1  TAP-3.0                PAGE 17
04343 0 43 00430          BRM   OBJECT
04344 0 76 22064          LDA   AAA
04345 0 75 22065          LDB   BBB
04346 0 71 22066          LDX   XXX
04347 0 22 00001          R0V
04350 0 20 00000          SHIF1 N0P   0
04351 0 35 22142          STA   A18   A 18
04352 0 36 22145          STB   B18   B 18
04353 0 37 22157          STX   X18   X 18
04354 0 46 00001          CLA
04355 0 22 00101          0VT
04356 0 76 22262          LDA   #1
04357 0 35 22152          STA   0F1S  OVERFLOW 1S

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CPU1  TAP-3.0                PAGE 18
04360 0 76 22064          LDA   AAA
04361 0 75 22065          LDB   BBB
04362 0 71 22066          LDX   XXX
04363 0 43 05071          BRM   SPTSIM
04364 0 20 00000          SHIF2 N0P   0
04365 0 35 22143          STA   ABB
04366 0 36 22146          STB   BSB
04367 0 37 22160          STX   XSB
04370 0 46 00001          CLA
04371 0 22 00101          0VT
04372 0 76 22262          LDA   #1
04373 0 35 22153          STA   0F8B  OVERFLOW SHOULD BE

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CPU1 TAP#3.C

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04374	2 46 00700	CLX		
04375	0 75 22143	LDB	ASB	
04376	0 76 22142	LDA	AIS	
04377	0 5C 22143	SKE	ASB	IS A OK
04400	0 43 00460	BRM	ERR0R	
04401	4 2C 21463	XBP	ASFT,4	
04402	2 2C 21430	XBP	ISSBX,2	
04403	0 75 22146	LDB	BSB	
04404	0 76 22145	LDA	BIS	IS B OK
04405	0 5C 22146	SKE	BSB	
04406	0 43 00460	BRM	ERR0R	
04407	4 2C 21473	XBP	BSFT,4	
04410	2 2C 21430	XBP	ISSBX,2	
04411	0 75 22160	LDB	XSB	
04412	0 76 22157	LDA	XIS	
04413	0 5C 22160	SKE	XSB	IS X OK
04414	0 43 00460	BRM	ERR0R	
04415	4 2C 21504	XBP	XSFT,4	
04416	2 2C 21430	XBP	ISSBX,2	
04417	0 75 22153	LDB	0FSB	
04420	0 76 22152	LDA	9FIS	IS OVERFLOW OK
04421	0 5C 22153	SKE	0FSB	
04422	0 43 00460	BRM	ERR0R	
04423	4 2C 21515	XBP	0FSFT,4	
04424	2 2C 21430	XBP	ISSBX,2	
04425	0 43 00434	BRM	END	LOOP IF BPI SET

CPU1 TAP#3.C

PAGE 20

04426	0 71 22151	LDX	IX	
04427	0 76 22163	LDA	CCC	
04430	0 35 00406	STA	SEED	
04431	0 41 04712	BRX	AGAIN2	
04432	0 43 00456	BRM	FDBNE	

CPU1	TAP=3.0			PAGE 21
04433	0 43 00424	FUNCS	BRM	FUNCTN
04434	0 20 22032		NOP	FPT3
04435	0 43 00440		BRM	RETURN
04436	0 20 05731		NOP	SPUR
04437	0 76 22272		LDA	B=1
04440	0 35 22156		STA	OUTFLG
04441	0 76 22062		LDA	FIW
04442	0 43 05045		BRM	CNASHM
04443	0 46 00400		CAX	

CPU1	TAP=3.0			PAGE 22
04444	0 37 22151	AGAIN3	STX	IW
04445	0 76 00406		LDA	SEED
04446	0 43 05053		BRM	RANDOM
04447	0 35 22064		STA	AAA
04450	0 43 05053		BRM	RANDOM
04451	0 35 22065		STA	BBB
04452	0 43 05053		BRM	RANDOM
04453	0 35 22066		STA	XXX
04454	0 43 05053		BRM	RANDOM
04455	0 35 22063		STA	CCC
04456	0 43 00430		BRM	OBJECT
04457	0 76 22064		LDA	AAA
04460	0 75 22065		LDB	BBB
04461	0 71 22066		LDX	XXX
04462	0 22 00001		RSV	
04463	0 64 22063		MUL	CCC
04464	0 35 22142		STA	A IS
04465	0 36 22145		STB	B IS
04466	0 37 22157		STX	X IS
04467	0 46 00001		CLA	
04470	0 22 00101		SVT	
04471	0 76 22262		LDA	B1
04472	0 35 22152		STA	OFIS

STARTING RANDOM NUMBER

START OF LOOP

OVERFLOW IS

CPU1	TAP=3.0		PAGE 23	
04473	0 76 22064	LDA	AAA	
04474	0 75 22065	LDB	BBB	
04475	0 71 22066	LDX	XXX	
04476	0 43 06067	BRM	MULSIM	SIMULATE MULTIPLY
04477	0 20 22063	NBP	CCC	
04500	0 35 22143	STA	ASB	A SHOULD BE
04501	0 36 22145	STB	BSB	B SHOULD BE
04502	0 37 22160	STX	XSB	X SHOULD BE
04503	0 46 00001	CLA		
04504	0 22 01101	SVT		
04505	0 76 22062	LDA	#1	
04506	0 35 22153	STA	#FSB	OVERFLOW SHOULD BE

CPU1	TAP=3.0		PAGE 24	
04507	2 46 00000	CLX		
04510	0 75 22143	LDB	ASB	
04511	0 76 22142	LDA	AIS	
04512	0 50 22143	SKE	ASB	IS A BK
04513	0 43 00460	BRM	ERR0R	
04514	4 20 21525	NBP	AMUL,4	
04515	2 20 21630	NBP	ISSBX,2	
04516	0 75 22146	LDB	BSB	
04517	0 76 22145	LDA	BIS	
04520	0 50 22146	SKE	BSB	IS B BK
04521	0 43 00460	BRM	ERR0R	
04522	4 20 21536	NBP	BMUL,4	
04523	2 20 21630	NBP	ISSBX,2	
04524	0 75 22160	LDB	XSB	
04525	0 76 22157	LDA	XIS	
04526	0 50 22160	SKE	XSB	IS X BK
04527	0 43 00460	BRM	ERR0R	
04530	4 20 21547	NBP	XMUL,4	
04531	2 20 21630	NBP	ISSBX,2	
04532	0 75 22153	LDB	#FSB	
04533	0 76 22152	LDA	#FIS	
04534	0 50 22153	SKE	#FSB	IS OVERFLOW BK
04535	0 43 00460	BRM	ERR0R	
04536	4 20 21560	NBP	#FMUL,4	
04537	2 20 21630	NBP	ISSBX,2	
04540	0 43 00434	BRM	END	

CPU1 TAP=3.0

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04541 0 71 22151  
04542 0 76 22063  
04543 0 35 00406  
04544 0 41 04444  
04545 0 43 00456

LDX IW  
LDA CCC  
STA SEED  
BRX AGAIN3  
BRM PDBNE

LOOP IF NOT DONE

CPU1 TAP=3.0

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04546 0 43 00424  
04547 0 20 22040  
04550 0 43 00440  
04551 0 20 05731  
04552 0 76 22272  
04553 0 35 22156  
04554 0 76 22062  
04555 0 43 05045  
04556 0 46 00400

FUNC4 BRM FUNCTN  
NOP PRT4  
BRM RETURN  
NOP SPUR  
LDA ==1  
STA OUTFLG  
LDA FIW  
BRM CNASIM  
CAX

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CPU1      TAP=3.0                PAGE 27

04557 0 37 22151 AGAIN4 STX      I=
04560 0 76 00406          LDA      SEED          STARTING RANDOM NUMBER
04561 0 43 05053          BRM      RANDOM
04562 0 35 22064          STA      AAA
04563 0 43 05053          BRM      RANDOM
04564 0 35 22065          STA      BBB
04565 0 43 05053          BRM      RANDOM
04566 0 35 22066          STA      XXX
04567 0 43 05053          BRM      RANDOM
04570 0 35 22063          STA      CCC
04571 0 43 00430          BRM      SUBJECT  START OF LOOP
04572 0 76 22064          LDA      AAA
04573 0 75 22065          LDB      BBB
04574 0 71 22066          LDX      XXX
04575 0 22 00001          R0V
04576 0 65 22063          DIV      CCC
04577 0 35 22142          STA      AIS      A IS
04600 0 36 22145          STB      BIS      B IS
04601 0 37 22157          STX      XIS      X IS
04602 0 46 00001          CLA
04603 0 22 00101          BVT
04604 0 76 22262          LDA      #1
04605 0 35 22152          STA      #FIS      OVERFLOW IS

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CPU1      TAP=3.0                PAGE 28

04606 0 76 22064          LDA      AAA
04607 0 75 22065          LDB      BBB
04610 0 71 22066          LDX      XXX
04611 0 43 06175          BRM      DIVSIM   SIMULATE DIVIDE
04612 0 20 22063          NOP      CCC
04613 0 35 22143          STA      ASB      A SHOULD BE
04614 0 36 22146          STB      BSB      B SHOULD BE
04615 0 37 22160          STX      XSB      X SHOULD BE
04616 0 46 00001          CLA
04617 0 22 00101          BVT
04620 0 76 22262          LDA      #1
04621 0 35 22153          STA      #FSB      OVERFLOW SHOULD BE

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CPU1 TAP-3.0

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04622	2 46 00000	CLX	
04623	0 75 22143	LDB	ABB
04624	0 76 22142	LDA	AIS
04625	0 50 22143	SKE	ABB
04626	0 43 00460	BRM	ERROR
04627	4 20 21570	NOP	ADIV,4
04630	2 20 21630	NOP	ISBBX,2
04631	0 75 22146	LDB	BBB
04632	0 76 22145	LDA	BIS
04633	0 50 22146	SKE	BBB
04634	0 43 00460	BRM	ERROR
04635	4 20 21600	NOP	BDIV,4
04636	2 20 21630	NOP	ISBBX,2
04637	0 75 22160	LDB	XBB
04640	0 76 22157	LDA	XIS
04641	0 50 22160	SKE	XBB
04642	0 43 00460	BRM	ERROR
04643	4 20 21610	NOP	XDIV,4
04644	2 20 21630	NOP	ISBBX,2
04645	0 75 22153	LDB	BFBB
04646	0 76 22152	LDA	BFIS
04647	0 50 22153	SKE	BFBB
04650	0 43 00460	BRM	ERROR
04651	4 20 21620	NOP	DFDIV,4
04652	2 20 21630	NOP	ISBBX,2
04653	0 43 00434	BRM	END

IS A OK

IS B OK

IS X OK

IS OVERFLOW BXIS OVERFLOW OK

CPU1 TAP-3.0

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04654	0 71 22151	LDX	IW
04655	0 76 22063	LDA	CCC
04656	0 35 00406	STA	SEED
04657	0 41 04557	BRX	AGAIN4
04660	0 43 00456	BRM	PDONE

LOOP IF NOT DONE

CPU1	TAP=3.0		PAGE 31
04661	0 43 00424	FUNC22 BRM	FUNCTN
04662	0 20 22046	NBP	FPT22
04663	0 43 00440	BRM	RETURN
04664	0 20 05731	NBP	SPUR
04665	0 76 00414	LDA	ERRORS
04666	0 43 04756	BRM	ADD\$IM
04667	0 20 22272	NBP	*=1
04670	0 35 00414	STA	ERRORS
04671	0 43 00460	BRM	ERROR
04672	0 20 20717	NBP	FIM22
04673	0 43 00430	BRM	OBJECT
04674	0 22 00001	ROV	
04675	0 76 22064	LDA	AAA
04676	0 75 22065	LDB	BBB
04677	0 71 22066	LDX	XXX
04700	0 43 06067	BRM	MULSIM
04701	0 20 22069	NBP	CCC
04702	0 43 00454	BRM	REPORT
04703	2 20 21747	NBP	RESULT,2

CPU1	TAP=3.0		PAGE 32
04704	0 46 00001	CLA	
04705	0 35 22156	STA	OUTFLG
04706	0 76 22064	LDA	AAA
04707	0 75 22065	LDB	BBB
04710	0 71 22066	LDX	XXX
04711	0 43 06067	BRM	MULSIM
04712	0 20 22069	NBP	CCC
04713	0 76 22272	LDA	*=1
04714	0 35 22156	STA	OUTFLG
04715	0 43 00434	BRM	END
04716	0 01 04661	BRU	FUNC22

CPU1	TAP=3.0		PAGE 33
04717	0 43 00424	FUNC23 BRM	FUNCTN
04720	0 20 22054	NOP	FPT23
04721	0 43 00440	BRM	RETURN
04722	0 20 05731	NOP	SPUR
04723	0 76 00414	LDA	ERRORS
04724	0 43 04756	BRM	ADDSIM
04725	0 20 22272	NOP	#=1
04726	0 35 00414	STA	ERRORS
04727	0 43 00440	BRM	ERROR
04730	0 20 21161	NOP	FIM23
04731	0 43 00430	BRM	OBJECT
04732	0 22 00001	RBV	
04733	0 76 22064	LDA	AAA
04734	0 75 22065	LDB	BBB
04735	0 71 22066	LDX	XXX
04736	0 43 06175	BRM	DIVSIM
04737	0 20 22063	NOP	CCC
04740	0 43 00454	BRM	REPORT
04741	2 20 21747	NOP	RESULT,2

CPU1	TAP=3.0		PAGE 34
04742	0 46 00001	CLA	
04743	0 35 22156	STA	OUTFLG
04744	0 76 22064	LDA	AAA
04745	0 75 22065	LDB	BBB
04746	0 71 22066	LDX	XXX
04747	0 43 06175	BRM	DIVSIM
04750	0 20 22063	NOP	CCC
04751	0 76 22272	LDA	#=1
04752	0 35 22156	STA	OUTFLG
04753	0 43 00434	BRM	END
04754	0 01 04717	BRU	FUNC23
04755	0 43 00452	FUNCEND BRM	DONE

CPU1 TAP=3.C

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```
* THIS SUBROUTINE SIMULATES AN ADD
ADDSIM PZE
04756 0 00 00000
04757 0 35 22100 STA A1 SAVE A
04760 0 36 22101 STB B1 SAVE B
04761 0 37 22103 STX X1 SAVE X
04762 0 76 22103 LDA X1
04763 0 14 22273 ETR #37777777 PICK OFF BIT 0
04764 0 35 22103 STA X1
04765 0 61 04756 MIN ADDSIM
04766 0 76 04756 LDA* ADDSIM GET FOLLOWING NOP
04767 0 35 22155 STA TEMP
04770 0 76 22155 LDA* TEMP GET OPERAND
04771 0 35 22102 STA C1
04772 0 46 00001 CLA
04773 0 35 22150 STA CRYBUT CLEAR CARRY OUT
04774 0 76 22100 LDA A1
04775 0 17 22102 EBR C1
04776 0 35 22154 STA SUM
04777 0 76 22100 LDA A1
05000 0 14 22102 ETR C1
05001 0 46 00004 ADLUP CAB
05002 0 76 22150 LDA CRYBUT
05003 0 43 05326 BRM L6HAB1
05004 0 35 22150 STA CRYBUT
05005 0 36 22147 STB CARRY
05006 0 46 00010 CBA
05007 0 17 22154 EBR SUM
05010 0 46 00004 CAB
05011 0 76 22147 LDA CARRY
05012 0 14 22154 ETR SUM
05013 0 36 22154 STB SUM
05014 0 50 22261 SKE #0 IS ADD DONE
05015 0 01 05001 BRU ADLUP NO,GO BACK
```

CPU1 TAP=3.C

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```
05016 0 46 00003 CLAB
05017 0 75 22150 LDB CRYBUT
05020 0 52 22272 SKB #1 WAS THERE A CARRY
05021 0 76 22260 LDA #40000000 YES
05022 0 16 22103 MRG X1 PUT CARRY IN X
05023 0 35 22103 STA X1
05024 0 76 22100 LDA A1
05025 0 17 22102 EBR C1
05026 0 17 22272 EBR #1 NEGATIVE IF SIGNS SAME
05027 0 35 22155 STA TEMP
05030 0 76 22100 LDA A1
05031 0 17 22154 EBR SUM NEGATIVE IF SIGNS DIFFERENT
05032 0 14 22155 ETR TEMP NEGATIVE IF OVERFLOW
05033 0 46 00004 CAB
05034 0 76 04756 LDA ADDSIM
05035 0 52 22260 SKB #40000000 SKIP IF POSITIVE
05036 0 16 05473 MRG BIT2
05037 0 35 04756 STA ADDSIM
05040 0 22 00001 R0V RESET OVERFLOW
05041 0 76 22154 LDA SUM
05042 0 75 22101 LDB B1
05043 0 71 22103 LDX X1
05044 0 51 04756 BRR ADDSIM
```

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CPU1   TAP=3.0                               PAGE 37
05045  0 00 00000   CNASIM PZE
05046  0 17 22272           EBR      #=1
05047  0 43 04756           BRM     ADDSIM
05050  0 20 22262           NOP      #1
05051  0 22 00001           RGV
05052  0 51 05045           BRM     CNASIM

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CPU1   TAP=3.0                               PAGE 38
05053  0 00 00000   RANDOM PZE
05054  0 35 22141           STA     AAAA
05055  0 36 22144           STB     BBBB      SAVE B
05056  0 37 22161           STX     XXXX      SAVE X
05057  0 46 00005           ABC
05060  0 43 05071           BRM     SFTSIM
05061  0 67 00013           LSH     13
05062  0 43 04756           BRM     ADDSIM      SIMULATE ADD
05063  0 20 22141           NOP     AAAA
05064  0 43 04756           BRM     ADDSIM      SIMULATE ADD
05065  0 20 22274           NOP     #53577045
05066  0 75 22144           LDB     BBBB
05067  0 71 22161           LDX     XXXX
05070  0 51 05053           BRM     RANDOM

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CPU1 TAP=3.0 PAGE 39

05071	0	00	00200	SFTSIM	PZE		
05072	0	35	22110		STA	A4	
05073	0	36	22111		STB	B4	
05074	0	37	22113		STX	X4	
05075	0	61	05071		~IN	SFTSIM	
05076	0	76	05071	LDA	SFTSIM		GET INSTRUCTION
05077	0	14	22275	ETR	#777		GET SHIFT COUNT
05100	0	72	22272	SKA	#77777777		IS COUNT 0
05101	0	01	05104	BRU	SFTSK		NO
05102	0	76	22110	LDA	A4		YES, EXIT
05103	0	75	22111	LDB	B4		
05104	0	71	22113	LDX	X4		
05105	0	51	05071	BRR	SFTSIM		
05106	0	43	05045	SFTSK	BRM	CNASIM	
05107	0	43	04756	BRM	ADDSIM		
05110	0	20	22276	NBP	#48D		ADD 48 DECIMAL
05111	0	35	22112	STA	C4		
05112	0	76	05071	LDA	SFTSIM		GET INSTRUCTION
05113	0	53	22112	SKN	C4		SKIP IF COUNT > 48D
05114	0	01	05116	BRU	**2		
05115	0	43	04756	BRM	ADDSIM		
05116	0	20	22112	NBP	C4		REDUCE TO 48 OR LESS
05117	0	35	22112	STA	C4		
05120	0	14	22275	ETR	#777		GET COUNT
05121	0	43	05045	BRM	CNASIM		
05122	0	46	00400	CAX			
05123	0	22	00001	RBV			
05124	0	76	22112	LDA	C4		

CPU1 TAP=3.0 PAGE 40

05125	0	72	22277	SKA	#00100000		IS IT A LEFT OR RIGHT SHIFT
05126	0	01	05155	BRU	LEFT		
05127	0	72	22300	RIGHT	SKA	#0037000	IS IT A RSH
05130	0	01	05137	BRJ	RC		NO
05131	0	76	22110	LDA	A4		
05132	0	75	22111	LDB	B4		
05133	0	43	05221	BRM	RSHAB1		RSH 1
05134	0	41	05133	BRX	**1		
05135	0	71	22113	LDX	X4		
05136	0	51	05071	BRR	SFTSIM		EXIT
05137	0	72	22301	RC	SKA	#00004000	IS IT A RCY
05140	0	01	05147	BRU	LRS		NO, ITS A LRSM
05141	0	76	22110	LDA	A4		
05142	0	75	22111	LDB	B4		
05143	0	43	05457	BRM	RCYAB1		RCY A
05144	0	41	05143	BRX	**1		
05145	0	71	22113	LDX	X4		
05146	0	51	05071	BRR	SFTSIM		
05147	0	76	22110	LRS	LDA	A4	
05150	0	75	22111	LDB	B4		
05151	0	43	05441	BRM	LRSHA1		
05152	0	41	05151	BRX	**1		
05153	0	71	22113	LDX	X4		
05154	0	51	05071	BRR	SFTSIM		

```

CPU1  TAP=3.0                PAGE 41
05155 0 72 22302 LEFT SKA    #00077000  IS IT A LSH
05156 0 01 05145          BRU    LC          NO, LCY OR NOD
05157 0 76 22110          LDA    A#
05160 0 75 22111          LDB    B#
05161 0 43 05326          BRM    LBHAB1
05162 0 41 05161          BRX    **1
05163 0 71 22113          LDX    X#
05164 0 51 05071          BRR    SFTSIM
05165 0 72 22303 LC SKA    #00010000  IS IT A LCY
05166 0 01 05175          BRU    ND          NO, NOD
05167 0 76 22110          LDA    A#
05170 0 75 22111          LDB    B#
05171 0 43 05445          BRM    LCYAB1
05172 0 41 05171          BRX    **1
05173 0 71 22113          LDX    X#
05174 0 51 05071          BRR    SFTSIM  EXIT

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CPU1  TAP=3.0                PAGE 42
05175 0 76 22110 ND LDA    A#
05176 0 75 22111          LDB    B#
05177 0 43 05326          BRM    LBHAB1
05200 0 35 22155          STA    TEMP
05201 0 17 22110          EOR    A#
05202 0 72 22260          SKA    #40000000  IS NOD DONE
05203 0 01 05214          BRU    NODONE    YES
05204 0 76 22155          LDA    TEMP      NO
05205 0 35 22110          STA    A#
05206 0 36 22111          STB    B#
05207 0 76 22113          LDA    X#
05210 0 43 04756          BRM    ADDSIM
05211 0 20 22272          NOP    **1
05212 0 35 22113          STA    X#
05213 0 41 05175          BRX    ND
05214 0 22 00001 NBDONE ROR
05215 0 76 22110          LDA    A#
05216 0 75 22111          LDB    B#
05217 0 71 22113          LDX    X#
05220 0 51 05071          BRR    SFTSIM

```

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* THIS SUBROUTINE SIMULATES A RSH 1
05221 0 00 00000 RSHAB1 PZE
05222 0 35 22105 STA A3
05223 0 36 22106 STB B3
05224 0 37 22107 STX X3
05225 0 46 00001 CLA
05226 0 75 22105 LDB A3 INITIAL A
05227 0 43 05246 BRM BTBAR1
05230 0 52 05471 SKB BIT0
05231 0 16 05471 MRG BIT0 EXTEND SIGN
05232 0 35 22105 STA A3
05233 0 46 00001 CLA
05234 0 52 05471 SKB BIT23 A23 TO B0
05235 0 16 05471 MRG BIT0
05236 0 75 22106 LDB B3 OLD B
05237 0 43 05246 BRM BTBAR1
05240 0 35 22106 STA B3 NEW B
05241 0 22 00001 RSV
05242 0 76 22105 LDA A3
05243 0 75 22106 LDB B3
05244 0 71 22107 LDX X3
05245 0 51 05221 BRR RSHAB1

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05246 0 00 00000 BTBAR1 PZE
05247 0 52 05471 SKB BIT0
05250 0 16 05472 MRG BIT1
05251 0 52 05472 SKB BIT1
05252 0 16 05473 MRG BIT2
05253 0 52 05473 SKB BIT2
05254 0 16 05474 MRG BIT3
05255 0 52 05474 SKB BIT3
05256 0 16 05475 MRG BIT4
05257 0 52 05475 SKB BIT4
05260 0 16 05476 MRG BIT5
05261 0 52 05476 SKB BIT5
05262 0 16 05477 MRG BIT6
05263 0 52 05477 SKB BIT6
05264 0 16 05500 MRG BIT7
05265 0 52 05500 SKB BIT7
05266 0 16 05501 MRG BIT8
05267 0 52 05501 SKB BIT8
05270 0 16 05502 MRG BIT9
05271 0 52 05502 SKB BIT9
05272 0 16 05503 MRG BIT10
05273 0 52 05503 SKB BIT10
05274 0 16 05504 MRG BIT11
05275 0 52 05504 SKB BIT11
05276 0 16 05505 MRG BIT12

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05277	0 52 05505	SKB	BIT12
05300	0 16 05506	MRG	BIT13
05301	0 52 05506	SKB	BIT13
05302	0 16 05507	MRG	BIT14
05303	0 52 05507	SKB	BIT14
05304	0 16 05510	MRG	BIT15
05305	0 52 05510	SKB	BIT15
05306	0 16 05511	MRG	BIT16
05307	0 52 05511	SKB	BIT16
05310	0 16 05512	MRG	BIT17
05311	0 52 05512	SKB	BIT17
05312	0 16 05513	MRG	BIT18
05313	0 52 05513	SKB	BIT18
05314	0 16 05514	MRG	BIT19
05315	0 52 05514	SKB	BIT19
05316	0 16 05515	MRG	BIT20
05317	0 52 05515	SKB	BIT20
05320	0 16 05516	MRG	BIT21
05321	0 52 05516	SKB	BIT21
05322	0 16 05517	MRG	BIT22
05323	0 52 05517	SKB	BIT22
05324	0 16 05520	MRG	BIT23
05325	0 51 05246	BRR	BT0AR1

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\* THIS SUBROUTINE SIMULATES A LSH 1

05326	0 00 00000	LSHAB1	PZE	
05327	0 35 22105		STA	A3
05330	0 35 22155		STA	TEMP
05331	0 36 22106		STB	B3
05332	0 37 22107		STX	X3
05333	0 46 00001		CLA	
05334	0 75 22105		LDB	A3
05335	0 43 05361		BRM	BT0AL1
05336	0 75 22106		LDB	B3
05337	0 52 05471		SKB	BIT0
05340	0 16 05520		MRG	BIT23
05341	0 35 22105		STA	A3
05342	0 17 22155		EOR	TEMP
05343	0 35 22155		STA	TEMP
05344	0 76 05326		LDA	LSHAB1
05345	0 53 22155		SKN	TEMP
05346	0 01 05350		BRU	++2
05347	0 16 05473		MRG	BIT2
05350	0 35 05326		STA	LSHAB1
05351	0 46 00001		CLA	
05352	0 43 05361		BRM	BT0AL1
05353	0 35 22106		STA	B3
05354	0 76 22105		LDA	A3
05355	0 75 22106		LDB	B3
05356	0 71 22107		LDX	X3
05357	0 22 00001		ROV	
05360	0 51 05326		BRR	LSHAB1

OLD A  
OLD B  
BO TO A23  
DID IT OVERFLOW  
GET MARK  
PUT MARK BACK

CPU1 TAP=3.0

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05361	0 00 00000	RTBAL1	PZE	
05362	0 52 05420		SKB	BIT23
05363	0 16 05417		MRG	BIT22
05364	0 52 05417		SKB	BIT22
05365	0 16 05416		MRG	BIT21
05366	0 52 05416		SKB	BIT21
05367	0 16 05415		MRG	BIT20
05370	0 52 05415		SKB	BIT20
05371	0 16 05414		MRG	BIT19
05372	0 52 05414		SKB	BIT19
05373	0 16 05413		MRG	BIT18
05374	0 52 05413		SKB	BIT18
05375	0 16 05412		MRG	BIT17
05376	0 52 05412		SKB	BIT17
05377	0 16 05411		MRG	BIT16
05400	0 52 05411		SKB	BIT16
05401	0 16 05410		MRG	BIT15
05402	0 52 05410		SKB	BIT15
05403	0 16 05407		MRG	BIT14
05404	0 52 05407		SKB	BIT14
05405	0 16 05406		MRG	BIT13
05406	0 52 05406		SKB	BIT13
05407	0 16 05405		MRG	BIT12

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05410	0 52 05405		SKB	BIT12
05411	0 16 05404		MRG	BIT11
05412	0 52 05404		SKB	BIT11
05413	0 16 05403		MRG	BIT10
05414	0 52 05403		SKB	BIT10
05415	0 16 05402		MRG	BIT9
05416	0 52 05402		SKB	BIT9
05417	0 16 05401		MRG	BIT8
05420	0 52 05401		SKB	BIT8
05421	0 16 05400		MRG	BIT7
05422	0 52 05400		SKB	BIT7
05423	0 16 05477		MRG	BIT6
05424	0 52 05477		SKB	BIT6
05425	0 16 05476		MRG	BIT5
05426	0 52 05476		SKB	BIT5
05427	0 16 05475		MRG	BIT4
05430	0 52 05475		SKB	BIT4
05431	0 16 05474		MRG	BIT3
05432	0 52 05474		SKB	BIT3
05433	0 16 05473		MRG	BIT2
05434	0 52 05473		SKB	BIT2
05435	0 16 05472		MRG	BIT1
05436	0 52 05472		SKB	BIT1
05437	0 16 05471		MRG	BIT0
05440	0 51 05361		BRR	RTBAL1

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05441	0 00 00000	LRSHA1	PZE			
05442	0 43 05221		BRM	RSHA1		RSH1
05443	0 14 22273		ETR	#37777777		CLEAR BIT 0
05444	0 51 05441		BRR	LRSHA1		
*						
05445	0 00 00000	LCYAB1	PZE			
05446	0 35 22114		STA	A5		
05447	0 43 05326		BRM	LRSHA1		LRM 1
05450	0 46 00014		XAB			
05451	0 53 22114		SKN	A5		
05452	0 01 05454		BRU	**2		
05453	0 16 05420		MRG	BIT23		A0 TO B23
05454	0 46 00014		XAB			
05455	0 22 00001		ROV			
05456	0 51 05445		BRR	LCYAB1		
*						
05457	0 00 00000	RCYAB1	PZE			
05460	0 36 22115		STB	B5		
05461	0 43 05441		BRM	LRSHA1		LRM 1
05462	0 36 22155		STB	TEMP		
05463	0 75 22115		LDB	B5		GET OLD B
05464	0 52 05520		SKB	BIT23		B23 TO A0
05465	0 16 05471		MRG	BITC		
05466	0 75 22155		LDB	TEMP		
05467	0 51 05457		BRR	RCYAB1		

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* SHIFT TABLE						
05470	00000000	DATA		0		
05471	40000000	BIT0 DATA		40000000		BIT 0
05472	20000000	BIT1 DATA		20000000		BIT 1
05473	10000000	BIT2 DATA		10000000		BIT 2
05474	04000000	BIT3 DATA		04000000		BIT 3
05475	02000000	BIT4 DATA		02000000		BIT 4
05476	01000000	BIT5 DATA		01000000		BIT 5
05477	00400000	BIT6 DATA		00400000		BIT 6
05500	00200000	BIT7 DATA		00200000		BIT 7
05501	00100000	BIT8 DATA		00100000		BIT 8
05502	00040000	BIT9 DATA		00040000		BIT 9
05503	00020000	BIT10 DATA		00020000		BIT 10
05504	00010000	BIT11 DATA		00010000		BIT 11
05505	00004000	BIT12 DATA		00004000		BIT 12
05506	00002000	BIT13 DATA		00002000		BIT 13
05507	00001000	BIT14 DATA		00001000		BIT 14
05510	00000400	BIT15 DATA		00000400		BIT 15
05511	00000200	BIT16 DATA		00000200		BIT 16
05512	00000100	BIT17 DATA		00000100		BIT 17
05513	00000040	BIT18 DATA		00000040		BIT 18
05514	00000020	BIT19 DATA		00000020		BIT 19
05515	00000010	BIT20 DATA		00000010		BIT 20
05516	00000004	BIT21 DATA		00000004		BIT 21
05517	00000002	BIT22 DATA		00000002		BIT 22
05520	00000001	BIT23 DATA		00000001		BIT 23
05521	00000000	SPTBL DATA		0		

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05522	0 60 0000	RSA	PZE	
05523	0 75 22117		LDB	B00
05524	0 76 22071		LDA	B2
05525	0 17 22075		EOR	BCREG
05526	0 43 05457		BRM	LCYAB1
05527	0 35 22127		STA	*K30
05530	0 17 22072		EOR	C2
05531	0 35 22130		STA	*K31
05532	0 43 05445		BRM	LCYAB1
05533	0 14 22304		ETR	*66666666
05534	0 35 22131		STA	*K32
05535	0 43 05445		BRM	LCYAB1
05536	0 14 22304		ETR	*66666666
05537	0 35 22132		STA	*K33
05540	0 76 22072		LDA	C2
05541	0 43 05445		BRM	LCYAB1
05542	0 14 22304		ETR	*66666666
05543	0 16 22075		MRG	BCREG
05544	0 14 22071		ETR	B2
05545	0 35 22133		STA	*K34
05546	0 43 05445		BRM	LCYAB1
05547	0 14 22304		ETR	*66666666
05550	0 35 22134		STA	*K35
05551	0 43 05445		BRM	LCYAB1
05552	0 14 22304		ETR	*66666666
05553	0 14 22132		ETR	*K33
05554	0 16 22134		MRG	*K35
05555	0 14 22131		ETR	*K32
05556	0 16 22133		MRG	*K34
05557	0 35 22135		STA	*K36
05560	0 17 22130		EOR	*K31
05561	0 35 22071		STA	B2
05562	0 76 22072		LDA	C2
05563	0 17 22127		EOR	IX
05564	0 46 00005		ABC	
05565	0 76 22127		LDA	*K30

CPU1 TAP=3.C PAGE 52

05566	0 14 22072		ETR	C2
05567	0 62 22135		XMA	*K36
05570	0 14 22130		ETR	*K31
05571	0 16 22135		MRG	*K36
05572	0 53 22167		SKN	IFLG
05573	0 46 00002		CLB	
05574	0 43 05445		BRM	LCYAB1
05575	0 14 22305		ETR	*11111111
05576	0 35 22075		STA	BCREG
05577	0 75 22272		LDB	*=1
05600	0 53 22072		SKN	C2
05601	0 46 00002		CLB	
05602	0 36 22117		STB	B00
05603	0 51 05522		BRR	RSA

CPU1	TAP=3.0			PAGE 53
05604	0 00 00000	AR1	PZE	
05605	0 75 22071		LDB	B2
05606	0 76 22070		LDA	A2
05607	0 43 05457		BRM	RCYAB1
05610	0 35 22070		STA	A2
05611	0 51 05604		BRR	AR1

CPU1	TAP=3.0			PAGE 54
05612	0 00 00000	BR1	PZE	
05613	0 75 22117		LDB	B00
05614	0 76 22071		LDA	B2
05615	0 14 22075		ETR	BCREG
05616	0 62 22071		XMA	B2
05617	0 17 22075		EOR	BCREG
05620	0 43 05457		BRM	RCYAB1
05621	0 62 22071		XMA	B2
05622	0 35 22075		STA	BCREG
05623	0 53 22162		SKN	IFLG
05624	0 51 05612		BRR	BR1
05625	0 76 22072		LDA	B=1
05626	0 53 22124		SKN	K0
05627	0 46 00001		CLA	
05630	0 35 22117		STA	B00
05631	0 51 05612		BRR	BR1

CPU1 TAP=3.0 PAGE 55

05632	0	00	00000	AL2	PZE	
05633	0	75	22070		LDB	A2
05634	0	76	22071		LDA	B2
05635	0	17	22075		EDR	BCREG
05636	0	43	05445		BRM	LCYAB1
05637	0	43	05445		BRM	LCYAB1
05640	0	62	22071		XMA	B2
05641	0	36	22070		STB	A2
05642	0	46	00002		CLB	
05643	0	14	22075		ETR	BCREG
05644	0	43	05445		BRM	LCYAB1
05645	0	43	05445		BRM	LCYAB1
05646	0	43	05445		BRM	LCYAB1
05647	0	35	22075		STA	BCREG
05650	0	46	00012		BAC	
05651	0	17	22070		EDR	A2
05652	0	72	22262		SKA	#1
05653	0	75	22272		LDB	#*1
05654	0	36	22117		STB	B00
05655	0	51	05632		BRR	AL2

CPU1 TAP=3.0 PAGE 56

05656	0	00	00000	SETBZO	PZE	
05657	0	76	22071		LDA	B2
05660	0	14	22273		ETR	#37777777
05661	0	43	04756		BRM	ADDSIM
05662	0	20	22075		\BP	BCREG
05663	0	35	22120		STA	BZO
05664	0	51	05656		BRR	SETBZO

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CPU1  TAP=3.0  PAGE 57
05665 0 00 00000  REGOUT PZE
05666 0 53 22156  SKN      OUTFLG
05667 0 01 05671  BRU      #2
05670 0 51 05665  BRR      REGOUT
05671 0 37 22130  STX      WK40
05672 0 76 22126  LDA      FORMAT
05673 0 73 22306  SKG      #2
05674 0 01 05677  BRU      OUT1
05675 0 43 00454  BRM      REPORT
05676 0 20 21726  NOP      MTITLE
05677 0 73 22262  OUT1    SKG      #1
05700 0 01 05703  BRU      OUT2
05701 0 43 00454  BRM      REPORT
05702 0 20 21725  NOP      CARRET
05703 2 76 22247  OUT2    LDA      DTIME+240,2
05704 0 53 22162  SKN      IFLG
05705 2 76 22214  LDA      MTIME+230,2
05706 0 35 22077  STA      TIMEOUT
05707 0 43 00454  BRM      REPORT
05710 0 20 22077  NOP      TIMEOUT
05711 0 76 22260  LDA      #40000000
05712 0 53 22116  SKN      A00
05713 0 46 00001  CLA
05714 0 35 22073  STA      A00DSP
05715 0 76 22260  LDA      #40000000
05716 0 53 22117  SKN      B00
05717 0 46 00001  CLA
05720 0 35 22074  STA      B00DSP
05721 0 76 22260  LDA      #40000000
05722 0 53 22140  SKN      #F
05723 0 76 22261  LDA      #0
05724 0 35 22076  STA      LINES
05725 0 43 00454  BRM      REPORT
05726 0 07 22070  SEVEN   A2
05727 0 71 22136  LDX      WK40
05730 0 51 05665  BRR      REGOUT

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CPU1  TAP=3.0  PAGE 58
05731 0 02 20004  SPUR   DIR
05732 0 76 00450  LDA    DIVERT
05733 0 14 22254  ETR    #37777
05734 0 43 05736  BRM    SPURI
05735 0 20 22272  NOP    #1
*
*   PROCESS SPURIOUS POP, INTERRUPT, OR TRAP
*
05736 0 00 00000  SPUR|  PZE    0
05737 0 73 22257  SKG    #77   WAS SPIT LEGAL
05740 0 01 05751  BRU    IEXT  NO
05741 0 73 22307  SKG    #177  WAS IT A POP
05742 0 01 05757  BRU    BIGPOP YES
05743 0 73 22310  SKG    #237  WAS IT LEGAL
05744 0 01 05751  BRU    IEXT  NO
05745 0 73 22311  SKG    #273  WAS IT 130 = T44
05746 0 01 05765  BRU    I30T44 YES
05747 0 73 22312  SKG    #377  WAS IT 156 = I74
05750 0 01 05764  BRU    I56I74 YES
*
*   PROCESS ILLEGAL OR EXTERNAL INTERRUPT
*
05751 0 76 22272  IEXT  LDA    #1
05752 0 35 06024  STA    ITABLE+1
05753 0 76 00450  LDA    DIVERT   RECEIVED
05754 0 43 00454  BRM    REPORT   MARK
05755 0 20 06027  NOP    ILLEXT
05756 0 01 05775  BRU    COMMON

```

```

*
*
* PROCESS SPURIOUS POPS
05757 0 35 06024 BIGPOP STA ITABLE+1 RECEIVED
05760 0 76 00000 LDA 0 MARK
05761 0 43 00454 BRM REPORT
05762 0 20 06042 NOP POPED
05763 0 01 05775 BRU COMMON
*
* PROCESS 156 THROUGH 174
05764 0 55 22313 156174 ADD #20
*
* PROCESS 130 THROUGH 144
05765 0 54 22314 130144 SUB #161
05766 0 66 00001 RSH 1
05767 0 35 06024 STA ITABLE+1 RECEIVED
05770 0 77 00450 EAX DIVERT
05771 2 77 37777 EAX #1,2
05772 2 76 00000 LDA 0,2
05773 0 43 00454 BRM REPORT
05774 0 20 06046 NOP SPRINT

```

```

*
*
* COMMON INTERRUPT ROUTINE
05775 0 35 06025 COMMON STA ITABLE+2 MARK
05776 0 76 06025 LDA* ITABLE+2
05777 0 35 06026 STA ITABLE+3 INSTRUCTION
06000 0 61 05736 MIN SPUR
06001 0 71 05736 LDX* SPUR
06002 2 76 00000 LDA 0,2
06003 0 35 06023 STA ITABLE EXPECTED
06004 0 43 00454 BRM REPORT REPORT ERROR
06005 4 20 06055 NOP MSG,4 MESSAGE
06006 0 04 06023 FBUR ITABLE DATA
06007 0 43 06013 BRM CLEAR CLEAR PRESENT INTERRUPT
06010 0 43 00460 BRM ERROR GO TO CONTROL
06011 0 20 21725 NOP CARRET (NO MESSAGE)
06012 0 01 00430 BRU* OBJECT

```



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*
* CLEAR PRESENT INTERRUPT
06013 0 00 00000 CLEAR PZE 0
06014 0 74 00401 LDA STATUS
06015 0 72 22251 SKA **4 SKIP IF NOT 940
06016 0 11 06020 BRI **2 940
06017 0 01*06020 BRU **1 925/930
06020 0 20 06020 NOP *
06021 0 02 20002 EIR ENABLE INTERRUPTS
06022 0 51 06013 BRR CLEAR RETURN
*
* MESSAGES
06023 0 00 00000 ITABLE PZE 0 INTERRUPTS EXPECTED
06024 0 00 00000 PZE 0 INTERRUPT RECEIVED
06025 0 00 00000 PZE 0 LOCATION AT TIME OF INTERRUPT/TRAP
06026 0 00 00000 PZE 0 INSTRUCTION BEING EXECUTED
06027 52526445 ILLEX BCD I UNDEFINED ILLEGAL OR EXTERNAL INTERRUPT!!
06030 24252631
06031 45252412
06032 31434325
06033 27214312
06034 46511225
06035 67632551
06036 45214312
06037 31456325
06040 51516447
06041 63371212
06042 52624764 POPED BCD I SPURIOUS POP!!
06043 51314664
06044 62124746
06045 47371212
06046 52624764 SPRINT BCD I SPURIOUS INTERRUPT OR TRAP!!
06047 51314664
06050 62123145

```

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06051 63255151
06052 64476312
06053 46511263
06054 51214737
06055 52256747 IMSG BCD I EXPECTED RECEIVED LOCATION CONTENTS !!
06056 25236325
06057 24125125
06060 23253165
06061 25241243
06062 46232163
06063 31464512
06064 23464563
06065 25456362
06066 52371212

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```
06067 0 00 00000 MULSIM PZE
06070 0 35 22770 STA A2
06071 0 35 22116 STA A00
06072 0 36 22771 STB B2
06073 0 37 22104 STX X2
06074 0 61 06067 MIN MULSIM
06075 0 76 06067 LDA MULSIM
06076 0 35 22155 STA TEMP
06077 0 76 22155 LDA TEMP
06100 0 35 22772 STA C2
06101 0 76 22315 LDA #3
06102 0 35 22126 STA FBRMAT
06103 0 46 00001 CLA
06104 0 35 22162 STA IFLG
06105 0 35 22771 STA B2
06106 0 35 22775 STA BCREG
06107 0 35 22117 STA B00
06110 0 76 22262 LDA #1
06111 0 35 22137 STA #K20
06112 0 71 22316 LDX ##240
06113 0 01 06125 BRJ MULT2
06114 0 43 05A65 MULT# BRM REGOUT
06115 0 76 22262 LDA #1
06116 0 35 22126 STA FBRMAT
06117 0 43 05A04 BRM AR1
06120 0 52 22260 SKB #04000000
06121 0 01 06165 BRJ MULT1
06122 0 43 05A12 BRM BR1
06123 0 46 00001 CLA
06124 0 35 22140 STA SF
```

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```
06125 0 41 06114 MULT2 BRX MULT4
06126 0 60 22137 SKR #K20
06127 0 01 06170 BRU MULT3
06130 0 53 22116 CLEJNP SKN A00
06131 0 01 06133 BRU ##2
06132 0 61 22775 MIN BCREG
06133 0 43 05A65 BRM REGOUT
06134 0 76 22771 LDA B2
06135 0 43 04756 BRM ADDSIM
06136 0 20 22775 NOP BCREG
06137 0 62 22770 XMA A2
06140 0 35 22771 STA B2
06141 0 41 06142 BRX ##1
06142 0 72 22772 SKA ##1
06143 0 01 06146 BRU CLRBF
06144 0 76 22770 LDA A2
06145 0 50 22260 SKB #40000000
06146 0 46 00001 CLRBF CLA
06147 0 35 22140 STA SF
06150 0 76 22306 LDA #2
06151 0 35 22126 STA FBRMAT
06152 0 43 05A65 BRM REGOUT
06153 0 76 06067 LDA MULSIM
06154 0 16 05473 MRG BIT2
06155 0 53 22140 SKN SF
06156 0 01 06160 BRJ ##2
06157 0 35 06067 STA MULSIM
06160 0 22 00001 R0V
06161 0 76 22770 LDA A2
06162 0 75 22771 LDB B2
06163 0 71 22104 LDX X2
06164 0 51 06067 BRR MULSIM
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CPU1	TAP=3.0		PAGE 65
06165	0 43 05522	MULT1 BRM	RSA
06166	0 76 22262	LDA	#1
06167	0 01 06124	BRU	MULT2=1
06170	0 76 22272	MULT3 LDA	C2
06171	0 17 22272	EOR	#=1
06172	0 35 22072	STA	C2
06173	0 43 05665	BRM	REGBUT
06174	0 01 06116	BRU	MULT4+2

CPU1	TAP=3.0		PAGE 66
06175	0 00 00000	DIVSIM PZE	
06176	0 35 22070	STA	A2
06177	0 35 22116	STA	A00
06200	0 36 22071	STB	B2
06201	0 37 22104	STX	X2
06202	0 76 22315	LDA	#3
06203	0 35 22126	STA	FORMAT
06204	0 76 22272	LDA	#=1
06205	0 35 22162	STA	IFLG
06206	0 61 06175	MIN	DIVSIM
06207	0 76*06175	LDA*	DIVSIM
06210	0 35 22155	STA	TEMP
06211	0 76*22155	LDA*	TEMP
06212	0 35 22072	STA	C2
06213	0 35 22123	STA	IX
06214	2 46 00002	RCH	2,2
06215	0 72 22260	SKA	#40000000
06216	0 01 06221	BRU	#=3
06217	0 17 22272	EOR	#=1
06220	0 75 22262	LDB	#1
06221	0 36 22121	STB	C2
06222	0 35 22072	STA	C2
06223	0 76 22070	LDA	A2
06224	0 75 22071	LDB	B2
06225	0 53 22116	SKN	A00
06226	0 01 06237	BRU	SETB0
06227	0 17 22272	EOR	#=1
06230	0 46 00014	XAB	
06231	0 14 22317	ETR	#7777776
06232	0 43 05045	BRM	CNASIM
06233	0 72 22272	SKA	#=1
06234	0 01 06236	BRU	#=2
06235	0 71 22262	LDX	#1
06236	0 46 00014	XAB	

CLB, CLX

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CPU1      TAP=3.C                PAGE 67
06237 0 37 22075 SETBO STX      BCREG
06240 0 36 22070          STB      A2
06241 0 43 04756          BRM      ADDSIM
06242 0 20 22072          NOP      C2
06243 0 43 04756          BRM      ADDSIM
06244 0 20 22121          NOP      CZ
06245 0 35 22071          STA      BZ
06246 0 16 22075          YRG      BCREG
06247 0 16 22070          YRG      A2
06250 0 72 22272          SKA      #=1
06251 0 16 22272          YRG      #=1
06252 0 35 22122          STA      RF
06253 0 43 05656          BRM      SETBZO
06254 0 75 22260          LDB      #40000000
06255 0 70 22071          SKM      B2
06256 0 01 06264          BRU      TESTBO
06257 0 53 22122          SKN      RF
06260 0 01 06267          BRU      TESTAO
06261 0 72 22260          SKA      #40000000
06262 0 01 06267          BRU      TESTAO
06263 0 01 06272          BRU      TESTAO+3

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CPU1      TAP=3.C                PAGE 68
06264 0 53 22120 TESTBO SKN      BZO
06265 0 01 06271          BRU      TESTAO+2
06266 0 01 06272          BRU      TESTAO+3
06267 0 76 22116 TESTAO LDA      AOO
06270 0 70 22123          SKM      IX
06271 0 46 00002          CLB
06272 0 36 22125          STB      #FLAG
06273 0 71 22316          LDX      #=240
06274 0 01 06276          BRU      BEGIN
06275 0 43 05522          BRM      RSA

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CPU1	TAP=3.C			PAGE 69
06276	0 76 22272	BEGIN	LDA	#=1
06277	0 53 22120		SKN	BZ0
06300	0 46 00001		CLA	
06301	0 35 22140		STA	#F
06302	0 43 05665		BRM	REGOUT
06303	0 76 22262		LDA	#1
06304	0 35 22126		STA	FORMAT
06305	0 43 05656		BRM	SETBZ0
06306	0 17 22071		EOR	B2
06307	0 17 22072		EOR	C2
06310	0 46 00004		CAB	
06311	0 76 22072		LDA	C2
06312	0 52 22260		SKB	#40000000
06313	0 17 22272		EOR	#=1
06314	0 17 22272		EOR	#=1
06315	0 35 22072		STA	C2
06316	0 76 22071		LDA	B2
06317	0 14 22320		ETR	#70000000
06320	0 43 04756		BRM	ADDSIM
06321	0 20 22075		NOP	BCREG
06322	0 46 00005		ABC	
06323	0 46 00300		RCH	300
06324	0 50 22275		SKE	#0777
06325	0 46 00002		CLB	
06326	0 36 22124		STB	K0
06327	0 43 05432		BRM	AL2
06330	0 43 05604		BRM	AR1
06331	0 14 22317		ETR	#077777776
06332	0 53 22072		SKN	C2
06333	0 01 06335		BRU	**2
06334	0 16 22262		MRQ	#1
06335	0 35 22070		STA	A2
06336	0 41 06275		BRX	BEGIN=1
06337	0 43 05612		BRM	BRI
06340	0 43 05665		BRM	REGOUT
06341	0 53 22072		SKN	C2

CPU1	TAP=3.C			PAGE 70
06342	0 01 06402		BRU	LAST
06343	0 43 05612		BRM	BRI

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CPU1  TAP=3.0  PAGE 71
06344 0 76 22075 FINISH LDA BCREG
06345 0 43 04756 BRM ADDSIM
06346 0 20 22071 NOP B2
06347 0 53 22116 SKN A00
06350 0 01 06352 BRU **2
06351 0 43 05445 BRM CNASIM
06352 0 35 22071 STA B2
06353 0 76 22116 LDA A00
06354 0 17 22123 EOR IX
06355 0 46 00004 CAB
06356 0 76 22070 LDA A2
06357 0 52 22260 SKB #00000000
06360 0 43 05445 BRM CNASIM
06361 0 35 22070 STA A2
06362 0 76 22306 LDA #2
06363 0 35 22126 STA FORMAT
06364 0 41 06365 BRX **1
06365 0 76 22125 LDA @FLAG
06366 0 35 22140 STA @F
06367 0 43 05465 BRM REGRUT
06370 0 76 04175 LDA DIVSIM
06371 0 16 05473 ARG BIT2
06372 0 53 22125 SKN @FLAG
06373 0 01 06375 BRU **2
06374 0 35 06175 STA DIVSIM
06375 0 76 22070 LDA A2
06376 0 75 22071 LDB BP
06377 0 71 22104 LDX X2
06400 0 22 00001 RBV
06401 0 51 04175 HRR DIVSIM
06402 0 43 05422 LAST BRM RSA
06403 0 01 06344 BRU FINISH

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CPU1  TAP=3.0  PAGE 72
06404 0 20*06404 NOP1  \BP*  *
06405 0 20*04134 \BP*  TESTM  IA
06406 77700070 DATA 77700070
06407 77700070 DATA 77700070
06410 33344434 DATA 33344434
06411 33344434 DATA 33344434
06412 44433343 DATA 44433343
06413 44433343 DATA 44433343
06414 66611161 DATA 66611161
06415 66611161 DATA 66611161
06416 0 01 04077 BRU  \BSKIP=1
06417 0 01 04143 BRU  \OVFL0
06420 0 20*06420 NOP2  \BP*  *
06421 0 20*04134 \BP*  TESTM  IA
06422 00077707 DATA 00077707
06423 00077707 DATA 00077707
06424 22255525 DATA 22255525
06425 22255525 DATA 22255525
06426 55522252 DATA 55522252
06427 55522252 DATA 55522252
06430 11166616 DATA 11166616
06431 11166616 DATA 11166616
06432 1 01 04077 BRU  \BSKIP=1,1  SET OVERFLOW
06433 0 01 04154 BRU  \VFL0  OVERFLOW

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CPU1 TAP=3.0 PAGE 73

06434	0	20*06434	NBP3	NBP*	*
06435	4	20 04046		NBP	MEMORY,4
06436		55522252		DATA	55522252
06437		55522252		DATA	55522252
06440		11166616		DATA	11166616
06441		11166616		DATA	11166616
06442		66611161		DATA	66611161
06443		66611161		DATA	66611161
06444		33344434		DATA	33344434
06445		33344434		DATA	33344434
06446	4	C1 04077		BRU	NBSKIP=1,4
06447	0	01 04143		BRU	NBVFL0
06450	0	20*06450	NBP4	NBP*	*
06451	4	20 04046		NBP	MEMORY,4
06452		22255525		DATA	22255525
06453		22255525		DATA	22255525
06454		00077707		DATA	00077707
06455		00077707		DATA	00077707
06456		77700070		DATA	77700070
06457		77700070		DATA	77700070
06460		11166616		DATA	11166616
06461		11166616		DATA	11166616
06462	5	C1 04077		BRU	NBSKIP=1,5
06463	0	C1 04154		BRU	0VFL0

SET OVERFLOW  
OVERFLOW

CPU1 TAP=3.0 PAGE 74

06464	0	20*06464	ETR1	NBP*	*
06465	0	14 04046		ETR	MEMORY
06466		14631463		DATA	14631463
06467		04210421		DATA	04210421
06470		77700070		DATA	77700070
06471		77700070		DATA	77700070
06472		00077707		DATA	00077707
06473		00077707		DATA	00077707
06474		25252525		DATA	25252525
06475		25252525		DATA	25252525
06476	0	C1 04077		BRU	NBSKIP=1
06477	0	C1 04143		BRU	NBVFL0
06500	0	20*06500	ETR2	NBP*	*
06501	0	14 04046		ETR	MEMORY
06502		63146314		DATA	63146314
06503		21042104		DATA	21042104
06504		66611161		DATA	66611161
06505		66611161		DATA	66611161
06506		11166616		DATA	11166616
06507		11166616		DATA	11166616
06510		25252525		DATA	25252525
06511		25252525		DATA	25252525
06512	0	01 04077		BRU	NBSKIP=1
06513	0	C1 04143		BRU	NBVFL0

CPU1	TAP-3.0			PAGE 75	
06514	0 20*06514	ETR3	NBP*	*	
06515	4 14*04134		ETR*	TESTM,4	IA
06516	31463146		DATA	31463146	
06517	10421742		DATA	10421042	
06520	55522252		DATA	55522252	
06521	55522252		DATA	55522252	
06522	22255525		DATA	22255525	
06523	22255525		DATA	22255525	
06524	52525252		DATA	52525252	
06525	52525252		DATA	52525252	
06526	4 01 0477		BRJ	NO\$KIP=1,4	
06527	0 01 04143		BRJ	NOVFL9	
06530	0 20*06430	ETR4	NBP*	*	
06531	4 14 04746		ETR	MEMORY,4	
06532	46314631		DATA	46314631	
06533	42104210		DATA	42104210	
06534	44433343		DATA	44433343	
06535	44433343		DATA	44433343	
06536	33344434		DATA	33344434	
06537	33344434		DATA	33344434	
06540	52525252		DATA	52525252	
06541	52525252		DATA	52525252	
06542	5 01 0477		BRJ	NO\$KIP=1,5	
06543	0 01 04154		BRJ	NOVFL9	OVERFLOW

CPU1	TAP-3.0			PAGE 76	
06544	0 20*06544	MRG1	NBP*	*	
06545	0 16 04746		MRG	MEMORY	
06546	14631463		DATA	14631463	
06547	35673567		DATA	35673567	
06550	33344434		DATA	33344434	
06551	33344434		DATA	33344434	
06552	44433343		DATA	44433343	
06553	44433343		DATA	44433343	
06554	25252525		DATA	25252525	
06555	25252525		DATA	25252525	
06556	0 01 0477		BRJ	NO\$KIP=1	
06557	0 01 04143		BRJ	NOVFL9	
06560	0 20*06560	MRG2	NBP*	*	
06561	0 16 04746		MRG	MEMORY	
06562	63146314		DATA	63146314	
06563	67356735		DATA	67356735	
06564	22255525		DATA	22255525	
06565	22255525		DATA	22255525	
06566	55522252		DATA	55522252	
06567	55522252		DATA	55522252	
06570	25252525		DATA	25252525	
06571	25252525		DATA	25252525	
06572	0 01 0477		BRJ	NO\$KIP=1	
06573	0 01 04143		BRJ	NOVFL9	



CPU1 TAP=3.0 PAGE 77

06574	0 20*06574	MRG3	NBP*	*	
06575	4 16*04134		MRG*	TESTM,4	IA
06576	31463146		DATA	31463146	
06577	73567356		DATA	73567356	
06600	11166616		DATA	11166616	
06601	11166616		DATA	11166616	
06602	66611161		DATA	66611161	
06603	66611161		DATA	66611161	
06604	52525252		DATA	52525252	
06605	52525252		DATA	52525252	
06606	5 01 04077		BRU	NBSKIP=1,5	SET OVERFLOW
06607	0 01 04154		BRU	OVFL0	OVERFLOW
06610	0 20*06610	MRG4	NBP*	*	
06611	4 16 04046		MRG*	MEMBRY,4	
06612	46314631		DATA	46314631	
06613	56735673		DATA	56735673	
06614	00077707		DATA	00077707	
06615	00077707		DATA	00077707	
06616	77700070		DATA	77700070	
06617	77700070		DATA	77700070	
06620	52525252		DATA	52525252	
06621	52525252		DATA	52525252	
06622	4 01 04077		BRU	NBSKIP=1,4	
06623	0 01 04143		BRU	OVFL0	

CPU1 TAP=3.0 PAGE 78

06624	0 20*06624	EOR1	NBP*	*	
06625	0 17 04046		EOR	MEMBRY	
06626	14631463		DATA	14631463	
06627	31463146		DATA	31463146	
06630	77700070		DATA	77700070	
06631	77700070		DATA	77700070	
06632	00077707		DATA	00077707	
06633	00077707		DATA	00077707	
06634	25252525		DATA	25252525	
06635	25252525		DATA	25252525	
06636	0 01 04077		BRU	NBSKIP=1	
06637	0 01 04143		BRU	OVFL0	
06640	0 20*06640	EOR2	NBP*	*	
06641	0 17 04046		EOR	MEMBRY	
06642	31463146		DATA	31463146	
06643	63146314		DATA	63146314	
06644	66611161		DATA	66611161	
06645	66611161		DATA	66611161	
06646	11166616		DATA	11166616	
06647	11166616		DATA	11166616	
06650	52525252		DATA	52525252	
06651	52525252		DATA	52525252	
06652	1 01 04077		BRU	NBSKIP=1,1	SET OVERFLOW
06653	0 01 04154		BRU	OVFL0	OVERFLOW

CPU1 TAP=3.0 PAGE 79

06654	0	20*06654	FOR3	NBP*	*	
06655	0	17*04134		EBR*	TESTM	IA
06656		46314631		DATA	46314631	
06657		14631463		DATA	14631463	
06660		55522252		DATA	55522252	
06661		55522252		DATA	55522252	
06662		22255525		DATA	22255525	
06663		22255525		DATA	22255525	
06664		52525252		DATA	52525252	
06665		52525252		DATA	52525252	
06666	0	01 04077		BRU	NBSKIP=1	
06667	0	01 04143		BRU	NBVFL0	
06670	0	20*06670	FOR4	NBP*	*	
06671	0	17 04046		EBR*	MEMORY	
06672		63146314		DATA	63146314	
06673		46314631		DATA	46314631	
06674		44433343		DATA	44433343	
06675		44433343		DATA	44433343	
06676		33344434		DATA	33344434	
06677		33344434		DATA	33344434	
06700		25252525		DATA	25252525	
06701		25252525		DATA	25252525	
06702	0	01 04077		BRU	NBSKIP=1	
06703	0	01 04143		BRU	NBVFL0	

CPU1 TAP=3.0 PAGE 80

06704	0	20*06704	CLX	NBP*	*	
06705	2	46 00000		CLX		
06706		77700070		DATA	77700070	
06707		77700070		DATA	77700070	
06710		66611161		DATA	66611161	
06711		66611161		DATA	66611161	
06712		77777777		DATA	77777777	
06713		00000000		DATA	0	
06714		00000000		DATA	0	
06715		00000000		DATA	0	
06716	0	01 04077		BRU	NBSKIP=1	
06717	0	01 04143		BRU	NBVFL0	
06720	0	20*06720	CLA	NBP*	*	
06721	0	46 00001		CLA		
06722		77777777		DATA	77777777	
06723		00000000		DATA	0	
06724		55522252		DATA	55522252	
06725		55522252		DATA	55522252	
06726		44433343		DATA	44433343	
06727		44433343		DATA	44433343	
06730		00000000		DATA	0	
06731		00000000		DATA	0	
06732	0	01 04077		BRU	NBSKIP=1	
06733	0	01 04143		BRU	NBVFL0	

```

CPU1  TAP=3.0                                PAGE 81
06734 0 20*06734  CLB  NOP*  *
06735 0 46 00002  CLB
06736 55522252  DATA 55522252
06737 55522252  DATA 55522252
06740 77777777  DATA 77777777
06741 00000000  DATA 0
06742 33344434  DATA 33344434
06743 33344434  DATA 33344434
06744 00000000  DATA 0
06745 00000000  DATA 0
06746 0 01 04777  BRU  NBSKIP=1
06747 0 01 04143  BRU  NBVFL0
06750 0 20*06750  CLR  NOP*  *
06751 0 46 00003  CLB
06752 77777777  DATA 77777777
06753 00000000  DATA 0
06754 77777777  DATA 77777777
06755 00000000  DATA 0
06756 22255525  DATA 22255525
06757 22255525  DATA 22255525
06760 00000000  DATA 0
06761 00000000  DATA 0
06762 4 01 04777  BRU  NBSKIP=1,4
06763 0 01 04143  BRU  NBVFL0

```

```

CPU1  TAP=3.0                                PAGE 82
06764 0 20*06764  CAB  NOP*  *
06765 0 46 00004  CAB
06766 33344434  DATA 33344434
06767 33344434  DATA 33344434
06770 44433343  DATA 44433343
06771 33344434  DATA 33344434
06772 11166616  DATA 11166616
06773 11166616  DATA 11166616
06774 00000000  DATA 0
06775 00000000  DATA 0
06776 1 01 04777  BRU  NBSKIP=1,1
06777 0 01 04154  BRU  0vFL0
07000 0 20*07000  CBA  NOP*  *
07001 0 46 00010  CBA
07002 66611161  DATA 66611161
07003 11166616  DATA 11166616
07004 11166616  DATA 11166616
07005 11166616  DATA 11166616
07006 00077707  DATA 00077707
07007 00077707  DATA 00077707
07010 00000000  DATA 0
07011 00000000  DATA 0
07012 0 01 04777  BRU  NBSKIP=1
07013 0 01 04143  BRU  NBVFL0

```

SET OVERFLOW  
OVERFLOW

CPU1 TAP=3.0 PAGE 83

07014	0 20*07014	XAB	NBP*	*
07015	0 46 00014		XAB	
07016	77700070		DATA	77700070
07017	00077707		DATA	00077707
07020	00077707		DATA	00077707
07021	77700070		DATA	77700070
07022	11166616		DATA	11166616
07023	11166616		DATA	11166616
07024	00000000		DATA	0
07025	00000000		DATA	0
07026	0 01 04077		BRU	NBSKIP=1
07027	0 01 04143		BRU	N8VFLB
07030	0 20*07030	BAC	NBP*	*
07031	0 46 00012		BAC	
07032	00077707		DATA	00077707
07033	77700070		DATA	77700070
07034	77700070		DATA	77700070
07035	00000000		DATA	0
07036	66611161		DATA	66611161
07037	66611161		DATA	66611161
07040	00000000		DATA	0
07041	00000000		DATA	0
07042	4 01 04077		BRU	NBSKIP=1,4
07043	0 01 04143		BRU	N8VFLB

CPU1 TAP=3.0 PAGE 84

07044	0 20*07044	ABC	NBP*	*
07045	0 46 00005		ABC	
07046	77700070		DATA	77700070
07047	00000000		DATA	0
07050	00077707		DATA	00077707
07051	77700070		DATA	77700070
07052	55522252		DATA	55522252
07053	55522252		DATA	55522252
07054	00000000		DATA	0
07055	00000000		DATA	0
07056	4 01 04077		BRU	NBSKIP=1,4
07057	0 01 04143		BRU	N8VFLB
07060	0 20*07060	CXA	NBP*	*
07061	0 46 00200		CXA	
07062	33344434		DATA	33344434
07063	44433343		DATA	44433343
07064	55522252		DATA	55522252
07065	55522252		DATA	55522252
07066	44433343		DATA	44433343
07067	44433343		DATA	44433343
07070	00000000		DATA	0
07071	00000000		DATA	0
07072	0 01 04077		BRU	NBSKIP=1
07073	0 01 04143		BRU	N8VFLB

```

CPU1  TAP=3.0                                PAGE 85
07074 0 20*07074  CAX  NOP*  *
07075 0 46 00400  CAX  *
07076 55522252  DATA  55522252
07077 55522252  DATA  55522252
07100 44433343  DATA  44433343
07101 44433343  DATA  44433343
07102 22255525  DATA  22255525
07103 55522252  DATA  55522252
07104 00000000  DATA  0
07105 00000000  DATA  0
07106 1 01 04077  BRU  NBSKIP=1,1
07107 0 01 04154  BRU  OVFL0
07110 0 20*07110  XXA  NOP*  *
07111 0 46 00600  XXA  *
07112 77700070  DATA  77700070
07113 00077707  DATA  00077707
07114 33344434  DATA  33344434
07115 33344434  DATA  33344434
07116 00077707  DATA  00077707
07117 77700070  DATA  77700070
07120 00000000  DATA  0
07121 00000000  DATA  0
07122 4 01 04077  BRU  NBSKIP=1,4
07123 0 01 04143  BRU  NBSKIP=1,4

```

```

SET OVERFLOW
OVERFLOW

```

```

CPU1  TAP=3.0                                PAGE 86
07124 0 20*07124  CBX  NOP*  *
07125 0 46 00020  CBX  *
07126 33344434  DATA  33344434
07127 33344434  DATA  33344434
07130 22255525  DATA  22255525
07131 22255525  DATA  22255525
07132 55522252  DATA  55522252
07133 22255525  DATA  22255525
07134 00000000  DATA  0
07135 00000000  DATA  0
07136 0 01 04077  BRU  NBSKIP=1
07137 0 01 04143  BRU  NBSKIP=1
07140 0 20*07140  CXB  NOP*  *
07141 0 46 00040  CXB  *
07142 22255525  DATA  22255525
07143 22255525  DATA  22255525
07144 77700070  DATA  77700070
07145 00077707  DATA  00077707
07146 00077707  DATA  00077707
07147 00077707  DATA  00077707
07150 00000000  DATA  0
07151 00000000  DATA  0
07152 0 01 04077  BRU  NBSKIP=1
07153 0 01 04143  BRU  NBSKIP=1

```

```

CPU1  TAP=3,C          PAGE 87
07154 0 20*07154  XXB  NOP*  *
07155 0 46 00060  XXB
07156 11166616  DATA  11166616
07157 11166616  DATA  11166616
07160 00077707  DATA  00077707
07161 77700070  DATA  77700070
07162 77700070  DATA  77700070
07163 00077707  DATA  00077707
07164 00000000  DATA  0
07165 00000000  DATA  0
07166 5 01 04077  BRU  NBSKIP=1,5  SET OVERFLOW
07167 0 01 04154  BRU  BVFLB  OVERFLOW
07170 0 20*07170  STE  NOP*  *
07171 0 46 00122  STE
07172 11166616  DATA  11166616
07173 11166616  DATA  11166616
07174 77777377  DATA  77777377
07175 77777000  DATA  77777000
07176 77777400  DATA  77777400
07177 00000377  DATA  00000377
07200 00000000  DATA  0
07201 00000000  DATA  0
07202 1 01 04077  BRU  NBSKIP=1,1  SET OVERFLOW
07203 0 01 04154  BRU  BVFLB  OVERFLOW

```

```

CPU1  TAP=3,C          PAGE 88
07204 0 20*07204  LDE  NOP*  *
07205 0 46 00140  LDE
07206 77700070  DATA  77700070
07207 77700070  DATA  77700070
07210 77777000  DATA  77777000
07211 77777777  DATA  77777777
07212 00000777  DATA  00000777
07213 00000777  DATA  00000777
07214 00000000  DATA  0
07215 00000000  DATA  0
07216 0 01 04077  BRU  NBSKIP=1
07217 0 01 04143  BRU  NBVFLB
07220 0 20*07220  XEE  NOP*  *
07221 0 46 00160  XEE
07222 66611161  DATA  66611161
07223 66611161  DATA  66611161
07224 00077707  DATA  00077707
07225 00077070  DATA  00077070
07226 00000070  DATA  00000070
07227 77777707  DATA  77777707
07230 00000000  DATA  0
07231 00000000  DATA  0
07232 4 01 04077  BRU  NBSKIP=1,4
07233 0 01 04143  BRU  NBVFLB

```

```

CPU1  TAP=3.0                PAGE 89
07234 0 20*07234  CNA1  NOP*  *
07235 0 46 01000  CNA  *
07236 0 40000000  DATA 04000000 123Z 1110 HX H
07237 74000000  DATA 74000000 0111 TIME
07240 44433343  DATA 44433343 1111 T0
07241 44433343  DATA 44433343 T1
07242 33344434  DATA 33344434 T2 = T7
07243 33344434  DATA 33344434
07244 00000000  DATA 0
07245 00000000  DATA 0
07246 0 01 04077  BRU  NBSKIP=1
07247 0 01 04143  BRU  NBVFL0
07250 0 20*07250  CNA2  NOP*  *
07251 0 46 01000  CNA  *
07252 11111111  DATA 11111111 1100 T0 = T6
07253 66666667  DATA 66666667 1101 T7
07254 33344434  DATA 33344434
07255 33344434  DATA 33344434
07256 22255525  DATA 22255525
07257 22255525  DATA 22255525
07260 00000000  DATA 0
07261 00000000  DATA 0
07262 0 01 04077  BRU  NBSKIP=1
07263 0 01 04143  BRU  NBVFL0

```

```

CPU1  TAP=3.0                PAGE 90
07264 0 20*07264  CNA3  NOP*  *
07265 0 46 01000  CNA  *
07266 22222222  DATA 22222222 1010 T0 = T6
07267 55555556  DATA 55555556 1011 T7
07270 22255525  DATA 22255525
07271 22255525  DATA 22255525
07272 11166616  DATA 11166616
07273 11166616  DATA 11166616
07274 00000000  DATA 0
07275 00000000  DATA 0
07276 0 01 04077  BRU  NBSKIP=1
07277 0 01 04143  BRU  NBVFL0
07300 0 20*07300  CNA4  NOP*  *
07301 0 46 01000  CNA  *
07302 33333333  DATA 33333333 1000 T0 = T6
07303 44444445  DATA 44444445 1001 T7
07304 11166616  DATA 11166616
07305 11166616  DATA 11166616
07306 00077707  DATA 00077707
07307 00077707  DATA 00077707
07310 00000000  DATA 0
07311 00000000  DATA 0
07312 0 01 04077  BRU  NBSKIP=1
07313 0 01 04143  BRU  NBVFL0

```

CPU1 TAP=3.0 PAGE 91

07314	0	20*07314	CNA5	NBP*	*		
07315	0	46 01000		CNA			
07316		44444444		DATA	44444444	0110	TO = T6
07317		33333334		DATA	33333334	0111	T7
07320		00077707		DATA	00077707		
07321		00077707		DATA	00077707		
07322		77700070		DATA	77700070		
07323		77700070		DATA	77700070		
07324		00000000		DATA	0		
07325		00000000		DATA	0		
07326	0	01 04077		BRU	NBSKIP=1		
07327	0	01 04143		BRU	NBVFL0		
07330	0	20*07330	CNA6	NBP*	*		
07331	0	46 01000		CNA			
07332		55555555		DATA	55555555	0100	TO = T6
07333		22222223		DATA	22222223	0101	T7
07334		77700070		DATA	77700070		
07335		77700070		DATA	77700070		
07336		66611161		DATA	66611161		
07337		66611161		DATA	66611161		
07340		00000000		DATA	0		
07341		00000000		DATA	0		
07342	0	01 04077		BRU	NBSKIP=1		
07343	0	01 04143		BRU	NBVFL0		

CPU1 TAP=3.0 PAGE 92

07344	0	20*07344	CNA7	NBP*	*		
07345	0	46 01000		CNA			
07346		66666666		DATA	66666666	0010	TO = T6
07347		11111112		DATA	11111112	0011	T7
07350		66611161		DATA	66611161		
07351		66611161		DATA	66611161		
07352		55522252		DATA	55522252		
07353		55522252		DATA	55522252		
07354		00000000		DATA	0		
07355		00000000		DATA	0		
07356	4	01 04077		BRU	NBSKIP=1,4		
07357	0	01 04143		BRU	NBVFL0		
07360	0	20*07360	CNA8	NBP*	*		
07361	0	46 01000		CNA			
07362		77777777		DATA	77777777	0000	TO = T6
07363		00000001		DATA	1	0001	T7
07364		55522252		DATA	55522252		
07365		55522252		DATA	55522252		
07366		44433343		DATA	44433343		
07367		44433343		DATA	44433343		
07370		00000000		DATA	0		
07371		00000000		DATA	0		
07372	4	01 04077		BRU	NBSKIP=1,4		
07373	0	01 04143		BRU	NBVFL0		



```

CPU1  TAP=3.0                                PAGE 93
07374 0 20*07374  BT01  NOP*  *
07375 0 22 00100      BT0      *
07376      52525252      DATA  52525252
07377      52525252      DATA  52525252
07400      25252525      DATA  25252525
07401      25252525      DATA  25252525
07402      70707070      DATA  70707070
07403      70707070      DATA  70707070
07404      07070707      DATA  07070707
07405      07070707      DATA  07070707
07406 1 01 04077      BRU   NOSKIP=1,1
07407 0 01 04154      BRU   0VFL0
07410 0 20*07410  BT02  NOP*  *
07411 0 22 00100      BT0      *
07412      25252525      DATA  25252525
07413      25252525      DATA  25252525
07414      52525252      DATA  52525252
07415      52525252      DATA  52525252
07416      07070707      DATA  07070707
07417      07070707      DATA  07070707
07420      70707070      DATA  70707070
07421      70707070      DATA  70707070
07422 0 01 04071      BRU   SKIP=1
07423 0 01 04143      BRU   0VFL0

```

```

CPU1  TAP=3.0                                PAGE 94
07424 0 20*07424  BT03  NOP*  *
07425 0 22 00100      BT0      *
07426      52525252      DATA  52525252
07427      52525252      DATA  52525252
07430      25252525      DATA  25252525
07431      25252525      DATA  25252525
07432      70707070      DATA  70707070
07433      70707070      DATA  70707070
07434      07070707      DATA  07070707
07435      07070707      DATA  07070707
07436 5 01 04077      BRU   NOSKIP=1,5
07437 0 01 04154      BRU   0VFL0
07440 0 20*07440  BT04  NOP*  *
07441 0 22 00100      BT0      *
07442      25252525      DATA  25252525
07443      25252525      DATA  25252525
07444      52525252      DATA  52525252
07445      52525252      DATA  52525252
07446      07070707      DATA  07070707
07447      07070707      DATA  07070707
07450      70707070      DATA  70707070
07451      70707070      DATA  70707070
07452 4 01 04071      BRU   SKIP=1,4
07453 0 01 04143      BRU   0VFL0

```

```

CPU1  TAP=3.0  PAGE 95
07454 0 20*07454 BR11 NBP* *
07455 0 11 04046 BR1 MEMORY
07456 52525252 DATA 52525252
07457 52525252 DATA 52525252
07460 25252525 DATA 25252525
07461 25252525 DATA 25252525
07462 70707070 DATA 70707070
07463 70707070 DATA 70707070
07464 10004106 DATA NBERR=10000000
07465 10004106 DATA NBERR=10000000
07466 0 01 04071 BRU SKIP=1
07467 0 01 04154 BRU NBVFL0
07470 0 20*07470 BR12 NBP* *
07471 2 11 03046 BR1 MEMORY=1000,2
07472 25252525 DATA 25252525
07473 25252525 DATA 25252525
07474 52525252 DATA 52525252
07475 52525252 DATA 52525252
07476 77701000 DATA 77701000
07477 77701000 DATA 77701000
07500 00004106 DATA NBERR
07501 00004106 DATA NBERR
07502 1 01 04077 BRU NBSKIP=1,1
07503 0 01 04143 BRU NBVFL0

```

```

CPU1  TAP=3.0  PAGE 96
07504 0 20*07504 BR13 NBP* *
07505 2 11 03046 BR1 MEMORY=1000,2
07506 25252525 DATA 25252525
07507 25252525 DATA 25252525
07510 52525252 DATA 52525252
07511 52525252 DATA 52525252
07512 77701000 DATA 77701000
07513 77701000 DATA 77701000
07514 00004106 DATA NBERR
07515 00004106 DATA NBERR
07516 0 01 04071 BRU SKIP=1
07517 0 01 04143 BRU NBVFL0
07520 0 20*07520 BR14 NBP* *
07521 0 11*04134 BR1 TEST4
07522 77777777 DATA 77777777
07523 77777777 DATA 77777777
07524 66666666 DATA 66666666
07525 66666666 DATA 66666666
07526 33333333 DATA 33333333
07527 33333333 DATA 33333333
07530 00004106 DATA NBERR
07531 00004106 DATA NBERR
07532 0 01 04071 BRU SKIP=1
07533 0 01 04143 BRU NBVFL0

```

CPU1 TAP=3.0 PAGE 97

```

07534 0 20*07534 ADD1 NBP* *
07535 0 55 04046 ADD MEMORY
07536 56666667 DATA 56666667
07537 50123452 DATA 50123452
07540 11166616 DATA 11166616
07541 11166616 DATA 11166616
07542 00077707 DATA 00077707
07543 40077707 DATA 40077707
07544 71234563 DATA 71234563
07545 71234563 DATA 71234563
07546 0 01 04177 BRU NBSKIP=1
07547 0 01 04143 BRU NOVFL0
07550 0 20*07550 ADD2 NBP* *
07551 0 55 04046 ADD MEMORY
07552 22333347 DATA 22333347
07553 12012303 DATA 12012303
07554 22255525 DATA 22255525
07555 22255525 DATA 22255525
07556 11166616 DATA 11166616
07557 51166616 DATA 51166616
07560 67456734 DATA 67456734
07561 67456734 DATA 67456734
07562 0 01 04077 BRU NBSKIP=1
07563 0 01 04143 BRU NOVFL0

```

```

1 1 1 1 1 1 0 CARRY
5 6 6 6 6 6 7 A REGISTER
7 1 2 3 4 5 3 MEMORY
0 1 2 3 4 5 6 7 TIMING

```

CARRY OUT

```

1 1 1 1 1 1 0 C
2 2 3 3 3 3 4 7 A
6 7 4 5 6 7 3 4 M

```

CARRY OUT

CPU1 TAP=3.0 PAGE 98

```

07564 0 20*07564 ADD3 NBP* *
07565 0 55 04046 ADD MEMORY
07566 43434362 DATA 43434362
07567 50617270 DATA 50617270
07570 66611161 DATA 66611161
07571 66611161 DATA 66611161
07572 77700070 DATA 77700070
07573 37700070 DATA 37700070
07574 05162706 DATA 05162706
07575 05162706 DATA 05162706
07576 0 01 04077 BRU NBSKIP=1
07577 0 01 04143 BRU NOVFL0
07600 0 20*07600 ADD4 NBP* *
07601 0 55 04046 ADD MEMORY
07602 52525250 DATA 52525250
07603 15263747 DATA 15263747
07604 11166616 DATA 11166616
07605 11166616 DATA 11166616
07606 22255525 DATA 22255525
07607 62255525 DATA 62255525
07610 42536477 DATA 42536477
07611 42536477 DATA 42536477
07612 0 01 04077 BRU NBSKIP=1
07613 0 01 04154 BRU NOVFL0

```

```

1 0 1 0 1 0 1 0 C
4 3 4 3 4 3 6 2 A
0 5 1 6 2 7 0 6 M

```

NO CARRY OUT

```

0 1 0 1 0 1 0 0 C
5 2 5 2 5 2 5 0 A
4 2 5 3 6 4 7 0 M

```

CARRY OUT

OVERFLOW

```

CPU1      TAP=3.C          PAGE 99
07614  0 20*07614  ADD5  NOP*  *
07615  4 55 04046  ADD  MEMORY,4
07616  51616162  DATA 51616162  5 1 6 1 6 1 6 2  A
07617  05364757  DATA 05364757  3 3 5 4 6 5 7 5  M
07620  22255525  DATA 22255525
07621  22255525  DATA 22255525
07622  33344434  DATA 33344434
07623  73344434  DATA 73344434  CARRY OUT
07624  33546575  DATA 33546575
07625  33546575  DATA 33546575
07626  4 01 04077  BRU  NOSKIP=1,4
07627  0 01 04143  BRU  NOVFL0
07630  0 20*07630  ADD6  NOP*  *
07631  4 55 04046  ADD  MEMORY,4
07632  33444452  DATA 33444452  0 0 0 0 0 0 0 0  C
07633  67456754  DATA 67456754  3 3 4 4 4 4 5 2  A
07634  77700070  DATA 77700070  3 4 0 1 2 3 0 2  M
07635  77700070  DATA 77700070
07636  66611161  DATA 66611161
07637  26611161  DATA 26611161  NO CARRY OUT
07640  34012302  DATA 34012302
07641  34012302  DATA 34012302
07642  4 01 04077  BRU  NOSKIP=1,4
07643  0 01 04154  BRU  OVFL0  OVERFLOW

```

```

CPU1      TAP=3.C          PAGE 100
07644  0 20*07644  ADD7  NOP*  *
07645  4 55 04046  ADD  MEMORY,4
07646  22322335  DATA 22322335  0 0 0 0 0 0 0 0  C
07647  65532346  DATA 65532346  2 2 3 2 2 3 3 5  A
07650  66611161  DATA 66611161  4 3 2 1 0 0 1 1  M
07651  66611161  DATA 66611161
07652  55522252  DATA 55522252
07653  15522252  DATA 15522252  NO CARRY OUT
07654  43210011  DATA 43210011
07655  43210011  DATA 43210011
07656  4 01 04077  BRU  NOSKIP=1,4
07657  0 01 04143  BRU  NOVFL0
07660  0 20*07660  ADD8  NOP*  *
07661  4 55 04134  ADD  TEST4,4
07662  00000007  DATA 00000007  0 0 0 0 0 0 0 0  C
07663  01234567  DATA 01234567  0 0 0 0 0 0 0 7  A
07664  55522252  DATA 55522252  0 1 2 3 4 5 6 0  M
07665  55522252  DATA 55522252
07666  44433343  DATA 44433343
07667  04433343  DATA 04433343  NO CARRY OUT
07670  01234560  DATA 01234560
07671  01234560  DATA 01234560
07672  5 01 04077  BRU  NOSKIP=1,5  SET OVERFLOW
07673  0 01 04154  BRU  OVFL0  OVERFLOW

```

CPU1 TAP=3.0 PAGE 101

```

07674 0 20*07674 SUB1 NBP* *
07675 0 54 04046 SUB MEMORY
07676 77777777 DATA 77777777
07677 01234567 DATA 01234567
07700 66611161 DATA 66611161
07701 66611161 DATA 66611161
07702 00077707 DATA 00077707
07703 40077707 DATA 40077707
07704 76543210 DATA 76543210
07705 76543210 DATA 76543210
07706 0 01 04077 BRU NBSKIP=1
07707 0 01 04143 BRU BVFL0
07710 0 20*07710 SUB2 NBP* *
07711 0 54 04046 SUB MEMORY
07712 44455555 DATA 44455555
07713 43201234 DATA 43201234
07714 00077707 DATA 00077707
07715 00077707 DATA 00077707
07716 11166616 DATA 11166616
07717 51166616 DATA 51166616
07720 01254321 DATA 01254321
07721 01254321 DATA 01254321
07722 0 01 04077 BRU NBSKIP=1
07723 0 01 04143 BRU BVFL0

```

```

1 1 1 1 1 1 1 1 CARRY
7 7 7 7 7 7 7 7 A REGISTER
0 1 2 3 4 5 6 7 MEMORY
0 1 2 3 4 5 6 7 TIMING

```

CARRY OUT

```

1 1 1 1 1 1 1 1 C
4 4 4 5 5 5 5 5 A
7 6 5 2 3 4 5 6 M

```

CARRY OUT

CPU1 TAP=3.0 PAGE 102

```

07724 0 20*07724 SUB3 NBP* *
07725 0 54 04046 SUB MEMORY
07726 45450121 DATA 45450121
07727 27360001 DATA 27360001
07730 77700070 DATA 77700070
07731 77700070 DATA 77700070
07732 22255525 DATA 22255525
07733 62255525 DATA 62255525
07734 16070120 DATA 16070120
07735 16070120 DATA 16070120
07736 0 01 04077 BRU NBSKIP=1
07737 0 01 04154 BRU BVFL0
07740 0 20*07740 SUB4 NBP* *
07741 0 54 04046 SUB MEMORY
07742 34343236 DATA 34343236
07743 40516176 DATA 40516176
07744 66611161 DATA 66611161
07745 66611161 DATA 66611161
07746 77700070 DATA 77700070
07747 37700070 DATA 37700070
07750 73625040 DATA 73625040
07751 73625040 DATA 73625040
07752 0 01 04077 BRU NBSKIP=1
07753 0 01 04154 BRU BVFL0

```

```

0 1 0 1 1 1 1 1 C
4 5 4 5 0 1 2 1 A
6 1 7 0 7 6 5 7 M

```

CARRY OUT

OVERFLOW

```

1 0 1 0 1 0 1 1 C
3 4 3 4 3 2 3 6 A
0 4 1 5 2 7 3 7 M

```

NO CARRY OUT

OVERFLOW

CPU1 TAP=3.C PAGE 103

07754	C 20*07754	SUB5	NBP*	*			
07755	4 54 04046		SUB	MEMORY,4	1 1 0 1 0 1 0 1	C	
07756	04716161		DATA	04716161	0 4 7 1 6 1 6 1	A	
07757	71640312		DATA	71640312	6 4 7 2 2 1 3 0	M	
07760	77700070		DATA	77700070			
07761	77700070		DATA	77700070			
07762	66611161		DATA	66611161			
07763	26611161		DATA	26611161		NO CARRY OUT	
07764	13055647		DATA	13055647			
07765	13055647		DATA	13055647			
07766	4 01 04077		BRU	NBSKIP=1,4			
07767	0 01 04143		BRU	NBVFL0			
07770	0 20*07770	SUB6	NBP*	*			
07771	4 54 04046		SUB	MEMORY,4	0 1 0 1 0 1 0 1	C	
07772	10607070		DATA	10607070	1 0 6 0 7 0 7 0	A	
07773	04254653		DATA	04254653	7 3 4 4 5 5 6 2	M	
07774	66611161		DATA	66611161			
07775	66611161		DATA	66611161			
07776	33344434		DATA	33344434			
07777	73344434		DATA	73344434		CARRY OUT	
10000	04332215		DATA	04332215			
10001	04332215		DATA	04332215			
10002	4 01 04077		BRU	NBSKIP=1,4			
10003	0 01 04143		BRU	NBVFL0			

CPU1 TAP=3.C PAGE 104

10004	0 20*10004	SUB7	NBP*	*		
10005	4 54 04046		SUB	MEMORY,4	0 0 0 1 0 1 0 1	C
10006	56607072		DATA	56607072	5 6 6 0 7 0 7 2	A
10007	76710214		DATA	76710214	2 0 1 0 1 1 2 1	M
10010	44433343		DATA	44433343		
10011	44433343		DATA	44433343		
10012	55522252		DATA	55522252		
10013	15522252		DATA	15522252		NO CARRY OUT
10014	57676656		DATA	57676656		
10015	57676656		DATA	57676656		
10016	4 01 04077		BRU	NBSKIP=1,4		
10017	0 01 04143		BRU	NBVFL0		
10020	0 20*10020	SUB8	NBP*	*		
10021	4 54*04134		SUB*	TESTM,4	0 0 0 0 0 0 0 1	C
10022	11111112		DATA	11111112	1 1 1 1 1 1 1 2	A
10023	12345673		DATA	12345673	0 1 2 3 4 5 6 0	M
10024	55522252		DATA	55522252		
10025	55522252		DATA	55522252		
10026	44433343		DATA	44433343		
10027	04433343		DATA	04433343		NO CARRY OUT
10030	76543217		DATA	76543217		
10031	76543217		DATA	76543217		
10032	5 01 04077		BRU	NBSKIP=1,5		SET OVERFLOW
10033	0 01 04154		BRU	0VFL0		OVERFLOW

```

CPU1  TAP=3.0                PAGE 105

10034 0 20*10034  ADC1  NBP*  *
10035 0 57 04046  ADC   MEMORY
10036 56666667  DATA 56666667      1  XZ1      0  CZ
10037 50123452  DATA 50123452      1  YZ1      1  XZ3
10040 11166616  DATA 11166616      1  ADD1     1  YZ3
10041 11166616  DATA 11166616
10042 00077707  DATA 00077707      NO CARRY UN
10043 40077707  DATA 40077707      CARRY OUT
10044 71234563  DATA 71234563
10045 71234563  DATA 71234563
10046 0 01 04077  BRU  NBSKIP=1
10047 0 01 04143  BRU  NOVFL0
10050 0 20*10050  ADC2  NBP*  *
10051 2 57 15230  ADC   MEMORY=26616.2
10052 22333347  DATA 22333347      0  XZ1      0  CZ
10053 12012303  DATA 12012303      1  YZ1      1  XZ3
10054 66611161  DATA 66611161      0  ADD1     0  YX3
10055 66611161  DATA 66611161
10056 11166616  DATA 11166616      NO CARRY IN
10057 51166616  DATA 51166616      CARRY OUT
10060 67456734  DATA 67456734
10061 67456734  DATA 67456734
10062 0 01 04077  BRU  NBSKIP=1
10063 0 01 04143  BRU  NOVFL0

```

```

CPU1  TAP=3.0                PAGE 106

10064 0 20*10064  ADC3  NBP*  *
10065 0 57 04046  ADC   MEMORY
10066 43434362  DATA 43434362      1  XZ1      0  CZ
10067 50617270  DATA 50617270      0  YZ1      0  XZ3
10070 77700070  DATA 77700070      1  ADD1     0  YZ3
10071 77700070  DATA 77700070
10072 22255525  DATA 22255525
10073 22255525  DATA 22255525      NO CARRY IN
10074 05162706  DATA 05162706      NO CARRY OUT
10075 05162706  DATA 05162706
10076 1 01 04077  BRU  NBSKIP=1.1
10077 0 01 04143  BRU  NOVFL0
10100 0 20*10100  ADC4  NBP*  *
10101 0 57 04046  ADC   MEMORY
10102 52525250  DATA 52525250      1  XZ1      0  CZ
10103 15263747  DATA 15263747      1  YZ1      0  XZ3
10104 00077707  DATA 00077707      0  ADD1     1  YZ3
10105 00077707  DATA 00077707
10106 33344434  DATA 33344434
10107 73344434  DATA 73344434      NO CARRY IN
10110 42536477  DATA 42536477      CARRY OUT
10111 42536477  DATA 42536477
10112 0 01 04077  BRU  NBSKIP=1
10113 0 01 04154  BRU  NOVFL0

```

```

CPU1  TAP=3.0                PAGE 107

10114 0 20*10114  ADC5  NSP*  *
10115 4 57 04046  ADC   MEMORY,4      1  XZ1      1  CZ
10116 77777777  DATA  77777777      0  YZ1      1  XZ3
10117 01234567  DATA  01234567      0  ADD1     1  YZ3
10120 22255525  DATA  22255525
10121 22255525  DATA  22255525
10122 44433343  DATA  44433343      CARRY IN
10123 44433343  DATA  44433343      CARRY OUT
10124 01234567  DATA  01234567
10125 01234567  DATA  01234567
10126 4 01 04077  BRU   NBSKIP=1,4
10127 0 01 04143  BRU   NOVFL0
10130 0 20*10130  ADC6  NSP*  *
10131 4 57*04134  ADC   TEST4,4      0  XZ1      1  CZ
10132 34343236  DATA  34343236      0  YZ1      0  XZ3
10133 40516176  DATA  40516176      1  ADD1     1  YZ3
10134 55522252  DATA  55522252
10135 55522252  DATA  55522252
10136 66611161  DATA  66611161      CARRY IN
10137 26611161  DATA  26611161      NO CARRY OUT
10140 04152737  DATA  04152737
10141 04152737  DATA  04152737
10142 4 01 04077  BRU   NBSKIP=1,4
10143 0 01 04154  BRU   NOVFL0      OVERFLOW

```

```

CPU1  TAP=3.0                PAGE 108

10144 0 20*10144  ADC7  NSP*  *
10145 4 57 04046  ADC   MEMORY,4      0  XZ1      1  CZ
10146 04716161  DATA  04716161      1  YZ1      0  XZ3
10147 71640312  DATA  71640312      1  ADD1     0  YZ3
10150 33344434  DATA  33344434
10151 33344434  DATA  33344434
10152 44433343  DATA  44433343      CARRY IN
10153 04433343  DATA  04433343      NO CARRY OUT
10154 64722130  DATA  64722130
10155 64722130  DATA  64722130
10156 4 01 04077  BRU   NBSKIP=1,4
10157 0 01 04143  BRU   NOVFL0
10160 0 20*10160  ADC8  NSP*  *
10161 4 57 04046  ADC   MEMORY,4      0  XZ1      1  CZ
10162 11111112  DATA  11111112      0  YZ1      0  XZ3
10163 12345673  DATA  12345673      0  ADD1     0  YZ3
10164 44433343  DATA  44433343
10165 44433343  DATA  44433343
10166 55522252  DATA  55522252      CARRY IN
10167 15522252  DATA  15522252      NO CARRY OUT
10170 01234560  DATA  01234560
10171 01234560  DATA  01234560
10172 4 01 04077  BRU   NBSKIP=1,4
10173 0 01 04143  BRU   NOVFL0

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CPU1 TAP=3.0 PAGE 109

10174	0 20*10174	SUC1	NOP*	*
10175	0 56 04046		SUC	MEMORY
10176	51616162		DATA	51616162
10177	05364757		DATA	05364757
10200	77700070		DATA	77700070
10201	77700070		DATA	77700070
10202	00077707		DATA	00077707
10203	40077707		DATA	40077707
10204	44231202		DATA	44231202
10205	44231202		DATA	44231202
10206	1 01 04077		BRU	NBSKIP=1.1
10207	0 01 04143		BRU	NOVFL0
10210	0 20*10210	SUC2	NOP*	*
10211	0 56 04046		SUC	MEMORY
10212	33444452		DATA	33444452
10213	67456754		DATA	67456754
10214	66611161		DATA	66611161
10215	66611161		DATA	66611161
10216	11166616		DATA	11166616
10217	11166616		DATA	11166616
10220	43765475		DATA	43765475
10221	43765475		DATA	43765475
10222	0 01 04077		BRU	NBSKIP=1
10223	0 01 04154		BRU	NOVFL0

1 XZ1 0 CZ  
0 YZ1 0 XZ3  
0 ADD1 1 YZ3

NO CARRY IN  
CARRY OUT

SET OVERFLOW  
TEST R OF PHASE 6 T9

0 XZ1 0 CZ  
0 YZ1 0 XZ3  
1 ADD1 0 YZ3

NO CARRY IN  
NO CARRY OUT

OVERFLOW

CPU1 TAP=3.0 PAGE 110

10224	0 20*10224	SUC3	NOP*	*
10225	0 56 04046		SUC	MEMORY
10226	22322335		DATA	22322335
10227	65532346		DATA	65532346
10230	55522252		DATA	55522252
10231	55522252		DATA	55522252
10232	22255525		DATA	22255525
10233	22255525		DATA	22255525
10234	34567766		DATA	34567766
10235	34567766		DATA	34567766
10236	0 01 04077		BRU	NBSKIP=1
10237	0 01 04143		BRU	NOVFL0
10240	0 20*10240	SUC4	NOP*	*
10241	0 56*04134		SUC*	TESTM
10242	00000007		DATA	7
10243	01234567		DATA	01234567
10244	44433343		DATA	44433343
10245	44433343		DATA	44433343
10246	33344434		DATA	33344434
10247	33344434		DATA	33344434
10250	76543217		DATA	76543217
10251	76543217		DATA	76543217
10252	1 01 04077		BRU	NBSKIP=1.1
10253	0 01 04143		BRU	NOVFL0

0 XZ1 0 CZ  
1 YZ1 0 XZ3  
1 ADD1 1 YZ3

NO CARRY IN  
NO CARRY OUT

0 YZ1 0 CZ  
0 YZ1 1 XZ3  
0 ADD1 0 YZ3

NO CARRY IN  
NO CARRY OUT

SET OVERFLOW  
TEST R OF PHASE 6 T9

CPU1 TAP=3.C

PAGE 111

10254	0	20*10254	SUC5	NBP*	*				
10255	4	56 04246		SUC	MEMORY,4	1	XZ1	1	CZ
10256		44455555		DATA	44455555	1	YZ1	1	XZ3
10257		43201234		DATA	43201234	1	ADD1	0	YZ3
10260		33344434		DATA	33344434				
10261		33344434		DATA	33344434				
10262		44433343		DATA	44433343				
10263		44433343		DATA	44433343				
10264		01254321		DATA	01254321				
10265		01254321		DATA	01254321				
10266	4	01 04277		BRU	NBSKIP=1,4				
10267	0	01 04143		BRU	NBVFL0				
10270	0	20*10270	SUC6	NBP*	*				
10271	4	56 04246		SUC	MEMORY,4	1	XZ1	1	CZ
10272		45450121		DATA	45450121	1	YZ1	1	XZ3
10273		27360001		DATA	27360001	0	ADD1	1	YZ3
10274		22255525		DATA	22255525				
10275		22255525		DATA	22255525				
10276		55522252		DATA	55522252				
10277		55522252		DATA	55522252				
10300		16070120		DATA	16070120				
10301		16070120		DATA	16070120				
10302	4	01 04277		BRU	NBSKIP=1,4				
10303	0	01 04143		BRU	NBVFL0				OVERFLOW

CPU1 TAP=3.C

PAGE 112

10304	0	20*10304	SUC7	NBP*	*				
10305	6	56 32665		SUC	MEMORY,11161,6	0	XZ1	1	CZ
10306		10607070		DATA	10607070	1	YZ1	0	XZ3
10307		04254653		DATA	04254653	0	ADD1	0	YZ3
10310		11166616		DATA	11166616				
10311		11166616		DATA	11166616				
10312		66611161		DATA	66611161				
10313		66611161		DATA	66611161				
10314		04332215		DATA	04332215				
10315		04332215		DATA	04332215				
10316	4	01 04277		BRU	NBSKIP=1,4				
10317	0	01 04143		BRU	NBVFL0				
10320	0	20*10320	SUC8	NBP*	*				
10321	4	56 04246		SUC	MEMORY,4	1	XZ1	1	CZ
10322		56607072		DATA	56607072	0	YZ1	0	XZ3
10323		76710214		DATA	76710214	1	ADD1	1	YZ3
10324		00077707		DATA	00077707				
10325		00077707		DATA	00077707				
10326		77700070		DATA	77700070				
10327		37700070		DATA	37700070				
10330		57676656		DATA	57676656				
10331		57676656		DATA	57676656				
10332	4	01 04277		BRU	NBSKIP=1,4				
10333	0	01 04143		BRU	NBVFL0				

CPU1 TAP=3.0 PAGE 113

10334	0	20*10334	SKN1	NOP*	*
10335	0	53 04046		SKN	MEMORY
10336		44433343		DATA	44433343
10337		44433343		DATA	44433343
10340		11166616		DATA	11166616
10341		11166616		DATA	11166616
10342		00077707		DATA	00077707
10343		00077707		DATA	00077707
10344		70707070		DATA	70707070
10345		70707070		DATA	70707070
10346	C	01 04071		BRU	SKIP=1
10347	0	01 04143		BRU	NOVFL0
10350	0	20*10350	SKN2	NOP*	*
10351	0	53*04134		SKN*	TESTM
10352		33344434		DATA	33344434
10353		33344434		DATA	33344434
10354		66611161		DATA	66611161
10355		66611161		DATA	66611161
10356		77700070		DATA	77700070
10357		77700070		DATA	77700070
10360		07070707		DATA	07070707
10361		07070707		DATA	07070707
10362	1	01 04077		BRU	NOSKIP=1,1
10363	0	01 04154		BRU	OVFL0

TURN CO OFF AND ON EACH CLOCK

IX COULD SET IF XZ 0 0, RESULTING IN NO SKIP BECAUSE SK = IX + CO (IX = CO)

IA

TURN CO ON AND OFF EACH CLOCK

SET OVERFLOW = IF XZ 0 0, A SKIP COULD RESULT OVERFLOW = BECAUSE SK = IX + CO (IX 0 CO)

CPU1 TAP=3.0 PAGE 114

10364	0	20*10364	SKN3	NOP*	*
10365	4	53 04046		SKN	MEMORY,4
10366		44433343		DATA	44433343
10367		44433343		DATA	44433343
10370		11166616		DATA	11166616
10371		11166616		DATA	11166616
10372		00077707		DATA	00077707
10373		00077707		DATA	00077707
10374		70707070		DATA	70707070
10375		70707070		DATA	70707070
10376	4	01 04071		BRU	SKIP=1,4
10377	0	01 04143		BRU	NOVFL0
10400	0	20*10400	SKN4	NOP*	*
10401	4	53*04134		SKN*	TESTM,4
10402		33344434		DATA	33344434
10403		33344434		DATA	33344434
10404		66611161		DATA	66611161
10405		66611161		DATA	66611161
10406		77700070		DATA	77700070
10407		77700070		DATA	77700070
10410		07070707		DATA	07070707
10411		07070707		DATA	07070707
10412	5	01 04077		BRU	NOSKIP=1,5
10413	0	01 04154		BRU	OVFL0

TURN CO OFF AND ON EACH CLOCK

IX COULD SET IF XZ 0 0, RESULTING IN NO SKIP BECAUSE SK = IX + CO (IX = CO)

TURN CO ON AND OFF EACH CLOCK

SET OVERFLOW=IF XZ 0 0, A SKIP COULD RESULT OVERFLOW = BECAUSE SK = IX + CO (IX 0 CO)

CPU1 TAP=3.0 PAGE 115

```

10414 0 20*10414 SKB1 NSP* *
10415 0 52 04046 SKB MEMBRY
10416 44433343 DATA 44433343
10417 44433343 DATA 44433343
10420 70707000 DATA 70707000
10421 70707000 DATA 70707000
10422 77700070 DATA 77700070
10423 77700070 DATA 77700070
10424 07070700 DATA 07070700
10425 07070700 DATA 07070700
10426 0 01 04071 BRU SKIP=1
10427 0 01 04143 BRU NSVFLB
10430 0 20*10430 SKB2 NSP* *
10431 2 52 32665 SKB MEMBRY=11161,2
10432 77700070 DATA 77700070
10433 77700070 DATA 77700070
10434 40000000 DATA 40000000
10435 40000000 DATA 40000000
10436 66611161 DATA 66611161
10437 66611161 DATA 66611161
10440 40000000 DATA 40000000
10441 40000000 DATA 40000000
10442 0 01 04077 BRU NSSKIP=1
10443 0 01 04143 BRU NSVFLB

```

```

C21.B21 C22.B22 C23.B23 TIME
1 0 1 0 1 0 T0, T2, T4
0 1 0 1 0 1 T1, T3, T5
0 0 0 0 0 0 T6, T7

```

INDEXING

```

C23.B23
1 1 TO

```

CPU1 TAP=3.0 PAGE 116

```

10444 0 20*10444 SKB3 NSP* *
10445 0 52*04134 SKB* TESTM
10446 66611161 DATA 66611161
10447 66611161 DATA 66611161
10450 20000000 DATA 20000000
10451 20000000 DATA 20000000
10452 00077707 DATA 00077707
10453 00077707 DATA 00077707
10454 20000000 DATA 20000000
10455 20000000 DATA 20000000
10456 0 01 04077 BRU NSSKIP=1
10457 0 01 04143 BRU NSVFLB
10460 0 20*10460 SKB4 NSP* *
10461 0 52 04046 SKB MEMBRY
10462 00077707 DATA 00077707
10463 00077707 DATA 00077707
10464 10000000 DATA 10000000
10465 10000000 DATA 10000000
10466 44433343 DATA 44433343
10467 44433343 DATA 44433343
10470 10000000 DATA 10000000
10471 10000000 DATA 10000000
10472 1 01 04077 BRU NSSKIP=1,1
10473 0 01 04154 BRU SVFLB

```

IA

```

C22.B22
1 1 TO

```

```

C21.B21
1 1 TO

```

```

SET OVERFLOW
OVERFLOW

```

CPU1 TAP=3.0 PAGE 117

```

10474 0 20*10474 SKB5 NOP* *
10475 4 52 04046 SKB MEMORY,4
10476 44433343 DATA 44433343
10477 44433343 DATA 44433343
10500 70707000 DATA 70707000
10501 70707000 DATA 70707000
10502 77700070 DATA 77700070
10503 77700070 DATA 77700070
10504 07070700 DATA 07070700
10505 07070700 DATA 07070700
10506 4 01 04071 BRU SKIP=1,4
10507 0 01 04143 BRU NOVFL0
10510 0 20*10510 SKB6 NOP* *
10511 6 52 32665 SKB MEMORY=11161,6
10512 77700070 DATA 77700070
10513 77700070 DATA 77700070
10514 40000000 DATA 40000000
10515 40000000 DATA 40000000
10516 66611161 DATA 66611161
10517 66611161 DATA 66611161
10520 40000000 DATA 40000000
10521 40000000 DATA 40000000
10522 4 01 04077 BRU NOSKIP=1,4
10523 0 01 04143 BRU NOVFL0

```

```

C21,B21 C22,B22 C23,B23 TIME
1 0 1 0 1 0 T0, T2, T4
0 1 0 1 0 1 T1, T3, T5
0 0 0 0 0 0 T6, T7

```

INDEXING

```

C23,B23
1 1 TO

```

CPU1 TAP=3.0 PAGE 118

```

10524 0 20*10524 SKA1 NOP* *
10525 0 72 04246 SKA MEMORY
10526 70707000 DATA 70707000
10527 70707000 DATA 70707000
10530 66611161 DATA 66611161
10531 66611161 DATA 66611161
10532 33344434 DATA 33344434
10533 33344434 DATA 33344434
10534 07070700 DATA 07070700
10535 07070700 DATA 07070700
10536 1 01 04071 BRU SKIP=1,1
10537 0 01 04154 BRU 0VFL0
10540 0 20*10540 SKA2 NOP* *
10541 0 72*04134 SKA TESTM
10542 40000000 DATA 40000000
10543 40000000 DATA 40000000
10544 77700070 DATA 77700070
10545 77700070 DATA 77700070
10546 66611161 DATA 66611161
10547 66611161 DATA 66611161
10550 40000000 DATA 40000000
10551 40000000 DATA 40000000
10552 0 01 04077 BRU NOSKIP=1
10553 0 01 04143 BRU NOVFL0

```

```

C21,A21 C22,A22 C23,A23 TIME
1 0 1 0 1 0 T0, T2, T4
0 1 0 1 0 1 T1, T3, T5
0 0 0 0 0 0 T6, T7

```

SET OVERFLOW OVERFLOW

```

IA
C23,A23
1 1 TO

```

CPU1 TAP=3.0 PAGE 119

10554	C	20*10554	SKA3	\BP*	*				
10555	2	72 26321		SKA	MEMBRY=15525,2	INDEXING			
10556		20000000		DATA	20000000	C22,A22			
10557		20000000		DATA	20000000	1 1		TO	
10560		33344434		DATA	33344434				
10561		33344434		DATA	33344434				
10562		22255525		DATA	22255525				
10563		22255525		DATA	22255525				
10564		20000000		DATA	20000000				
10565		20000000		DATA	20000000				
10566	C	01 04077		BRU	\BSKIP=1				
10567	C	01 04143		BRU	\BVFLB				
10570	C	20*10570	SKA4	\BP*	*				
10571	2	72 04046		SKA	MEMBRY				
10572		10000000		DATA	10000000	C23,A23			
10573		10000000		DATA	10000000	1 1		TO	
10574		00077707		DATA	00077707				
10575		00077707		DATA	00077707				
10576		11166616		DATA	11166616				
10577		11166616		DATA	11166616				
10600		10000000		DATA	10000000				
10601		10000000		DATA	10000000				
10602	C	01 04077		BRU	\BSKIP=1				
10603	C	01 04143		BRU	\BVFLB				

CPU1 TAP=3.0 PAGE 120

10604	C	20*10604	SKA5	\BP*	*				
10605	4	72 04046		SKA	MEMBRY,4				
10606		70707000		DATA	70707000	C21,A21	C22,A22	C23,A23	TIME
10607		70707000		DATA	70707000	1 0	1 0	1 0	T0, T2, T4
10610		66611161		DATA	66611161	0 1	0 1	0 1	T1, T3, T5
10611		66611161		DATA	66611161	0 0	0 0	0 0	T6, T7
10612		33344434		DATA	33344434				
10613		33344434		DATA	33344434				
10614		07070700		DATA	07070700				
10615		07070700		DATA	07070700				
10616	5	01 04071		BRU	SKIP=1,5				
10617	0	01 04154		BRU	BVFLB	OVERFLOW			
10620	0	20*10620	SKA6	\BP*	*				
10621	4	72*04134		SKA	TESTM,4				
10622		40000000		DATA	40000000	C23,A23			
10623		40000000		DATA	40000000	1 1			TO
10624		77700070		DATA	77700070				
10625		77700070		DATA	77700070				
10626		66611161		DATA	66611161				
10627		66611161		DATA	66611161				
10630		40000000		DATA	40000000				
10631		40000000		DATA	40000000				
10632	4	01 04077		BRU	\BSKIP=1,4				
10633	C	01 04143		BRU	\BVFLB				

CPU1 TAP=3.0 PAGE 121

10634	0	20*10634	SKG1	NBP*	*	
10635	*	73 04046		SKG	MEMORY,*	
10636		31553047		DATA	31553047	ADD1 XZ1 YZ1
10637		31553047		DATA	31553047	0 0 0
10640		77700070		DATA	77700070	
10641		77700070		DATA	77700070	
10642		66611161		DATA	66611161	
10643		66611161		DATA	66611161	
10644		34072615		DATA	34072615	
10645		34072615		DATA	34072615	
10646	*	01 04077		BRU	NBSKIP=1,*	
10647	0	01 04143		BRU	NBVFL0	
10650	0	20*10650	SKG2	NBP*	*	
10651	*	73*04134		SKG*	TESTM,*	IA
10652		15530473		DATA	15530473	ADD1 XZ1 YZ1
10653		15530473		DATA	15530473	0 0 1
10654		00077707		DATA	00077707	
10655		00077707		DATA	00077707	
10656		11166616		DATA	11166616	
10657		11166616		DATA	11166616	
10660		40726153		DATA	40726153	
10661		40726153		DATA	40726153	
10662	*	01 04071		BRU	SKIP=1,*	
10663	0	01 04143		BRU	NBVFL0	

CPU1 TAP=3.0 PAGE 122

10664	0	20*10664	SKG3	NBP*	*	
10665	0	73 04046		SKG	MEMORY	
10666		55304731		DATA	55304731	ADD1 XZ1 YZ1
10667		55304731		DATA	55304731	0 1 0
10670		66611161		DATA	66611161	
10671		66611161		DATA	66611161	
10672		55522252		DATA	55522252	
10673		55522252		DATA	55522252	
10674		07261534		DATA	07261534	
10675		07261534		DATA	07261534	
10676	1	01 04077		BRU	NBSKIP=1,1	SET OVERFLOW
10677	0	01 04154		BRU	0VFL0	OVERFLOW
10700	0	20*10700	SKG4	NBP*	*	
10701	0	73 04046		SKG	MEMORY	
10702		53047315		DATA	53047315	ADD1 XZ1 YZ1
10703		53047315		DATA	53047315	0 1 1
10704		11166616		DATA	11166616	
10705		11166616		DATA	11166616	
10706		22255525		DATA	22255525	
10707		22255525		DATA	22255525	
10710		72615340		DATA	72615340	
10711		72615340		DATA	72615340	
10712	0	01 04077		BRU	NBSKIP=1	
10713	0	01 04143		BRU	NBVFL0	

CPU1 TAP=3.0 PAGE 123

10714	C	20	10714	SKG5	NBP*	*	
10715	C	73	04046		SKG	MEMORY	
10716			30473155		DATA	30473155	ADD1 XZ1 YZ1
10717			30473155		DATA	30473155	1 0 0
10720			55522252		DATA	55522252	
10721			55522252		DATA	55522252	
10722			44433343		DATA	44433343	
10723			44433343		DATA	44433343	
10724			26153407		DATA	26153407	
10725			26153407		DATA	26153407	
10726	1	01	04071		BRU	SKIP=1,1	SET OVERFLOW
10727	0	01	04154		BRU	NOVFL0	OVERFLOW
10730	C	20	10730	SKG6	NBP*	*	
10731	2	73	37412		SKG	MEMORY=4434,2	INDEXING
10732			04731553		DATA	04731553	ADD1 XZ1 YZ1
10733			04731553		DATA	04731553	1 0 1
10734			22255525		DATA	22255525	
10735			22255525		DATA	22255525	
10736			33344434		DATA	33344434	
10737			33344434		DATA	33344434	
10740			61534072		DATA	61534072	
10741			61534072		DATA	61534072	
10742	0	01	04071		BRU	SKIP=1	
10743	0	01	04143		BRU	NOVFL0	

CPU1 TAP=3.0 PAGE 124

10744	C	20	10744	SKG7	NBP*	*	
10745	C	73	04046		SKG	MEMORY	
10746			47315530		DATA	47315530	ADD1 XZ1 YZ1
10747			47315530		DATA	47315530	1 1 0
10750			44433343		DATA	44433343	
10751			44433343		DATA	44433343	
10752			33344434		DATA	33344434	
10753			33344434		DATA	33344434	
10754			15340726		DATA	15340726	
10755			15340726		DATA	15340726	
10756	0	01	04077		BRU	NOSKIP=1	
10757	0	01	04143		BRU	NOVFL0	
10760	C	20	10760	SKG8	NBP*	*	
10761	0	73	04046		SKG	MEMORY	
10762			73155304		DATA	73155304	ADD1 XZ1 YZ1
10763			73155304		DATA	73155304	1 1 1
10764			33344434		DATA	33344434	
10765			33344434		DATA	33344434	
10766			44433343		DATA	44433343	
10767			44433343		DATA	44433343	
10770			53407260		DATA	53407260	
10771			53407260		DATA	53407260	
10772	0	01	04071		BRU	SKIP=1	
10773	0	01	04143		BRU	NOVFL0	



CPU1 TAP=3.0 PAGE 125

10774	0 20*10774	BRX1	NBP*	*
10775	0 41 04046		BRX	MEMORY
10776	70707070		DATA	70707070
10777	70707070		DATA	70707070
11000	77007700		DATA	77007700
11001	77007700		DATA	77007700
11002	77777777		DATA	=1
11003	00000000		DATA	0
11004	0 01 04104		BRU	NBSKIP=4
11005	0 01 04104		BRU	NBSKIP=4
11006	1 01 04077		BRU	NBSKIP=1,1
11007	0 01 04154		BRU	OVFL0
11010	0 20*11010	BRX2	NBP*	*
11011	0 41 04046		BRX	MEMORY
11012	70707070		DATA	70707070
11013	70707070		DATA	70707070
11014	77007700		DATA	77007700
11015	77007700		DATA	77007700
11016	00040000		DATA	40000
11017	00040001		DATA	40001
11020	0 20 00000		NBP	
11021	0 20 00000		NBP	
11022	0 01 04071		BRU	SKIP=1
11023	0 01 04143		BRU	NOVFL0

CPU1 TAP=3.0 PAGE 126

11024	0 20*11024	BRX3	NBP*	*
11025	0 41 04046		BRX	MEMORY
11026	70707070		DATA	70707070
11027	70707070		DATA	70707070
11030	77007700		DATA	77007700
11031	77007700		DATA	77007700
11032	77777777		DATA	=1
11033	00000000		DATA	0
11034	0 01 04104		BRU	NBSKIP=4
11035	0 01 04104		BRU	NBSKIP=4
11036	4 01 04077		BRU	NBSKIP=1,4
11037	0 01 04143		BRU	NOVFL0
11040	0 20*11040	BRX4	NBP*	*
11041	0 41*04046		BRX*	MEMORY
11042	77007700		DATA	77007700
11043	77007700		DATA	77007700
11044	70707070		DATA	70707070
11045	70707070		DATA	70707070
11046	00040000		DATA	40000
11047	00040001		DATA	40001
11050	0 20 04106		NBP	NOERR
11051	0 20 04106		NBP	NOERR
11052	5 01 04071		BRU	SKIP=1,5
11053	0 01 04154		BRU	OVFL0
11054	0 20*11054	BRX5	NBP*	*
11055	4 41 04046		BRX	MEMORY,4
11056	25252525		DATA	25252525
11057	25252525		DATA	25252525
11060	52525252		DATA	52525252
11061	52525252		DATA	52525252
11062	77777777		DATA	=1
11063	00000000		DATA	0
11064	0 01 04104		BRU	NBSKIP=4
11065	0 01 04104		BRU	NBSKIP=4
11066	1 01 04077		BRU	NBSKIP=1,1
11067	0 01 04154		BRU	OVFL0

CPU1	TAP=3.0		PAGE 127
11070	0 20*11070	BRX6	NBP*
11071	6 *1 04103		BRX
11072	52525252		DATA
11073	52525252		DATA
11074	25252525		DATA
11075	25252525		DATA
11076	00040000		DATA
11077	00040001		DATA
11100	77700777		DATA
11101	77700777		DATA
11102	0 01 04071		BRU
11103	0 01 04143		BRU

CPU1	TAP=3.0		PAGE 128
11104	0 20*11104	SKM1	NBP*
11105	0 70 04046		SKM
11106	00000000		DATA
11107	00000000		DATA
11110	40000000		DATA
11111	40000000		DATA
11112	00077707		DATA
11113	00077707		DATA
11114	40000000		DATA
11115	40000000		DATA
11116	0 01 04077		BRU
11117	0 01 04143		BRU
11120	0 20*11120	SKM2	NBP*
11121	0 70 04046		SKM
11122	00000000		DATA
11123	00000000		DATA
11124	20000000		DATA
11125	20000000		DATA
11126	77700070		DATA
11127	77700070		DATA
11130	20000000		DATA
11131	20000000		DATA
11132	0 01 04077		BRU
11133	0 01 04143		BRU

  

A21	B21	C21	TIME
0	1	1	TO

  

A22	B22	C22	TIME
0	1	1	TO

```

CPU1  TAP=3.0                PAGE 129
11134 0 20*11134 SKM3  NOP*  *
11135 2 70 32665      SKM  MEMORY=11161,2
11136 00000000      DATA 0
11137 00000000      DATA 0
11140 10000000      DATA 10000000
11141 10000000      DATA 10000000
11142 66611161      DATA 66611161
11143 66611161      DATA 66611161
11144 10000000      DATA 10000000
11145 10000000      DATA 10000000
11146 0 01 04077      BRU  N$SKIP=1
11147 0 01 04143      BRU  N$VFL$
11150 0 20*11150 SKM4  NOP*  *
11151 0 70*04134      SKM  TESTM
11152 40000000      DATA 40000000
11153 40000000      DATA 40000000
11154 40000000      DATA 40000000
11155 40000000      DATA 40000000
11156 11166616      DATA 11166616
11157 11166616      DATA 11166616
11160 00000000      DATA 0
11161 00000000      DATA 0
11162 1 01 04077      BRU  N$SKIP=1,1
11163 0 01 04154      BRU  $VFL$

```

INDEXING  
A23 B23 C23  
0 1 1  
TIME  
TO

IA  
A21 B21 C21  
1 1 0  
TIME  
TO

SET OVERFLOW  
\$VERFLOW

```

CPU1  TAP=3.0                PAGE 130
11164 0 20*11164 SKM5  NOP*  *
11165 0 70 04046      SKM  MEMORY
11166 20000000      DATA 20000000
11167 20000000      DATA 20000000
11170 20000000      DATA 20000000
11171 20000000      DATA 20000000
11172 55522252      DATA 55522252
11173 55522252      DATA 55522252
11174 00000000      DATA 0
11175 00000000      DATA 0
11176 0 01 04077      BRU  N$SKIP=1
11177 0 01 04143      BRU  N$VFL$
11200 0 20*11200 SKM6  NOP*  *
11201 0 70 04046      SKM  MEMORY
11202 10000000      DATA 10000000
11203 10000000      DATA 10000000
11204 10000000      DATA 10000000
11205 10000000      DATA 10000000
11206 22255525      DATA 22255525
11207 22255525      DATA 22255525
11210 00000000      DATA 0
11211 00000000      DATA 0
11212 0 01 04077      BRU  N$SKIP=1
11213 0 01 04143      BRU  N$VFL$

```

A22 B22 C22  
1 1 0  
TIME  
TO

A23 B23 C23  
1 1 0  
TIME  
TO

CPU1 TAP=3.0 PAGE 131

				A(21=23)	B(21=23)	C(21=23)	TIME
11214	0 20*11214	SK-7	NBP*	*			
11215	0 70 04046		SKM	MEMORY			
11216	70770070		DATA	70770070			T0
11217	70770070		DATA	70770070			T1
11220	77000000		DATA	77000000			T2
11221	77000000		DATA	77000000			T3
11222	44433343		DATA	44433343			T4
11223	44433343		DATA	44433343			T5
11224	70707007		DATA	70707007			T6
11225	70707007		DATA	70707007			T7
11226	0 01 04*71		BRU	SKIP=1			
11227	0 01 04*43		BRU	NOVFL0			
11230	0 20*11230	EXJ1	NBP*	*			
11231	0 23 04046		EXU	MEMORY			
11232	52522651		DATA	52522651			
11233	67353777		DATA	67353777			
11234	25253413		DATA	25253413			
11235	56733775		DATA	56733775			
11236	46311364		DATA	46311364			
11237	77773653		DATA	77773653			
11240	0 46 00674		RCH	674	XXA,XXB,XAB		
11241	0 46 00674		RCH	674	XXA,XXB,XAB		
11242	0 01 04*77		BRU	NOSKIP=1			
11243	0 01 04*43		BRU	NOVFL0			

CPU1 TAP=3.0 PAGE 132

11244	0 20*11244	EXJ2	NBP*	*			
11245	4 23 04046		EXU	MEMORY,4			
11246	25231546		DATA	25231546			
11247	25231737		DATA	25231737			
11250	65213421		DATA	65213421			
11251	65213556		DATA	65213556			
11252	12112114		DATA	12112114			
11253	77777567		DATA	77777567			
11254	0 46 01774		RCH	1774	XXA,XXB,XAB,CNA=EXPONENT ONLY		
11255	0 46 01774		RCH	1774	XXA,XXB,XAB,CNA=EXPONENT ONLY		
11256	5 01 04077		BRU	NOSKIP=1,5	SET OVERFLOW		
11257	0 01 04154		BRU	OVFL0	OVERFLOW		
11260	0 20*11260	EXJ3	NBP*	*			
11261	0 23 04046		EXU	MEMORY	SAME AS SK47		
11262	70770070		DATA	70770070			
11263	70770070		DATA	70770070			
11264	77000000		DATA	77000000			
11265	77000000		DATA	77000000			
11266	70707007		DATA	70707007			
11267	70707007		DATA	70707007			
11270	0 70 11266		SKM	**2			
11271	0 70 11266		SKM	**3			
11272	1 01 04071		BRU	SKIP=1,1	SET OVERFLOW		
11273	0 01 04154		BRU	OVFL0	OVERFLOW		

CPU1	TAP=3.0			PAGE 133	
11274	0 20*11274	EXU4	NOP*	*	
11275	0 23*04134		EXU*	TESTM	1A * SAME AS SKN2
11276	33344434		DATA	33344434	
11277	33344434		DATA	33344434	
11300	66611161		DATA	66611161	
11301	66611161		DATA	66611161	
11302	07070707		DATA	07070707	
11303	07070707		DATA	07070707	
11304	0 53 11302		SKN	**2	
11305	0 53 11302		SKN	**3	
11306	0 01 04077		BRU	NBSKIP=1	
11307	0 01 04143		BRU	NBVFL0	
11310	0 20*11310	STA1	NOP*	*	
11311	0 35 04046		STA	MEMORY	
11312	77700070		DATA	77700070	
11313	77700070		DATA	77700070	
11314	66611161		DATA	66611161	
11315	66611161		DATA	66611161	
11316	11166616		DATA	11166616	
11317	11166616		DATA	11166616	
11320	00077707		DATA	00077707	
11321	77700070		DATA	77700070	
11322	1 01 04077		BRU	NBSKIP=1,1	SET OVERFLOW
11323	0 01 04154		BRU	NBVFL0	OVERFLOW

CPU1	TAP=3.0			PAGE 134	
11324	0 20*11324	STA2	NOP*	*	
11325	4 35*04134		STA*	TESTM,4	1A
11326	00077707		DATA	00077707	
11327	00077707		DATA	00077707	
11330	11166616		DATA	11166616	
11331	11166616		DATA	11166616	
11332	66611161		DATA	66611161	
11333	66611161		DATA	66611161	
11334	77700070		DATA	77700070	
11335	00077707		DATA	00077707	
11336	4 01 04077		BRU	NBSKIP=1,4	
11337	0 01 04143		BRU	NBVFL0	
11340	0 20*11340	XMA1	NOP*	*	
11341	0 62 04046		XMA	MEMORY	
11342	55522252		DATA	55522252	
11343	22255525		DATA	22255525	
11344	44433343		DATA	44433343	
11345	44433343		DATA	44433343	
11346	33344434		DATA	33344434	
11347	33344434		DATA	33344434	
11350	22255525		DATA	22255525	
11351	55522252		DATA	55522252	
11352	0 01 04077		BRU	NBSKIP=1	
11353	0 01 04143		BRU	NBVFL0	

CPU1 TAP=3.0 PAGE 135

11354	0	20*11354	XMA2	NBP*	*		
11355	4	62*04134		XMA*	TESTM,4	IA	
11356		22255525		DATA	22255525		
11357		55522252		DATA	55522252		
11360		33344434		DATA	33344434		
11361		33344434		DATA	33344434		
11362		44433343		DATA	44433343		
11363		44433343		DATA	44433343		
11364		55522252		DATA	55522252		
11365		22255525		DATA	22255525		
11366	5	01 04077		BRU	NBSKIP=1,5	SET OVERFLOW	
11367	0	01 04154		BRU	OVFL0	OVERFLOW	
11370	0	20*11370	MIN1	NBP*	*		
11371	0	61 04046		MIN	MEMORY		
11372		77700070		DATA	77700070		
11373		77700070		DATA	77700070		
11374		66611161		DATA	66611161		
11375		66611161		DATA	66611161		
11376		55522252		DATA	55522252		
11377		55522252		DATA	55522252		
11400		37777777		DATA	37777777	YZ1 ADD1	
11401		40000000		DATA	40000000	0 1	
11402	0	01 04077		BRU	NBSKIP=1		
11403	0	01 04154		BRU	OVFL0	OVERFLOW	

CPU1 TAP=3.0 PAGE 136

11404	0	20*11404	MIN2	NBP*	*		
11405	0	61*04134		MIN*	TESTM	IA	
11406		00077707		DATA	00077707		
11407		00077707		DATA	00077707		
11410		11166616		DATA	11166616		
11411		11166616		DATA	11166616		
11412		22255525		DATA	22255525		
11413		22255525		DATA	22255525		
11414		77777777		DATA	77777777	YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK	
11415		00000000		DATA	0	1 0	
11416	0	01 04077		BRU	NBSKIP=1		
11417	0	01 04143		BRU	OVFL0		
11420	0	20*11420	MIN3	NBP*	*		
11421	6	61 03756		MIN	MEMORY=70,6	INDEXING	
11422		66611161		DATA	66611161		
11423		66611161		DATA	66611161		
11424		11166616		DATA	11166616		
11425		11166616		DATA	11166616		
11426		77700070		DATA	77700070		
11427		77700070		DATA	77700070		
11430		00000000		DATA	00000000	YZ1 ADD1	
11431		00000001		DATA	00000001	0 0	
11432	5	01 04077		BRU	NBSKIP=1,5	SET OVERFLOW	
11433	0	01 04154		BRU	OVFL0	OVERFLOW	

CPU1 TAP=3.0 PAGE 137

11434	0	20*11434	MIN4	NOP*	*	
11435	4	61 04046		MIN	MEMORY,4	
11436		11166616		DATA	11166616	
11437		11166616		DATA	11166616	
11440		66611161		DATA	66611161	
11441		66611161		DATA	66611161	
11442		00077707		DATA	00077707	
11443		00077707		DATA	00077707	
11444		77777776		DATA	77777776	YZ1 ADD1
11445		77777777		DATA	77777777	1 1
11446	4	01 04077		BRU	NOSKIP=1,4	
11447	0	01 04143		BRU	NOVFL0	
11450	0	20*11450	SKR1	NOP*	*	
11451	0	60 04046		SKR	MEMORY	
11452		77700070		DATA	77700070	
11453		77700070		DATA	77700070	
11454		66611161		DATA	66611161	
11455		66611161		DATA	66611161	
11456		55522252		DATA	55522252	
11457		55522252		DATA	55522252	
11460		00000000		DATA	0	YZ1 ADD1
11461		77777777		DATA	77777777	0 1
11462	0	01 04077		BRU	SKIP=1	
11463	0	01 04143		BRU	NOVFL0	

CPU1 TAP=3.0 PAGE 138

11464	0	20*11464	SKR2	NOP*	*	
11465	0	60*04134		SKR	TESTM	IA
11466		00077707		DATA	00077707	
11467		00077707		DATA	00077707	
11470		11166616		DATA	11166616	
11471		11166616		DATA	11166616	
11472		22255525		DATA	22255525	
11473		22255525		DATA	22255525	
11474		00000001		DATA	1	YZ1 ADD1
11475		00000000		DATA	0	0 0
11476	1	01 04077		BRU	NOSKIP=1,1	SET OVERFLOW
11477	0	01 04154		BRU	OVFL0	OVERFLOW
11500	0	20*11500	SKR3	NOP*	*	
11501	6	60 32465		SKR	MEMORY=11161,6	INDEXING
11502		44433343		DATA	44433343	
11503		44433343		DATA	44433343	
11504		55522252		DATA	55522252	
11505		55522252		DATA	55522252	
11506		66611161		DATA	66611161	
11507		66611161		DATA	66611161	
11510		40000000		DATA	40000000	YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK
11511		37777777		DATA	37777777	1 0
11512	4	01 04077		BRU	NOSKIP=1,4	
11513	0	01 04154		BRU	OVFL0	

CPU1 TAP=3.0 PAGE 139

11514	C 20*11514	SKR4	NBP*	*
11515	4 60 04046		SKR	MEMBRY,4
11516	33344434		DATA	33344434
11517	33344434		DATA	33344434
11520	22255525		DATA	22255525
11521	22255525		DATA	22255525
11522	11166616		DATA	11166616
11523	11166616		DATA	11166616
11524	77777777		DATA	77777777
11525	77777776		DATA	77777776
11526	4 01 04071		BRU	SKIP=1,4
11527	0 01 04143		BRU	NBVFLO
11530	C 20*11530	ADM1	NBP*	*
11531	0 63 04046		ADM	MEMBRY
11532	07060504		DATA	07060504
11533	07060504		DATA	07060504
11534	77700070		DATA	77700070
11535	77700070		DATA	77700070
11536	66611161		DATA	66611161
11537	66611161		DATA	66611161
11540	01020304		DATA	01020304
11541	10101010		DATA	10101010
11542	0 01 04077		BRU	NBSKIP=1
11543	0 01 04143		BRU	NBVFLO

YZ1 ADD1  
1 1

ALTERNATELY TURN KZ ON AND OFF EACH CLOCK

XZ1 YZ1 ADD1  
0 0 0

CPU1 TAP=3.0 PAGE 140

11544	0 20*11544	ADM2	NBP*	*
11545	0 63 04134		ADM*	TEST*
11546	32104675		DATA	32104675
11547	32104675		DATA	32104675
11550	00077707		DATA	00077707
11551	00077707		DATA	00077707
11552	11166616		DATA	11166616
11553	11166616		DATA	11166616
11554	05673103		DATA	05673103
11555	40000000		DATA	40000000
11556	0 01 04077		BRU	NBSKIP=1
11557	0 01 04154		BRU	NBVFLO
11560	0 20*11560	ADM3	NBP*	*
11561	2 63 10503		ADM*	MEMBRY=33343,2
11562	00000001		DATA	1
11563	00000001		DATA	1
11564	55522252		DATA	55522252
11565	55522252		DATA	55522252
11566	44433343		DATA	44433343
11567	44433343		DATA	44433343
11570	77777777		DATA	77777777
11571	00000000		DATA	0
11572	0 01 04077		BRU	NBSKIP=1
11573	0 01 04143		BRU	NBVFLO

IA

XZ1 YZ1 ADD1  
0 0 1

OVERFLOW

INDEXING

XZ1 YZ1 ADD1  
0 1 0



CPU1 TAP=3.0 PAGE 141

```
11574 0 20*11574 ADM4 NOP* *
11575 0 63 04046 ADM MEMORY
11576 0 1234567 DATA 01234567
11577 0 1234567 DATA 01234567
11600 22255525 DATA 22255525
11601 22255525 DATA 22255525
11602 33344434 DATA 33344434
11603 33344434 DATA 33344434
11604 67777777 DATA 67777777
11605 71234566 DATA 71234566
11606 0 01 04077 BRU NBSKIP=1
11607 0 01 04143 BRU NBSKIP=1
11610 0 20*11610 ADM5 NOP* *
11611 4 63 04046 ADM MEMORY,4
11612 76543210 DATA 76543210
11613 76543210 DATA 76543210
11614 77777770 DATA 77777770
11615 77777770 DATA 77777770
11616 00000007 DATA 7
11617 00000007 DATA 7
11620 01234570 DATA 01234570
11621 00000000 DATA 0
11622 5 01 04077 BRU NBSKIP=1,5
11623 0 01 04154 BRU NBSKIP=1,5
```

GENERATE A CARRY (KZ) EACH CLOCK

XZ1 YZ1 ADD1  
0 1 1

XZ1 YZ1 ADD1  
1 0 0

SET OVERFLOW  
OVERFLOW

CPU1 TAP=3.0 PAGE 142

```
11624 0 20*11624 ADM6 NOP* *
11625 4 63 04046 ADM MEMORY,4
11626 45670123 DATA 45670123
11627 45670123 DATA 45670123
11630 00000007 DATA 7
11631 00000007 DATA 7
11632 77777770 DATA 77777770
11633 77777770 DATA 77777770
11634 32107654 DATA 32107654
11635 77777777 DATA 77777777
11636 4 01 04077 BRU NBSKIP=1,4
11637 0 01 04143 BRU NBSKIP=1,4
11640 0 20*11640 ADM7 NOP* *
11641 4 63 04046 ADM MEMORY,4
11642 77777777 DATA 77777777
11643 77777777 DATA 77777777
11644 07777777 DATA 07777777
11645 07777777 DATA 07777777
11646 70000000 DATA 70000000
11647 70000000 DATA 70000000
11650 40000000 DATA 40000000
11651 37777777 DATA 37777777
11652 4 01 04077 BRU NBSKIP=1,4
11653 0 01 04154 BRU NBSKIP=1,4
```

NO CARRYS (KZ OFF EVERY CLOCK)

XZ1 YZ1 ADD1  
1 0 1

XZ1 YZ1 ADD1  
1 1 0

OVERFLOW

```

CPU1  TAP=3.C  PAGE 143
11654 0 20*11454  ADM*  NBP*  *
11655 * 63 04046  ADM*  MEMBRY,4
11656 40000001  DATA  40000001  CARRY (KZ) EVERY CLOCK
11657 40000001  DATA  40000001
11660 70000000  DATA  70000000
11661 70000000  DATA  70000000
11662 07777777  DATA  07777777
11663 07777777  DATA  07777777
11664 77777777  DATA  77777777
11665 40000000  DATA  40000000  XZ1 YZ1 ADD1
11666 4 01 04077  BRU  NBSKIP=1,4  1 1 1
11667 0 01 04143  BRU  N0VFL0
11670 0 20*11670  BRM1  NBP*  *
11671 0 43 04046  BRM  MEMBRY
11672 77700070  DATA  77700070
11673 77700070  DATA  77700070
11674 66611161  DATA  66611161
11675 66611161  DATA  66611161
11676 55522252  DATA  55522252
11677 55522252  DATA  55522252
11700 1 00 07777  HLT  3777,1
11701 1 32 04102  XIM  NBSKIP=2,1
11702 1 01 04077  BRU  NBSKIP=1,1  SET OVERFLOW
11703 0 01 04154  BRU  0VFL0  OVERFLOW

```

```

CPU1  TAP=3.C  PAGE 144
11704 0 20*11704  BRM2  NBP*  *
11705 0 43*04134  BRM*  TESTM  IA
11706 00077707  DATA  00077707
11707 00077707  DATA  00077707
11710 11166616  DATA  11166616
11711 11166616  DATA  11166616
11712 22255525  DATA  22255525
11713 22255525  DATA  22255525
11714 1 00 07777  HLT  7777,1
11715 1 32 04074  XIM  SKIP=2,1
11716 1 01 04071  BRU  SKIP=1,1  SET OVERFLOW
11717 0 01 04154  BRU  0VFL0  OVERFLOW
11720 0 20*11720  BRM3  NBP*  *
11721 2 43 04056  BRM  MEMBRY=37770,2  INDEXING
11722 07777777  DATA  07777777
11723 07777777  DATA  07777777
11724 70000000  DATA  70000000
11725 70000000  DATA  70000000
11726 77777770  DATA  77777770
11727 77777770  DATA  77777770
11730 1 00 27777  HLT  2777,1
11731 0 32 04074  XIM  SKIP=2
11732 0 01 04071  BRU  SKIP=1
11733 0 01 04143  BRU  N0VFL0

```

CPU1	TAP=3.0			PAGE 145
11734	0 20*11734	BRM4	NOP*	*
11735	0 43 04046	BRM	MEMORY	
11736	70000000	DATA	70000000	
11737	70000000	DATA	70000000	
11740	07777777	DATA	07777777	
11741	07777777	DATA	07777777	
11742	00000007	DATA	7	
11743	00000007	DATA	7	
11744	1 00 17777	HLT	17777,1	
11745	0 32 04102	WIM	NBSKIP+2	
11746	0 01 04077	BRU	NBSKIP+1	
11747	0 01 04143	BRU	NOVFLB	
11750	0 20*11750	BRM5	NOP*	*
11751	4 43 04046	BRM	MEMORY,4	
11752	77770000	DATA	77770000	
11753	77770000	DATA	77770000	
11754	77007700	DATA	77007700	
11755	77007700	DATA	77007700	
11756	70707070	DATA	70707070	
11757	70707070	DATA	70707070	
11760	00777700	DATA	00777700	
11761	0 32 04074	WIM	SKIP+2	
11762	4 01 04071	BRU	SKIP+1,4	
11763	0 01 04143	BRU	NOVFLB	

CPU1	TAP=3.0			PAGE 146
11764	0 20*11764	BRM6	NOP*	*
11765	4 43 04046	BRM	MEMORY,4	
11766	77770000	DATA	77770000	
11767	77770000	DATA	77770000	
11770	77007700	DATA	77007700	
11771	77007700	DATA	77007700	
11772	70707070	DATA	70707070	
11773	70707070	DATA	70707070	
11774	00777700	DATA	00777700	
11775	0 32 04102	WIM	NBSKIP+2	
11776	4 01 04077	BRU	NBSKIP+1,4	
11777	0 01 04143	BRU	NOVFLB	
12000	0 20*12000	BRM7	NOP*	*
12001	4 43 04046	BRM	MEMORY,4	
12002	77770000	DATA	77770000	
12003	77770000	DATA	77770000	
12004	77007700	DATA	77007700	
12005	77007700	DATA	77007700	
12006	70707070	DATA	70707070	
12007	70707070	DATA	70707070	
12010	00777700	DATA	00777700	
12011	1 32 04074	WIM	SKIP+2,1	
12012	1 01 04071	BRU	SKIP+1,1	
12013	0 01 04143	BRU	NOVFLB	

CPU1 TAP=3.C PAGE 147

12014	0	20*12014	PBP1	NSP*	*
12015	1	00 00000		PBPS	0
12016		77700070		DATA	77700070
12017		77700070		DATA	77700070
12020		66611161		DATA	66611161
12021		66611161		DATA	66611161
12022		55522252		DATA	55522252
12023		55522252		DATA	55522252
12024	1	00 03777		-LT	3777,1
12025	1	32*04102		-IM*	NSKIP*2,1
12026	1	01 04077		BRJ	NSKIP*1,1
12027	0	01 04143		BRJ	NSVFL9
12030	0	20*12030	PBP2	NSP*	*
12031	1	00 00000		PBPS	0
12032		00077707		DATA	00077707
12033		00077707		DATA	00077707
12034		11166616		DATA	11166616
12035		11166616		DATA	11166616
12036		22255525		DATA	22255525
12037		22255525		DATA	22255525
12040	1	00 00777		-LT	777,1
12041	1	32*04074		-IM*	SKIP*2,1
12042	1	01 04071		BRJ	SKIP*1,1
12043	0	01 04143		BRJ	NSVFL9

SET OVERFLOW

SET OVERFLOW

CPU1 TAP=3.C PAGE 148

12044	0	20*12044	PBP3	NSP*	*
12045	1	00 00000		PBPS	0
12046		07777777		DATA	07777777
12047		07777777		DATA	07777777
12050		70000000		DATA	70000000
12051		70000000		DATA	70000000
12052		77777770		DATA	77777770
12053		77777770		DATA	77777770
12054	1	00 02777		-LT	2777,1
12055	0	32*04074		-IM*	SKIP*2
12056	0	01 04071		BRJ	SKIP*1
12057	0	01 04143		BRJ	NSVFL9
12060	0	20*12060	PBP4	NSP*	*
12061	1	00 00000		PBPS	0
12062		70000000		DATA	70000000
12063		70000000		DATA	70000000
12064		07777777		DATA	07777777
12065		07777777		DATA	07777777
12066		00000007		DATA	7
12067		00000007		DATA	7
12070	1	00 01777		-LT	1777,1
12071	0	32*04102		-IM*	NSKIP*2
12072	0	01 04077		BRJ	NSKIP*1
12073	0	01 04143		BRJ	NSVFL9

CPU1 TAP=3.0 PAGE 149

12074	0 20*12074	P8P5	NBP*	*	
12075	5 00 04046		P8PS	MEMBRY,4	SYSPOP
12076	77770000		DATA	77770000	
12077	77770000		DATA	77770000	
12100	77007700		DATA	77007700	
12101	77007700		DATA	77007700	
12102	70707070		DATA	70707070	
12103	70707070		DATA	70707070	
12104	00777700		DATA	00777700	
12105	5 32*04102		*IM*	NBSKIP=2,5	
12106	5 01 04077		BRU	NBSKIP=1,5	
12107	0 01 04143		BRU	NBVFL0	
12110	0 20*12110	P8P6	NBP*	*	
12111	5 00 04046		P8PS	MEMBRY,4	SYSPOP
12112	77770000		DATA	77770000	
12113	77770000		DATA	77770000	
12114	77007700		DATA	77007700	
12115	77007700		DATA	77007700	
12116	70707070		DATA	70707070	
12117	70707070		DATA	70707070	
12120	00777700		DATA	00777700	
12121	4 32*04102		*IM*	NBSKIP=2,4	
12122	4 01 04077		BRU	NBSKIP=1,4	
12123	0 01 04143		BRU	NBVFL0	

CPU1 TAP=3.0 PAGE 150

12124	0 20*12124	P8P7	NBP*	*	
12125	1 00 04046		P8PS	MEMBRY	
12126	77770000		DATA	77770000	
12127	77770000		DATA	77770000	
12130	77007700		DATA	77007700	
12131	77007700		DATA	77007700	
12132	70707070		DATA	70707070	
12133	70707070		DATA	70707070	
12134	00777700		DATA	00777700	
12135	00777700		DATA	00777700	
12136	5 01 04071		BRU	SKIP=1,5	
12137	0 01 04143		BRU	NBVFL0	
12140	0 20*12140	P8P8	NBP*	*	
12141	1 00 00000		P8PS		
12142	77770000		DATA	77770000	
12143	77770000		DATA	77770000	
12144	77007700		DATA	77007700	
12145	77007700		DATA	77007700	
12146	70707070		DATA	70707070	
12147	70707070		DATA	70707070	
12150	00777700		DATA	00777700	
12151	00777700		DATA	00777700	
12152	4 01 04077		BRU	NBSKIP=1,4	
12153	0 01 04143		BRU	NBVFL0	

CPU1 TAP=3.C PAGE 151

12154	0 20*12154	FAX1	NBP*	*	
12155	0 77 00000		EAX	0	
12156	77700070		DATA	77700070	
12157	77700070		DATA	77700070	
12160	66611161		DATA	66611161	
12161	66611161		DATA	66611161	
12162	77777777		DATA	77777777	
12163	37740000		DATA	37740000	
12164	00000000		DATA	0	
12165	00000000		DATA	0	
12166	0 01 04077		BRU	NBSKIP=1	
12167	0 01 04143		BRU	NBVFL0	
12170	0 20*12170	FAX2	NBP*	*	
12171	2 77 00001		EAX	1,2	INDEXING
12172	00077707		DATA	00077707	
12173	00077707		DATA	00077707	
12174	11166616		DATA	11166616	
12175	11166616		DATA	11166616	
12176	77777777		DATA	77777777	
12177	37740000		DATA	37740000	
12200	00000000		DATA	0	
12201	00000000		DATA	0	
12202	1 01 04077		BRU	NBSKIP=1,1	SET OVERFLOW
12203	0 01 04154		BRU	NBVFL0	OVERFLOW

CPU1 TAP=3.C PAGE 152

12204	0 20*12204	EAX3	NBP*	*	
12205	0 77 04046		EAX	MEMORY	
12206	66611161		DATA	66611161	
12207	66611161		DATA	66611161	
12210	55522252		DATA	55522252	
12211	55522252		DATA	55522252	
12212	77777777		DATA	77777777	
12213	37740046		DATA	37740000*MEMORY	
12214	44433343		DATA	44433343	
12215	44433343		DATA	44433343	
12216	0 01 04077		BRU	NBSKIP=1	
12217	0 01 04143		BRU	NBVFL0	
12220	0 20*12220	EAX4	NBP*	*	
12221	2 77*34134		EAX*	TESTM=10000,2	IA
12222	11166616		DATA	11166616	
12223	11166616		DATA	11166616	
12224	22255525		DATA	22255525	
12225	22255525		DATA	22255525	
12226	00010000		DATA	00010000	
12227	0 00 04046		HLT	MEMORY	
12230	33344434		DATA	33344434	
12231	33344434		DATA	33344434	
12232	0 01 04077		BRU	NBSKIP=1	
12233	0 01 04143		BRU	NBVFL0	

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CPU1  TAP=3.0                                PAGE 153

12234 0 20*12234  EAX5  NBP*  *
12235 4 77 04046  EAX  MEMORY,4  USER MODE EAX
12236 00770077  DATA 00770077
12237 00770077  DATA 00770077
12240 07070707  DATA 07070707
12241 07070707  DATA 07070707
12242 77770000  DATA 77770000
12243 77740046  DATA 77740000+MEMORY
12244 00777700  DATA 00777700
12245 00777700  DATA 00777700
12246 4 01 04077  BRU  NBSKIP=1,4
12247 0 01 04143  BRU  NBVFL0
12250 0 20*12250  EAX6  NBP*  *
12251 4 77 04046  EAX  MEMORY,4  RELABELED EAX PUTS MODE IN XREG
12252 77770000  DATA 77770000
12253 77770000  DATA 77770000
12254 77007700  DATA 77007700
12255 77007700  DATA 77007700
12256 00707070  DATA 00707070
12257 40704046  DATA 40700000+MEMORY
12260 00777700  DATA 00777700
12261 00777700  DATA 00777700
12262 0 01 04077  BRU  NBSKIP=1

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CPU1  TAP=3.0                                PAGE 154

12263 0 01 04143  BRU  NBVFL0
12264 0 20*12264  BRR1  NBP*  *
12265 4 51 04046  BRR  MEMORY,4
12266 77770000  DATA 77770000
12267 77770000  DATA 77770000
12270 77007700  DATA 77007700
12271 77007700  DATA 77007700
12272 70707070  DATA 70707070
12273 70707070  DATA 70707070
12274 5 01 04105  BRU  NBERR=1,5
12275 5 01 04105  BRU  NBERR=1,5
12276 4 01 04071  BRU  SKIP=1,4
12277 0 01 04154  BRU  NBVFL0
12300 0 20*12300  BRR2  NBP*  *
12301 4 51 04046  BRR  MEMORY,4
12302 77770000  DATA 77770000
12303 77770000  DATA 77770000
12304 77007700  DATA 77007700
12305 77007700  DATA 77007700
12306 70707070  DATA 70707070
12307 70707070  DATA 70707070
12310 0 01 04105  BRU  NBERR=1
12311 0 01 04105  BRU  NBERR=1
12312 4 01 04071  BRU  SKIP=1,4
12313 0 01 04143  BRU  NBVFL0

```

CPU1 TAP=3.C PAGE 155

12314	0 20*12314	AVT1	NSP*	*
12315	0 22 00101		BVT	
12316	07070707		DATA	07070707
12317	07070707		DATA	07070707
12320	00770077		DATA	00770077
12321	00770077		DATA	00770077
12322	00007777		DATA	00007777
12323	00007777		DATA	00007777
12324	00777700		DATA	00777700
12325	00777700		DATA	00777700
12326	4 01 04071		BRU	SKIP=1,4
12327	0 01 04143		BRU	NSVFLB
12330	0 20*12330	AVT2	NSP*	*
12331	0 22 00101		BVT	
12332	07070707		DATA	07070707
12333	07070707		DATA	07070707
12334	00770077		DATA	00770077
12335	00770077		DATA	00770077
12336	00007777		DATA	00007777
12337	00007777		DATA	00007777
12340	00777700		DATA	00777700
12341	00777700		DATA	00777700
12342	5 01 04077		BRU	NSSKIP=1,5
12343	0 01 04143		BRU	NSVFLB

CPU1 TAP=3.C PAGE 156

12344	0 20*12344	AVT3	NSP*	*
12345	0 22 00101		BVT	
12346	07070707		DATA	07070707
12347	07070707		DATA	07070707
12350	00770077		DATA	00770077
12351	00770077		DATA	00770077
12352	00007777		DATA	00007777
12353	00007777		DATA	00007777
12354	00777700		DATA	00777700
12355	00777700		DATA	00777700
12356	0 01 04071		BRU	SKIP=1
12357	0 01 04143		BRU	NSVFLB
12360	0 20*12360	AVT4	NSP*	*
12361	0 22 00101		BVT	
12362	07070707		DATA	07070707
12363	07070707		DATA	07070707
12364	00770077		DATA	00770077
12365	00770077		DATA	00770077
12366	00007777		DATA	00007777
12367	00007777		DATA	00007777
12370	00777700		DATA	00777700
12371	00777700		DATA	00777700
12372	1 01 04077		BRU	NSSKIP=1,1
12373	0 01 04143		BRU	NSVFLB



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CPU1  TAP=3.C                               PAGE 157
12374 0 20*12374  R0V1  N0P*  *
12375 0 22 00001  R0V  DATA  07070707
12376 07070707  DATA  07070707
12377 07070707  DATA  07070707
12400 00770077  DATA  00770077
12401 00770077  DATA  00770077
12402 00007777  DATA  00007777
12403 00007777  DATA  00007777
12404 00777700  DATA  00777700
12405 00777700  DATA  00777700
12406 1 01 04077  BRU  N0SKIP=1.1
12407 0 01 04143  BRU  N0VFL0
12410 0 20*12410  R0V2  N0P*  *
12411 0 22 00001  R0V  DATA  07070707
12412 07070707  DATA  07070707
12413 07070707  DATA  07070707
12414 00770077  DATA  00770077
12415 00770077  DATA  00770077
12416 00007777  DATA  00007777
12417 00007777  DATA  00007777
12420 00777700  DATA  00777700
12421 00777700  DATA  00777700
12422 5 01 04077  BRU  N0SKIP=1.5
12423 0 01 04143  BRU  N0VFL0

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CPU1  TAP=3.C                               PAGE 158
12424 0 20*12424  R0V3  N0P*  *
12425 0 02 20001  E0M  20001      930 RESET 0VERFLOW
12426 07070707  DATA  07070707
12427 07070707  DATA  07070707
12430 00770077  DATA  00770077
12431 00770077  DATA  00770077
12432 00007777  DATA  00007777
12433 00007777  DATA  00007777
12434 00777700  DATA  00777700
12435 00777700  DATA  00777700
12436 1 01 04077  BRU  N0SKIP=1.1
12437 0 01 04143  BRU  N0VFL0

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CPU1 TAP=3.C PAGE 159

12440	0 20*12440	RE01	NBP*	*	
12441	0 22 00010		RE0		
12442	77700070		DATA	77700070	
12443	77700070		DATA	77700070	
12444	66611161		DATA	66611161	
12445	66611161		DATA	66611161	
12446	55522252		DATA	55522252	x14 x15
12447	55522252		DATA	55522252	0 0
12450	00000000		DATA	0	
12451	00000000		DATA	0	
12452	0 01 04077		BRU	NBS<IP=1	
12453	0 01 04143		BRU	NBVFL9	

CPU1 TAP=3.C PAGE 160

12454	0 20*12454	RE02	NBP*	*	
12455	0 22 00010		RE0		
12456	00077707		DATA	00077707	
12457	00077707		DATA	00077707	
12460	11166616		DATA	11166616	
12461	11166616		DATA	11166616	
12462	22255525		DATA	22255525	x14 x15
12463	22255525		DATA	22255525	1 1
12464	00000000		DATA	0	
12465	00000000		DATA	0	
12466	0 01 04077		BRU	NBS<IP=1	
12467	0 01 04143		BRU	NBVFL9	
12470	0 20*12470	RE03	NBP*	*	
12471	0 22 00010		RE0		
12472	66611161		DATA	66611161	
12473	66611161		DATA	66611161	
12474	55522252		DATA	55522252	
12475	55522252		DATA	55522252	
12476	44433343		DATA	44433343	x14 x15
12477	44433343		DATA	44433343	1 0
12500	00000000		DATA	0	
12501	00000000		DATA	0	
12502	4 01 04077		BRU	NBS<IP=1,4	
12503	0 01 04143		BRU	0VFL0	0VERFL0A

CPU1 TAP=3.0 PAGE 161

12504	0	20*12504	RE04	NBP*	*
12505	0	22 00010		RE0	
12506		11166616		DATA	11166616
12507		11166616		DATA	11166616
12510		22255525		DATA	22255525
12511		22255525		DATA	22255525
12512		33344434		DATA	33344434
12513		33344434		DATA	33344434
12514		00000000		DATA	0
12515		00000000		DATA	0
12516	*	01 04077		BRU	NBSKIP=1,4
12517	0	01 04154		BRU	OVFL0
12520	0	20*12520	RE05	NBP*	*
12521	0	02 20010		EBM	20010
12522		07070707		DATA	07070707
12523		07070707		DATA	07070707
12524		00770077		DATA	00770077
12525		00770077		DATA	00770077
12526		00007777		DATA	00007777
12527		00007777		DATA	00007777
12530		00777700		DATA	00777700
12531		00777700		DATA	00777700
12532	1	01 04077		BRU	NBSKIP=1,1
12533	0	01 04154		BRU	OVFL0

X14 X15  
0 1

OVERFLOW

930 RECORD EXPONENT OVERFLOW

CPU1 TAP=3.0 PAGE 162

12534	0	20*12534	RE06	NBP*	*
12535	0	02 20010		EBM	20010
12536		07070707		DATA	07070707
12537		07070707		DATA	07070707
12540		00770077		DATA	00770077
12541		00770077		DATA	00770077
12542		00007777		DATA	00007777
12543		00007777		DATA	00007777
12544		00777700		DATA	00777700
12545		00777700		DATA	00777700
12546	0	01 04077		BRU	NBSKIP=1
12547	0	01 04154		BRU	OVFL0
12550	0	20*12550	RE07	NBP*	*
12551	0	02 20010		EBM	20010
12552		07070707		DATA	07070707
12553		07070707		DATA	07070707
12554		00770077		DATA	00770077
12555		00770077		DATA	00770077
12556		00007777		DATA	00007777
12557		00007777		DATA	00007777
12560		00777700		DATA	00777700
12561		00777700		DATA	00777700
12562	0	01 04077		BRU	NBSKIP=1
12563	0	01 04143		BRU	OVFL0

930 RECORD EXPONENT OVERFLOW

930 RECORD EXPONENT OVERFLOW

CPU1 TAP=3.0 PAGE 163

12564	0	20*12564	F0*1	NBP*	*
12565	0	02 22000		E0M	22000
12566	0	07070707		DATA	07070707
12567	0	07070707		DATA	07070707
12570	0	07700770		DATA	07700770
12571	0	07700770		DATA	07700770
12572	0	00777700		DATA	00777700
12573	0	00777700		DATA	00777700
12574	0	52525252		DATA	52525252
12575	0	52525252		DATA	52525252
12576	0	01 04077		BRU	NBSKIP=1
12577	0	01 04143		BRU	NBVFLO
12600	0	20*12600	SKD1	NBP*	*
12601	0	74 04046		SKD	MEMORY
12602	0	77700070		DATA	77700070
12603	0	77700070		DATA	77700070
12604	0	65465345		DATA	65465345
12605	0	65465345		DATA	65465345
12606	0	00077707		DATA	00077707
12607	0	33333032		DATA	33333032
12610	0	32132313		DATA	32132313
12611	0	32132313		DATA	32132313
12612	0	01 04077		BRU	NBSKIP=1
12613	0	01 04143		BRU	NBVFLO

SET 940 MODE E0M

B15 C15 X15 @FE  
0 0 0 0

SET @FE EVERY CLOCK EXCEPT T5  
RESET C0 EVERY CLOCK

CPU1 TAP=3.0 PAGE 164

12614	0	20*12614	SKD2	NBP*	*
12615	0	74*04134		SKD*	TESTM
12616	0	00077707		DATA	00077707
12617	0	00077707		DATA	00077707
12620	0	01234567		DATA	01234567
12621	0	01234567		DATA	01234567
12622	0	77700070		DATA	77700070
12623	0	77667565		DATA	77667565
12624	0	01124354		DATA	01124354
12625	0	01124354		DATA	01124354
12626	0	01 04071		BRU	SKIP=1
12627	0	01 04143		BRU	NBVFLO
12630	0	20*12630	SKD3	NBP*	*
12631	2	74 15230		SKD	MEMORY=26616,2
12632	0	66611161		DATA	66611161
12633	0	66611161		DATA	66611161
12634	0	54672120		DATA	54672120
12635	0	54672120		DATA	54672120
12636	0	11166616		DATA	11166616
12637	0	76457266		DATA	76457266
12640	0	56212632		DATA	56212632
12641	0	56212632		DATA	56212632
12642	0	01 04077		BRU	NBSKIP=1
12643	0	01 04143		BRU	NBVFLO

IA

B15 C15 X15 @FE  
1 0 0 1

RESET @FE EVERY CLOCK EXCEPT T5  
RESET C0 EVERY CLOCK

INDEXING

B15 C15 X15 @FE  
0 1 0 0

RESET @FE EVERY CLOCK  
SET C0 EVERY CLOCK EXCEPT T5

CPU1 TAP=3.C PAGE 165

12644	0 20*12644	SKD4	NBP*	*
12645	0 74 04046		SKD	MEMORY
12646	11166616		DATA	11166616
12647	11166616		DATA	11166616
12650	67622654		DATA	67622654
12651	67622654		DATA	67622654
12652	66611161		DATA	66611161
12653	75467123		DATA	75467123
12654	72133531		DATA	72133531
12655	72133531		DATA	72133531
12656	0 01 04077		BRU	NO SKIP=1
12657	0 01 04143		BRU	NOVFL0
12660	0 20*12660	SKD5	NBP*	*
12661	4 74 04046		SKD	MEMORY,4
12662	55522252		DATA	55522252
12663	55522252		DATA	55522252
12664	11232213		DATA	11232213
12665	11232213		DATA	11232213
12666	22255525		DATA	22255525
12667	33233134		DATA	33233134
12670	44465347		DATA	44465347
12671	44465347		DATA	44465347
12672	4 01 04071		BRU	SKIP=1,4
12673	0 01 04143		BRU	NOVFL0

B15 C15 X15  
1 1 0

RESET OFE AND CO AT T5  
RESET OFE AND SET CO AT T0 THRU T4  
SET OFE AND RESET CO AT T6 AND T7

B15 C15 X15  
0 0 1

SET OFE EVERY CLOCK EXCEPT T5  
SET CO EVERY CLOCK

CPU1 TAP=3.0 PAGE 166

12674	0 20*12674	SKD6	NBP*	*
12675	4 74 04046		SKD	MEMORY,4
12676	22255525		DATA	22255525
12677	22255525		DATA	22255525
12700	10234756		DATA	10234756
12701	10234756		DATA	10234756
12702	55522252		DATA	55522252
12703	46667177		DATA	46667177
12704	57124155		DATA	57124155
12705	57124155		DATA	57124155
12706	4 01 04071		BRU	SKIP=1,4
12707	0 01 04143		BRU	NOVFL0
12710	0 20*12710	SKD7	NBP*	*
12711	4 74 04046		SKD	MEMORY,4
12712	33344434		DATA	33344434
12713	33344434		DATA	33344434
12714	56657244		DATA	56657244
12715	56657244		DATA	56657244
12716	44433343		DATA	44433343
12717	33323523		DATA	33323523
12720	23333521		DATA	23333521
12721	23333521		DATA	23333521
12722	4 01 04077		BRU	NO SKIP=1,4
12723	0 01 04143		BRU	NOVFL0

B15 C15 X15  
1 0 1

RESET OFE EVERY CLOCK  
RESET CO EVERY CLOCK EXCEPT T5

B15 C15 X15  
0 1 1

SET OFE EVERY CLOCK  
RESET CO EVERY CLOCK EXCEPT T5

CPU1 TAP=3.0 PAGE 167

12724	0 20*12724	SKD8	NBP*	*
12725	4 74 04*46		SKD	MEMBRY,4
12726	44433343		DATA	44433343
12727	44433343		DATA	44433343
12730	32275612		DATA	32275612
12731	32275612		DATA	32275612
12732	33344434		DATA	33344434
12733	65457134		DATA	65457134
12734	17754746		DATA	17754746
12735	17754746		DATA	17754746
12736	4 01 04*71		BRU	SKIP=1,4
12737	0 11 04*43		BRU	NOVFLB
12740	0 20*12740	RSH1	NBP*	*
12741	0 66 00*00		RSH	0
12742	40000001		DATA	40000001
12743	40000001		DATA	40000001
12744	37777776		DATA	37777776
12745	37777776		DATA	37777776
12746	77777777		DATA	77777777
12747	77777777		DATA	77777777
12750	00000000		DATA	0
12751	00000000		DATA	0
12752	0 01 04*77		BRU	NOSKIP=1
12753	0 01 04*43		BRU	NOVFLB

B15 C15 X15  
1 1 1

RESET OFE AND SET CO T5  
RESET OFE AND CO TO THRU T4  
SET OFE AND CO T6, T7

SET SK AT T1 PHASE 1

CPU1 TAP=3.0 PAGE 168

12754	0 20*12754	RSH2	NBP*	*
12755	0 66*04*46		RSH*	MEMBRY
12756	52525252		DATA	52525252
12757	65252525		DATA	65252525
12760	61616160		DATA	61616160
12761	30707070		DATA	30707070
12762	77700070		DATA	77700070
12763	77700070		DATA	77700070
12764	00000001		DATA	1
12765	00000001		DATA	1
12766	0 01 04*77		BRU	NOSKIP=1
12767	0 01 04*43		BRU	NOVFLB
12770	0 20*12770	RSH3	NBP*	*
12771	2 66 00*65		RSH	765,2
12772	25252525		DATA	25252525
12773	05252525		DATA	05252525
12774	25252525		DATA	25252525
12775	25252525		DATA	25252525
12776	42376015		DATA	42376015
12777	42376015		DATA	42376015
13000	00000002		DATA	2
13001	00000002		DATA	2
13002	0 01 04*77		BRU	NOSKIP=1
13003	0 01 04*43		BRU	NOVFLB

IA=SD2 NEVER GOES, SET SK AT TO PHASE 3

A0 GETS SET BY A00

B0 GETS SET BY A23

INDEXING (2)-SD2 GOES AT T1, SET SK AT TO  
1ST CYCLE

BR1 TURNS B(0\*23) ON AND OFF EACH CLOCK

CPU1 TAP=3.0 PAGE 169

13004	0 20*13004	RSH4	NBP*	*
13005	0 66 00003		RSH	3
13006	40000000		DATA	40000000
13007	74000000		DATA	74000000
13010	00000000		DATA	0
13011	00000000		DATA	0
13012	00077707		DATA	00077707
13013	00077707		DATA	00077707
13014	00000003		DATA	3
13015	00000003		DATA	3
13016	1 01 04077		BRU	NBSKIP=1,1
13017	0 01 04154		BRU	OVFL0
13020	0 20*13020	RSH5	NBP*	*
13021	0 66 00060		RSH	60
13022	37777777		DATA	37777777
13023	00000000		DATA	0
13024	77777777		DATA	77777777
13025	00000000		DATA	0
13026	66611161		DATA	66611161
13027	66611161		DATA	66611161
13030	00000060		DATA	60
13031	00000060		DATA	60
13032	0 01 04077		BRU	NBSKIP=1
13033	0 01 04143		BRU	OVFL0

S02 GOES AT T0, SK AT TP 1ST CYCLE  
S14 RN AT T2 AND T1 AND TR AND OFF AT T0  
AND TP

SET OVERFLOW  
OVERFLOW  
CHECK SX48 AND ALL RELATED TERMS  
SX48 GETS SET BY S9S10 AT PHASE 0 T1

CPU1 TAP=3.0 PAGE 170

13034	0 20*13034	RSH6	NBP*	*
13035	2 66 00100		RSH	100,2
13036	40000000		DATA	40000000
13037	77777777		DATA	77777777
13040	00000000		DATA	0
13041	77777777		DATA	77777777
13042	11166616		DATA	11166616
13043	11166616		DATA	11166616
13044	00000100		DATA	100
13045	00000100		DATA	100
13046	0 01 04077		BRU	NBSKIP=1
13047	0 01 04143		BRU	OVFL0
13050	0 20*13050	RSH7	NBP*	*
13051	0 66 00203		RSH	203
13052	20000001		DATA	20000001
13053	00000000		DATA	0
13054	40000001		DATA	40000001
13055	00000000		DATA	0
13056	55522252		DATA	55522252
13057	55522252		DATA	55522252
13060	00000203		DATA	203
13061	00000203		DATA	203
13062	0 01 04077		BRU	NBSKIP=1
13063	0 01 04143		BRU	OVFL0

SX48 GETS SET BY S8 AT PHASE 0 T1

SX48 GETS SET BY S7 AT PHASE 0 T1

CFJ1 TAP=3.0 PAGE 171

13064	0 20*13064	RSW8	NBP*	*
13065	0 66 00404		RSW	404
13066	40000000		DATA	40000000
13067	77777777		DATA	77777777
13070	00000000		DATA	0
13071	77777777		DATA	77777777
13072	22255525		DATA	22255525
13073	22255525		DATA	22255525
13074	00000404		DATA	404
13075	00000404		DATA	404
13076	0 01 04077		BRU	NBSKIP=1
13077	0 01 04143		BRU	NBVFLB
13100	0 20*13100	RSW9	NBP*	*
13101	0 66 20005		RCY	5
13102	20000001		DATA	20000001
13103	02400000		DATA	02400000
13104	00000001		DATA	00000001
13105	02000000		DATA	02000000
13106	44433343		DATA	44433343
13107	44433343		DATA	44433343
13110	00000005		DATA	5
13111	00000005		DATA	5
13112	0 01 04077		BRU	NBSKIP=1
13113	0 01 04143		BRU	NBVFLB

SX48 GETS SET BY S6 AT PHASE 0 T1  
TEST S REGISTER COUNT TO 48

A0 SET BY B23

B0 SET BY A23

CPU1 TAP=3.0 PAGE 172

13114	0 20*13114	RSW10	NBP*	*
13115	0 66 20057		RCY	57
13116	52525252		DATA	52525252
13117	25252525		DATA	25252525
13120	52525252		DATA	52525252
13121	25252525		DATA	25252525
13122	33344434		DATA	33344434
13123	33344434		DATA	33344434
13124	00000057		DATA	57
13125	00000057		DATA	57
13126	0 01 04077		BRU	NBSKIP=1
13127	0 01 04143		BRU	NBVFLB
13130	0 20*13130	RSW11	NBP*	*
13131	0 66*00046		RCY*	MEMORY
13132	14631463		DATA	14631463
13133	63146314		DATA	63146314
13134	14631463		DATA	14631463
13135	63146314		DATA	63146314
13136	11166616		DATA	11166616
13137	11166616		DATA	11166616
13140	00020056		DATA	20056
13141	00020056		DATA	20056
13142	0 01 04077		BRU	NBSKIP=1
13143	0 01 04143		BRU	NBVFLB

TURN A(0=23) AND B(0=23) ON AND OFF  
EVERY CLOCK

IA = TEST BR1 WITH ALL COMBINATIONS OF  
SET BI\*1=BI

0	0
0	1
1	0
1	1



CPU1 TAP=3.0 PAGE 169

13004	0 20*13004	RSH4	NBP*	*
13005	0 66 00003		RSH	3
13006	40000000		DATA	40000000
13007	74000000		DATA	74000000
13010	00000000		DATA	0
13011	00000000		DATA	0
13012	00077707		DATA	00077707
13013	00077707		DATA	00077707
13014	00000003		DATA	3
13015	00000003		DATA	3
13016	1 01 04077		BRU	NBSKIP=1,1
13017	0 01 04154		BRU	NVFL0
13020	0 20*13020	RSH5	NBP*	*
13021	0 66 00060		RSH	60
13022	37777777		DATA	37777777
13023	00000000		DATA	0
13024	77777777		DATA	77777777
13025	00000000		DATA	0
13026	66611161		DATA	66611161
13027	66611161		DATA	66611161
13030	00000060		DATA	60
13031	00000060		DATA	60
13032	0 01 04077		BRU	NBSKIP=1
13033	0 01 04143		BRU	NVFL0

S02 GOES AT T0, SK AT TP 1ST CYCLE  
S14 ON AT T2 AND T1 AND TR AND OFF AT T0  
AND TP

SET OVERFLOW  
OVERFLOW  
CHECK SX48 AND ALL RELATED TERMS  
SX48 GETS SET BY S9610 AT PHASE 0 T1

CPU1 TAP=3.0 PAGE 170

13034	0 20*13034	RSH6	NBP*	*
13035	2 66 00100		RSH	100,2
13036	40000000		DATA	40000000
13037	77777777		DATA	77777777
13040	00000000		DATA	0
13041	77777777		DATA	77777777
13042	11166616		DATA	11166616
13043	11166616		DATA	11166616
13044	00000100		DATA	100
13045	00000100		DATA	100
13046	0 01 04077		BRU	NBSKIP=1
13047	0 01 04143		BRU	NVFL0
13050	0 20*13050	RSH7	NBP*	*
13051	0 66 00203		RSH	203
13052	20000001		DATA	20000001
13053	00000000		DATA	0
13054	40000001		DATA	40000001
13055	00000000		DATA	0
13056	55522252		DATA	55522252
13057	55522252		DATA	55522252
13060	00000203		DATA	203
13061	00000203		DATA	203
13062	0 01 04077		BRU	NBSKIP=1
13063	0 01 04143		BRU	NVFL0

SX48 GETS SET BY S8 AT PHASE 0 T1

SX48 GETS SET BY S7 AT PHASE 0 T1

CPU1 TAP=3.0 PAGE 171

13064	0 20 13064	RSW8	NBP.	*
13065	0 66 00404	RSW	404	
13066	40000000	DATA	40000000	
13067	77777777	DATA	77777777	
13070	00000000	DATA	0	
13071	77777777	DATA	77777777	
13072	22255525	DATA	22255525	
13073	22255525	DATA	22255525	
13074	00000404	DATA	404	
13075	00000404	DATA	404	
13076	0 01 04077	BRU	NBSKIP=1	
13077	0 01 04143	BRU	NBVFL0	
13100	0 20 13100	RSW9	NBP.	*
13101	0 66 20005	RCY	5	
13102	20000001	DATA	20000001	
13103	02400000	DATA	02400000	
13104	00000001	DATA	00000001	
13105	02000000	DATA	02000000	
13106	44433343	DATA	44433343	
13107	44433343	DATA	44433343	
13110	00000005	DATA	5	
13111	00000005	DATA	5	
13112	0 01 04077	BRU	NBSKIP=1	
13113	0 01 04143	BRU	NBVFL0	

SX48 GETS SET BY S6 AT PHASE 0 T1  
TEST S REGISTER COUNT TO 48

A0 SET BY B23

B0 SET BY A23

CPU1 TAP=3.0 PAGE 172

13114	0 20 13114	RSW10	NBP.	*
13115	0 66 20057	RCY	57	
13116	52525252	DATA	52525252	
13117	25252525	DATA	25252525	
13120	52525252	DATA	52525252	
13121	25252525	DATA	25252525	
13122	33344434	DATA	33344434	
13123	33344434	DATA	33344434	
13124	00000057	DATA	57	
13125	00000057	DATA	57	
13126	0 01 04077	BRU	NBSKIP=1	
13127	0 01 04143	BRU	NBVFL0	
13130	0 20 13130	RSW11	NBP.	*
13131	0 66 04046	RCY.	MEMBRY	
13132	14631463	DATA	14631463	
13133	63146314	DATA	63146314	
13134	14631463	DATA	14631463	
13135	63146314	DATA	63146314	
13136	11166616	DATA	11166616	
13137	11166616	DATA	11166616	
13140	00020056	DATA	20056	
13141	00020056	DATA	20056	
13142	0 01 04077	BRU	NBSKIP=1	
13143	0 01 04143	BRU	NBVFL0	

TURN A(0=23) AND B(0=23) ON AND OFF  
EVERY CLOCK

IA = TEST BR1 WITH ALL COMBINATIONS OF  
SET BI\*1=BI

0	0
0	1
1	0
1	1

```

CPU1  TAP=3.0                PAGE 173
13144  0 20*13144  RSH12  NBP*  *
13145  4 66*04046  RCY*  MEMORY,4  IA = LOGICAL RIGHT CYCLE
13146  41414141  DATA  41414141
13147  00414141  DATA  00414141  AO SET TO 0
13150  22222227  DATA  22222227
13151  41222222  DATA  41222222  BO SET BY A23
13152  66611161  DATA  66611161
13153  66611161  DATA  66611161
13154  00024006  DATA  24006
13155  00024006  DATA  24006
13156  4 01 04077  BRU  NBSKIP=1,4
13157  0 01 04143  BRU  N8VFL0
13160  0 20*13160  RSH13  NBP*  *
13161  4 66 24004  LRSH  4,4  LOGICAL RIGHT CYCLE
13162  70707070  DATA  70707070  SK SETS AT T8 2ND CYCLE
13163  03434343  DATA  03434343
13164  52525252  DATA  52525252
13165  42525252  DATA  42525252
13166  77700070  DATA  77700070
13167  77700070  DATA  77700070
13170  00004004  DATA  4004
13171  00004004  DATA  4004
13172  5 01 04077  BRU  NBSKIP=1,5  SET OVERFLOW
13173  0 01 04154  BRU  8VFL0  OVERFLOW

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CPU1  TAP=3.0                PAGE 174
13174  0 20*13174  RSH14  NBP*  *
13175  6 66*00034  RSH*  MEMORY=4012,6  IX,IA,IX=21 PLACES=CYCLE
13176  12345670  DATA  12345670
13177  65432101  DATA  65432101
13200  76543210  DATA  76543210
13201  23456707  DATA  23456707
13202  00004012  DATA  4012
13203  00004012  DATA  4012
13204  20020013  DATA  20020013
13205  20020013  DATA  20020013  TEST C(0=2)=C(21=23) AT T4,T3 AND T2
13206  4 01 04077  BRU  NBSKIP=1,4
13207  0 01 04143  BRU  N8VFL0
13210  0 20*13210  RSH15  NBP*  *
13211  4 66 00001  RSH  1001,4
13212  40000000  DATA  40000000
13213  60000000  DATA  60000000
13214  00000002  DATA  2
13215  00000001  DATA  1
13216  00077707  DATA  00077707
13217  00077707  DATA  00077707
13220  00001001  DATA  1001
13221  00001001  DATA  1001
13222  4 01 04077  BRU  NBSKIP=1,4
13223  0 01 04143  BRU  N8VFL0

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CPU1 TAP=3.C PAGE 175

13224	0 20*13224	LSH1	NBP*	*
13225	0 67 00000		LSH	0
13226	40000001		DATA	40000001
13227	40000001		DATA	40000001
13230	37777776		DATA	37777776
13231	37777776		DATA	37777776
13232	77700070		DATA	77700070
13233	77700070		DATA	77700070
13234	00000000		DATA	0
13235	00000000		DATA	0
13236	0 01 04077		BRU	NBSKIP=1
13237	0 01 04143		BRU	NBVFLO
13240	0 20*13240	LSH2	NBP*	*
13241	0 67 00001		LSH	1
13242	65252525		DATA	65252525
13243	52525252		DATA	52525252
13244	37070707		DATA	37070707
13245	76161616		DATA	76161616
13246	00077707		DATA	00077707
13247	00077707		DATA	00077707
13250	00000001		DATA	1
13251	00000001		DATA	1
13252	0 01 04077		BRU	NBSKIP=1
13253	0 01 04143		BRU	NBVFLO

SET SK AT T1 PHASE 1

SD2 GOES AT T1 PHASE 3  
SK GOES AT T0 PHASE 3

A23 SET BY B0

B23 SET TO 0

CPU1 TAP=3.C PAGE 176

13254	0 20*13254	LSH3	NBP*	*
13255	0 67*04046		LSH	MEMORY
13256	40707070		DATA	40707070
13257	01616161		DATA	01616161
13260	51111111		DATA	51111111
13261	22222222		DATA	22222222
13262	66611161		DATA	66611161
13263	66611161		DATA	66611161
13264	00000001		DATA	1
13265	00000001		DATA	1
13266	0 01 04077		BRU	NBSKIP=1
13267	0 01 04154		BRU	NBVFLO
13270	0 20*13270	LSH4	NBP*	*
13271	0 67 00002		LSH	2
13272	70707070		DATA	70707070
13273	43434342		DATA	43434342
13274	43434343		DATA	43434343
13275	16161614		DATA	16161614
13276	11166616		DATA	11166616
13277	11166616		DATA	11166616
13300	00000002		DATA	2
13301	00000002		DATA	2
13302	0 01 04077		BRU	NBSKIP=1
13303	0 01 04143		BRU	NBVFLO

IA \* SD2 GOES AT T1 PHASE 3  
SK SET AT T0 PHASE 3

OVERFL0A SET BY A00A1 AT T1 PHASE 3

CPU1 TAP=3.C PAGE 177

13304	0 20*13304	LSH5	NBP*	*
13305	2 67 00153		LSH	153,2
13306	12345670		DATA	12345670
13307	51627343		DATA	51627343
13310	67543201		DATA	67543201
13311	36615004		DATA	36615004
13312	00000627		DATA	00000627
13313	00000627		DATA	00000627
13314	00000002		DATA	2
13315	00000002		DATA	2
13316	0 01 04077		BRU	NBSKIP=1
13317	0 01 04154		BRU	OVFL0
13320	0 20*13320	LSH6	NBP*	*
13321	0 67 00057		LSH	57
13322	00000000		DATA	0
13323	40000000		DATA	40000000
13324	00000001		DATA	1
13325	00000000		DATA	0
13326	55522252		DATA	55522252
13327	55522252		DATA	55522252
13330	00000057		DATA	57
13331	00000057		DATA	57
13332	0 01 04077		BRU	NBSKIP=1
13333	0 01 04154		BRU	OVFL0

INDEXING=SHIFT 2 PLACES

OVERFLOW SET BY (A10A2)613 AT T1 PHASE 3

SD2 GOES EVERY OTHER CLOCK STARTING AT T1 PHASE 3

OVERFLOW

CPU1 TAP=3.C PAGE 178

13334	0 20*13334	LSH7	NBP*	*
13335	0 67 00057		LSH	57
13336	77777777		DATA	77777777
13337	40000000		DATA	40000000
13340	77777777		DATA	77777777
13341	00000000		DATA	0
13342	22255525		DATA	22255525
13343	22255525		DATA	22255525
13344	00000057		DATA	57
13345	00000057		DATA	57
13346	0 01 04077		BRU	NBSKIP=1
13347	0 01 04143		BRU	OVFL0
13350	0 20*13350	LSH8	NBP*	*
13351	0 67 00060		LSH	60
13352	77777777		DATA	77777777
13353	00000000		DATA	0
13354	77777777		DATA	77777777
13355	00000000		DATA	0
13356	44433343		DATA	44433343
13357	44433343		DATA	44433343
13360	00000060		DATA	60
13361	00000060		DATA	60
13362	0 01 04077		BRU	NBSKIP=1
13363	0 01 04154		BRU	OVFL0

SX48 GOES AT T2 PHASE 1

CPU1 TAP=3.C PAGE 179

13364	0	20*13364	LSH-9	NBP*	*
13365	4	67*04046		LSH*	MEMBRY,4
13366		4343*340		DATA	43434340
13367		07070701		DATA	07070701
13370		70707070		DATA	70707070
13371		61616161		DATA	61616161
13372		33344434		DATA	33344434
13373		33344434		DATA	33344434
13374		00020001		DATA	00020001
13375		00020001		DATA	00020001
13376	4	01 04077		BRU	NBSKIP=1,4
13377	0	01 04143		BRU	NBVFLB
13400	0	20*13400	LSH10	NBP*	*
13401	4	67 20057		LCY	57,4
13402		03607417		DATA	03607417
13403		41703607		DATA	41703607
13404		03607417		DATA	03607417
13408		41703607		DATA	41703607
13406		22255525		DATA	22255525
13407		22255525		DATA	22255525
13410		00000057		DATA	57
13411		00000057		DATA	57
13412	5	01 04077		BRU	NBSKIP=1,5
13413	0	01 04154		BRU	NBVFLB

IA \* CYCLE  
A23 SET BY B0  
B23 SET BY A0  
  
TEST AL2 WITH ALL COMBINATIONS OF  
SET BI=BI+2  
0 0  
0 1  
1 0  
1 1

SET OVERFLOW

CPU1 TAP=3.C PAGE 180

13414	0	20*13414	LSH-11	NBP*	*
13415	4	67 20057		LCY	57,4
13416		14631463		DATA	14631463
13417		46314631		DATA	46314631
13420		14631463		DATA	14631463
13421		46314631		DATA	46314631
13422		55522252		DATA	55522252
13423		55522252		DATA	55522252
13424		00000057		DATA	57
13425		00000057		DATA	57
13426	4	01 04077		BRU	NBSKIP=1,4
13427	0	01 04143		BRU	NBVFLB
13430	0	20*13430	LSH12	NBP*	*
13431	4	67*04134		LCY*	TESTM,4
13432		00000000		DATA	0
13433		00000000		DATA	0
13434		00000000		DATA	0
13435		00000000		DATA	0
13436		00000060		DATA	48D
13437		00000060		DATA	48D
13440		40000000		DATA	40000000
13441		40000000		DATA	40000000
13442	4	01 04077		BRU	NBSKIP=1,4
13443	0	01 04143		BRU	NBVFLB

TURN A(0=23) AND B(0=23) OFF AND ON  
EACH CLOCK

SX48 GOES AT T2=INDEXING AND IA  
  
COUNT S DOWN  
SK GETS SET BY S REGISTER AT T6 PHASE 3

CPU1 TAP=3.0 PAGE 181

13444	0	20*13444	N8D1	N8P*	*
13445	0	67 10000		N8D	0
13446		05436701		DATA	05436701
13447		05436701		DATA	05436701
13450		12345670		DATA	12345670
13451		12345670		DATA	12345670
13452		77777777		DATA	77777777
13453		77777777		DATA	77777777
13454		00000000		DATA	0
13455		00000000		DATA	0
13456	0	01 04077		BRU	N8SKIP=1
13457	0	01 04143		BRU	N8VFL0
13460	0	20*13460	N8D2	N8P*	*
13461	0	67 10001		N8D	1
13462		21076543		DATA	21076543
13463		21076543		DATA	21076543
13464		01234567		DATA	01234567
13465		01234567		DATA	01234567
13466		00000000		DATA	0
13467		00000000		DATA	0
13470		00000000		DATA	0
13471		00000000		DATA	0
13472	0	01 04077		BRU	N8SKIP=1
13473	0	01 04143		BRU	N8VFL0

SK SET AT T2 BY S(6\*14)20

RF KO BC23  
0 0 0 T8 = TP

SK SET AT T2 BY A00A1  
RESET S14 AT T2 BY A00A1(N8 SHIFT AT TP)

RF KO BC23  
0 0 0 T8 = TP

CPU1 TAP=3.0 PAGE 182

13474	0	20*13474	N8D3	N8P*	*
13475	0	67 10001		N8D	1
13476		77324500		DATA	77324500
13477		76651201		DATA	76651201
13500		45601237		DATA	45601237
13501		13402476		DATA	13402476
13502		00000000		DATA	0
13503		77777777		DATA	77777777
13504		00000001		DATA	1
13505		00000001		DATA	1
13506	0	01 04077		BRU	N8SKIP=1
13507	0	01 04143		BRU	N8VFL0
13510	0	20*13510	N8D4	N8P*	*
13511	0	67 10002		N8D	2
13512		74234560		DATA	74234560
13513		61162701		DATA	61162701
13514		32156701		DATA	32156701
13515		50673404		DATA	50673404
13516		77777777		DATA	77777777
13517		77777775		DATA	77777775
13520		00000002		DATA	2
13521		00000002		DATA	2
13522	0	01 04077		BRU	N8SKIP=1
13523	0	01 04143		BRU	N8VFL0

SD2 GOES AT T1  
SET SK AT T1 BY S(9\*13)20  
AR1 AT TP BY SKS14  
A23 SET BY B0  
B23 SET TO 0  
RF KO BC23  
1 1 1 T8 = TP

SET SK AT T1 BY S(9,10,11,12,14)20

RF KO BC23  
1 1 0 T8  
1 1 1 T7 = TP

CPU1 TAP=3.0 PAGE 183

13524	0 20*13524	N805	NBP*	*	
13525	0 67 10003		N80	3	
13526	0 4345670		DATA	04345670	SET SK AT T1 BY (A1,A2)(A20A3)S13
13527	0 21627343		DATA	21627343	RESET S14 AT T1 BY (A1,A2)(A20A3)S13
13530	0 76543201		DATA	76543201	
13531	0 72615004		DATA	72615004	
13532	0 00000001		DATA	1	SAME AS N804
13533	0 77777777		DATA	77777777	
13534	0 00000002		DATA	2	
13535	0 00000002		DATA	2	
13536	0 01 04077		BRU	N8SKIP=1	
13537	0 01 04143		BRU	N8VFL0	
13540	0 20*13540	N806	NBP*	*	
13541	0 67 10004		N80	4	
13542	0 12345670		DATA	12345670	SET SK AT T1 BY A10A2
13543	0 24713561		DATA	24713561	SET S14 AT T1 BY A10A2
13544	0 76504321		DATA	76504321	AR1 AT TP BY SKS14
13545	0 75210642		DATA	75210642	
13546	0 00000002		DATA	2	SAME AS N804
13547	0 00000001		DATA	1	
13550	0 00000001		DATA	1	
13551	0 00000001		DATA	1	
13552	0 01 04077		BRU	N8SKIP=1	
13553	0 01 04143		BRU	N8VFL0	

CPU1 TAP=3.0 PAGE 184

13554	0 20*13554	N807	NBP*	*	
13555	0 67*04046		LSH*	MEMORY	IA
13556	0 04000000		DATA	04000000	SET SK AT T1 BY (A1,A2)(A20A3)S12
13557	0 20000000		DATA	20000000	RESET S14 AT T1 BY (A1,A2)(A20A3)S12
13560	0 00000000		DATA	0	
13561	0 00000000		DATA	0	
13562	0 00000002		DATA	2	SAME AS N804
13563	0 00000000		DATA	0	
13564	0 00010005		DATA	10005	
13565	0 00010005		DATA	10005	
13566	0 01 04077		BRU	N8SKIP=1	
13567	0 01 04143		BRU	N8VFL0	
13570	0 20*13570	N808	NBP*	*	
13571	0 67 10011		N80	11	
13572	0 04000000		DATA	04000000	SET SK AT T1 BY (A1,A2)(A20A3)S11
13573	0 20000000		DATA	20000000	RESET S14 AT T1 BY (A1,A2)(A20A3)S11
13574	0 00000000		DATA	0	
13575	0 00000000		DATA	0	
13576	0 00000003		DATA	3	SAME AS N804
13577	0 00000001		DATA	1	
13600	0 00000002		DATA	2	
13601	0 00000002		DATA	2	
13602	0 01 04077		BRU	N8SKIP=1	
13603	0 01 04143		BRU	N8VFL0	



CPU1 TAP=3.C PAGE 185

13604	0 20*13604	N8D9	N8P*	*
13605	0 67 10021		N8D	21
13606	04000000		DATA	04000000
13607	20000000		DATA	20000000
13610	00000000		DATA	0
13611	00000000		DATA	0
13612	00000004		DATA	4
13613	00000002		DATA	2
13614	00000002		DATA	2
13615	00000002		DATA	2
13616	0 01 04077		BRU	N8SKIP=1
13617	0 01 04143		BRU	N8VFL0
13620	0 20*13620	N8D10	N8P*	*
13621	2 67 10421		N8D	*21,2
13622	04000000		DATA	04000000
13623	20000000		DATA	20000000
13624	00000000		DATA	0
13625	00000000		DATA	0
13626	37777420		DATA	37777420
13627	37777416		DATA	37777416
13630	00000002		DATA	2
13631	00000002		DATA	2
13632	0 01 04077		BRU	N8SKIP=1
13633	0 01 04143		BRU	N8VFL0

SET SK AT T1 BY (A1,A2)(A20A3)S10  
RESET S14 AT T1 BY (A1,A2)(A20A3)S10

SAME AS N8D4

INDEXING  
SET SK AT T1 BY (A1,A2)(A20A3)S9  
RESET S14 AT T1 BY (A1,A2)(A20A3)S9

SAME AS N8D4

CPU1 TAP=3.C PAGE 186

13634	0 20*13634	N8D11	N8P*	*
13635	0 67 10113		N8D	113
13636	74000000		DATA	74000000
13637	40000000		DATA	40000000
13640	00000000		DATA	0
13641	00000000		DATA	0
13642	00000000		DATA	0
13643	77777775		DATA	77777775
13644	00000003		DATA	3
13645	00000003		DATA	3
13646	1 01 04077		BRU	N8SKIP=1,1
13647	0 01 04154		BRU	N8VFL0
13650	0 20*13650	N8D12	N8P*	*
13651	0 67 10031		N8D	31
13652	01000000		DATA	01000000
13653	20000000		DATA	20000000
13654	00000000		DATA	0
13655	00000000		DATA	0
13656	00000000		DATA	0
13657	77777774		DATA	77777774
13660	00000004		DATA	4
13661	00000004		DATA	4
13662	0 01 04077		BRU	N8SKIP=1
13663	0 01 04143		BRU	N8VFL0

SX48 GOES AT T2 PHASE 1  
SET SK, SET S14 AT TK PHASE 3

RF KO BC23  
1 0 1 T8 PHASE 7  
1 1 1 T7 = TP PHASE 7

SET OVERFLOW

RESET S14, SET SK AT TR PHASE 3

RF KO BC23  
1 0 0 T8 PHASE 7  
1 1 1 T7 = TP PHASE 7

CPU1 TAP=3.0 PAGE 187

13664 0 20\*13664 N9D13 NBP\* \*  
13665 0 67 10404 NBD 404  
13666 0 04000000 DATA 00400000  
13667 20000000 DATA 20000000  
13670 00000000 DATA 0  
13671 00000000 DATA 0  
13672 00000000 DATA 0  
13673 77777777 DATA 77777777  
13674 00000005 DATA 5  
13675 00000005 DATA 5  
13676 1 01 04077 BRU NBSKIP=1,1  
13677 0 01 04154 BRU NBFLO  
13700 0 20\*13700 N9D14 NBP\* \*  
13701 0 67 10431 NBD 31  
13702 77600000 DATA 77600000  
13703 40000000 DATA 40000000  
13704 00000000 DATA 0  
13705 00000000 DATA 0  
13706 00000000 DATA 0  
13707 77777771 DATA 77777771  
13710 00000005 DATA 5  
13711 00000006 DATA 6  
13712 0 01 04077 BRU NBSKIP=1  
13713 0 01 04143 BRU NBFLO

SX48 AT T2 PHASE 1  
SET SK, SET S14 AT TP PHASE 3

RF KO BC23  
0 1 1 T8 PHASE 7  
1 1 1 T7 \* TP PHASE 7

SET BVERFLOW  
BVERFLOW

SET SK, RESET S14 AT TP PHASE 3

RF KO BC23  
0 1 0 T8 PHASE 7  
1 1 1 T7 \* TP PHASE 7

CPU1 TAP=3.0 PAGE 188

13714 0 20\*13714 N9D15 NBP\* \*  
13715 4 67 10430 NBD 30,4  
13716 77700000 DATA 77700000  
13717 40000000 DATA 40000000  
13720 00000000 DATA 0  
13721 00000000 DATA 0  
13722 00000010 DATA 10  
13723 00000000 DATA 0  
13724 00000007 DATA 7  
13725 00000007 DATA 7  
13726 4 01 04077 BRU NBSKIP=1,4  
13727 0 01 04143 BRU NBFLO  
13730 0 20\*13730 N9D16 NBP\* \*  
13731 4 67 10457 NBD 57,4  
13732 77777777 DATA 77777777  
13733 40000000 DATA 40000000  
13734 77777777 DATA 77777777  
13735 00000000 DATA 0  
13736 00000000 DATA 0  
13737 77777721 DATA 77777721  
13740 00000057 DATA 57  
13741 00000057 DATA 57  
13742 4 01 04077 BRU NBSKIP=1,4  
13743 0 01 04143 BRU NBFLO

SET SK, SET S14 AT T8 PHASE 3  
2ND CYCLE

RF KO BC23  
0 0 1 T8 PHASE 7  
1 1 1 T7 \* TP PHASE 7

TEST ABILITY TO DECREMENT S(2=7) AND  
S(9=13) PROPERLY WITH BDD NUMBER

```

CPU1  TAP=3.0                PAGE 189
13744 0 20*13744  N0D17  N0P*  *
13745 4 67 1C060  N0D  60,4
13746 00000000  DATA  0
13747 00000000  DATA  0
13750 00000000  DATA  0
13751 00000000  DATA  0
13752 0000C000  DATA  0
13753 77777720  DATA  77777720
13754 00000060  DATA  60
13755 00000060  DATA  60
13756 4 01 04077  BRU  N0SKIP=1,4
13757 0 01 04143  BRU  N0VFL0
13760 0 20*13760  N0D18  N0P*  *
13761 4 67*04046  LSH*  MEMORY,4
13762 77*00000  DATA  77*00000
13763 40000070  DATA  40000070
13764 70000000  DATA  70000000
13765 00000077  DATA  00000077
13766 00000000  DATA  0
13767 77777772  DATA  77777772
13770 00030037  DATA  00030037
13771 00030037  DATA  00030037
13772 4 01 04077  BRU  N0SKIP=1,4
13773 0 01 04143  BRU  N0VFL0

```

TEST ABILITY TO DECREMENT S(2,7) AND  
S(9-13) WITH EVEN NUMBER AND ZERO  
IN A,B:

SET A23=80

SET B23=A0

6 PLACES  
NORMALIZE=LEFT CYCLE

```

CPU1  TAP=3.0                PAGE 190
13774 0 20*13774  PRIV1  N0P*  *
13775 4 45 04046  45  MEMORY,4
13776 77770000  DATA  77770000
13777 77770000  DATA  77770000
14000 77007700  DATA  77007700
14001 77007700  DATA  77007700
14002 70707070  DATA  70707070
14003 70707070  DATA  70707070
14004 00777700  DATA  00777700
14005 00777700  DATA  00777700
14006 4 01 04071  BRU  SKIP=1,4
14007 0 01 04143  BRU  N0VFL0
14010 0 20*14010  PRIV2  N0P*  *
14011 4 44 04046  44  MEMORY,4
14012 77770000  DATA  77770000
14013 77770000  DATA  77770000
14014 77007700  DATA  77007700
14015 77007700  DATA  77007700
14016 70707070  DATA  70707070
14017 70707070  DATA  70707070
14020 00777700  DATA  00777700
14021 00777700  DATA  00777700
14022 4 01 04071  BRU  SKIP=1,4
14023 0 01 04143  BRU  N0VFL0

```

PRIVILEGED INSTRUCTION

PRIVILEGED INSTRUCTION

CPU1	TAP#3.C			PAGE 191	
14024	0 20*14024	PRIV3	\\$BP*	*	
14025	4 34 04046		34	MEMBERY,4	PRIVILEGED INSTRUCTION
14026	77770000		DATA	77770000	
14027	77770000		DATA	77770000	
14030	77007700		DATA	77007700	
14031	77007700		DATA	77007700	
14032	70707070		DATA	70707070	
14033	70707070		DATA	70707070	
14034	00777700		DATA	00777700	
14035	00777700		DATA	00777700	
14036	4 01 04071		BRU	SKIP=1,4	
14037	0 01 04143		BRU	\\$BVFLB	
14040	0 20*14040	PRIV4	\\$BP*	*	
14041	4 15 04046		15	MEMBERY,4	PRIVILEGED INSTRUCTION
14042	77770000		DATA	77770000	
14043	77770000		DATA	77770000	
14044	77007700		DATA	77007700	
14045	77007700		DATA	77007700	
14046	70707070		DATA	70707070	
14047	70707070		DATA	70707070	
14050	00777700		DATA	00777700	
14051	00777700		DATA	00777700	
14052	4 01 04071		BRU	SKIP=1,4	
14053	0 01 04143		BRU	\\$BVFLB	

CPU1	TAP#3.C			PAGE 192	
14054	0 20*14054	PRIV5	\\$BP*	*	
14055	4 03 04046		03	MEMBERY,4	PRIVILEGED INSTRUCTION
14056	77770000		DATA	77770000	
14057	77770000		DATA	77770000	
14060	77007700		DATA	77007700	
14061	77007700		DATA	77007700	
14062	70707070		DATA	70707070	
14063	70707070		DATA	70707070	
14064	00777700		DATA	00777700	
14065	00777700		DATA	00777700	
14066	4 01 04071		BRU	SKIP=1,4	
14067	0 01 04143		BRU	\\$BVFLB	
14070	0 20*14070	PRIV6	\\$BP*	*	
14071	4 42 04046		42	MEMBERY,4	PRIVILEGED INSTRUCTION
14072	77770000		DATA	77770000	
14073	77770000		DATA	77770000	
14074	77007700		DATA	77007700	
14075	77007700		DATA	77007700	
14076	70707070		DATA	70707070	
14077	70707070		DATA	70707070	
14100	00777700		DATA	00777700	
14101	00777700		DATA	00777700	
14102	4 01 04071		BRU	SKIP=1,4	
14103	0 01 04143		BRU	\\$BVFLB	

```

CPU1  TAP=3.0                PAGE 193
14104 0 20*14104 PRIV7 NBP* *
14105 4 31 04046          31  MEMORY,4  PRIVILEGED INSTRUCTION
14106 77770000          DATA 77770000
14107 77770000          DATA 77770000
14110 77007700          DATA 77007700
14111 77007700          DATA 77007700
14112 70707070          DATA 70707070
14113 70707070          DATA 70707070
14114 00777700          DATA 00777700
14115 00777700          DATA 00777700
14116 4 C1 04071          BRU  SKIP=1,4
14117 0 01 04143          BRU  NOVFLO
14120 0 20*14120 PRIV8 NBP* *
14121 4 24 04046          24  MEMORY,4  PRIVILEGED INSTRUCTION
14122 77770000          DATA 77770000
14123 77770000          DATA 77770000
14124 77007700          DATA 77007700
14125 77007700          DATA 77007700
14126 70707070          DATA 70707070
14127 70707070          DATA 70707070
14130 00777700          DATA 00777700
14131 00777700          DATA 00777700
14132 4 C1 04071          BRU  SKIP=1,4
14133 0 01 04143          BRU  NOVFLO

```

```

CPU1  TAP=3.0                PAGE 194
14134 0 20*14134 PRIV9 NBP* *
14135 4 21 04046          21  MEMORY,4  PRIVILEGED INSTRUCTION
14136 77770000          DATA 77770000
14137 77770000          DATA 77770000
14140 77007700          DATA 77007700
14141 77007700          DATA 77007700
14142 70707070          DATA 70707070
14143 70707070          DATA 70707070
14144 00777700          DATA 00777700
14145 00777700          DATA 00777700
14146 4 C1 04071          BRU  SKIP=1,4
14147 0 01 04143          BRU  NOVFLO

```

CPU1 TAP=3.0 PAGE 195

14150	0 20*14150	MUL1	NBP*	*
14151	0 64 04046		MUL	MEMORY
14152	74121733		DATA	74121733
14153	77652714		DATA	77652714
14154	00077707		DATA	00077707
14155	03224436		DATA	03224436
14156	77700070		DATA	77700070
14157	77700070		DATA	77700070
14160	01305135		DATA	01305135
14161	01305135		DATA	01305135
14162	0 01 04077		BRU	NBSKIP=1
14163	0 01 04143		BRU	NBVFLB
14164	0 20*14164	MUL2	NBP*	*
14165	0 64 04046		MUL	MEMORY
14166	45666162		DATA	45666162
14167	02200343		DATA	02200343
14170	11166616		DATA	11166616
14171	65100504		DATA	65100504
14172	66611161		DATA	66611161
14173	66611161		DATA	66611161
14174	75175331		DATA	75175331
14175	75175331		DATA	75175331
14176	0 01 04077		BRU	NBSKIP=1
14177	0 01 04143		BRU	NBVFLB

FOR ALL MULTIPLY CASES

WHERE N CORRESPONDS TO THE NUMBER  
OF THE MULTIPLY MODULE.

CPU1 TAP=3.0 PAGE 196

14200	0 20*14200	MUL3	NBP*	*
14201	0 64 04046		MUL	MEMORY
14202	76536132		DATA	76536132
14203	01225457		DATA	01225457
14204	22255425		DATA	22255525
14205	06470510		DATA	06470510
14206	55522252		DATA	55522252
14207	55522252		DATA	55522252
14210	40451332		DATA	40451332
14211	40451332		DATA	40451332
14212	0 01 04077		BRU	NBSKIP=1
14213	0 01 04143		BRU	NBVFLB
14214	0 20*14214	MUL4	NBP*	*
14215	0 64 04046		MUL	MEMORY
14216	37124376		DATA	37124376
14217	14411426		DATA	14411426
14220	33344434		DATA	33344434
14221	44633734		DATA	44633734
14222	44433343		DATA	44433343
14223	44433343		DATA	44433343
14224	14665211		DATA	14665211
14225	14665211		DATA	14665211
14226	0 01 04077		BRU	NBSKIP=1
14227	0 01 04143		BRU	NBVFLB

```

CPU1  TAP=3.0                                PAGE 197
14230 0 20*14230  MUL5  NOP*  *
14231 0 64 04046  MUL   MEMORY
14232 55340547  DATA 55340547
14233 72505325  DATA 72505325
14234 44433343  DATA 44433343
14235 45501024  DATA 45501024
14236 33344434  DATA 33344434
14237 33344434  DATA 33344434
14240 11177146  DATA 11177146
14241 11177146  DATA 11177146
14242 1 01 04077  BRU  NOSKIP=1,1
14243 0 01 04154  BRU  OVFL0
14244 0 20*14244  MUL6  NOP*  *
14245 0 64*04134  MUL*  TESTM
14246 37252204  DATA 37252204
14247 46133723  DATA 46133723
14250 22255525  DATA 22255525
14251 57100450  DATA 57100450
14252 55522252  DATA 55522252
14253 55522252  DATA 55522252
14254 45502225  DATA 45502225
14255 45502225  DATA 45502225
14256 0 01 04077  BRU  NOSKIP=1
14257 0 01 04143  BRU  NOVFL0

```

```

SET OVERFLOW
OVERFLOW
IA

```

```

CPU1  TAP=3.0                                PAGE 198
14260 0 20*14260  MUL7  NOP*  *
14261 0 64 04046  MUL   MEMORY
14262 11565130  DATA 11565130
14263 06437742  DATA 06437742
14264 11166616  DATA 11166616
14265 35001420  DATA 35001420
14266 66611161  DATA 66611161
14267 66611161  DATA 66611161
14270 25453363  DATA 25453363
14271 25453363  DATA 25453363
14272 0 01 04077  BRU  NOSKIP=1
14273 0 01 04143  BRU  NOVFL0
14274 0 20*14274  MUL8  NOP*  *
14275 0 64 04046  MUL   MEMORY
14276 72672751  DATA 72672751
14277 04045712  DATA 04045712
14300 55522252  DATA 55522252
14301 32372146  DATA 32372146
14302 22255525  DATA 22255525
14303 22255525  DATA 22255525
14304 46470673  DATA 46470673
14305 46470673  DATA 46470673
14306 0 01 04077  BRU  NOSKIP=1
14307 0 01 04143  BRU  NOVFL0

```

CPU1 TAP=3.C

PAGE 199

14310	0	20*14310	MUL9	NBP*	*		
14311	2	64 03756		MUL	MEMORY=70,2	INDEXING	
14312		51007400		DATA	51007400		
14313		10406001		DATA	10406001		
14314		00077707		DATA	00077707		
14315		20330000		DATA	20330000		
14316		77700070		DATA	77700070		
14317		77700070		DATA	77700070		
14320		64114650		DATA	64114650		
14321		64114650		DATA	64114650		
14322	0	01 04077		BRU	NOSKIP=1		
14323	0	01 04143		BRU	NOVFL0		
14324	0	20*14324	MUL10	NBP*	*		
14325	0	64 04046		MUL	MEMORY		
14326		15447261		DATA	15447261		
14327		13604526		DATA	13604526		
14330		77700070		DATA	77700070		
14331		64505442		DATA	64505442		
14332		00077707		DATA	00077707		
14333		00077707		DATA	00077707		
14334		33556341		DATA	33556341		
14335		33556341		DATA	33556341		
14336	1	01 04077		BRU	NOSKIP=1,1	SET OVERFLOW	
14337	0	01 04154		BRU	NOVFL0	OVERFLOW	

CPU1 TAP=3.C

PAGE 200

14340	0	20*14340	MUL11	NBP*	*		
14341	2	64*32753		MUL	TEST4=11161,2	IA AND INDEXING	
14342		03532233		DATA	03532233		
14343		77163427		DATA	77163427		
14344		11166616		DATA	11166616		
14345		76765550		DATA	76765550		
14346		66611161		DATA	66611161		
14347		66611161		DATA	66611161		
14350		71205134		DATA	71205134		
14351		71205134		DATA	71205134		
14352	0	01 04077		BRU	NOSKIP=1		
14353	0	01 04143		BRU	NOVFL0		
14354	0	20*14354	MUL12	NBP*	*		
14355	0	64 04046		MUL	MEMORY		
14356		22541417		DATA	22541417		
14357		76723246		DATA	76723246		
14360		22255525		DATA	22255525		
14361		25616366		DATA	25616366		
14362		55522252		DATA	55522252		
14363		55522252		DATA	55522252		
14364		76106725		DATA	76106725		
14365		76106725		DATA	76106725		
14366	0	01 04077		BRU	NOSKIP=1		
14367	0	01 04143		BRU	NOVFL0		



```

CPU1  TAP=3.0                                PAGE 197
14230 0 20*14230  MUL5  NOP*  *
14231 0 64 04046  MUL   MEMORY
14232 55340547  DATA 55340547
14233 72505325  DATA 72505325
14234 44433343  DATA 44433343
14235 45501024  DATA 45501024
14236 33344434  DATA 33344434
14237 33344434  DATA 33344434
14240 11177146  DATA 11177146
14241 11177146  DATA 11177146
14242 1 01 04077  BRU  NBSKIP=1,1
14243 0 01 04154  BRU  OVFL0
14244 0 20*14244  MUL6  NOP*  *
14245 0 64*04134  MUL*  TESTM
14246 37252204  DATA 37252204
14247 46133723  DATA 46133723
14250 22255525  DATA 22255525
14251 57100650  DATA 57100650
14252 55522252  DATA 55522252
14253 55522252  DATA 55522252
14254 45502225  DATA 45502225
14255 45502225  DATA 45502225
14256 0 01 04077  BRU  NBSKIP=1
14257 0 01 04143  BRU  NOVFL0

```

```

SET OVERFLOW
OVERFLOW
IA

```

```

CPU1  TAP=3.0                                PAGE 198
14260 0 20*14260  MUL7  NOP*  *
14261 0 64 04046  MUL   MEMORY
14262 11565130  DATA 11565130
14263 06437742  DATA 06437742
14264 11166616  DATA 11166616
14265 35001420  DATA 35001420
14266 66611161  DATA 66611161
14267 66611161  DATA 66611161
14270 25453363  DATA 25453363
14271 25453363  DATA 25453363
14272 0 01 04077  BRU  NBSKIP=1
14273 0 01 04143  BRU  NOVFL0
14274 0 20*14274  MUL8  NOP*  *
14275 0 64 04046  MUL   MEMORY
14276 72672751  DATA 72672751
14277 04045712  DATA 04045712
14300 55522252  DATA 55522252
14301 32372146  DATA 32372146
14302 22255525  DATA 22255525
14303 22255525  DATA 22255525
14304 46470673  DATA 46470673
14305 46470673  DATA 46470673
14306 0 01 04077  BRU  NBSKIP=1
14307 0 01 04143  BRU  NOVFL0

```

```

CPU1      TAP=3.C                      PAGE 199
14310 0 20*14310  \BP* *
14311 2 64 03756   \MUL MEMORY=70,2  INDEXING
14312 51007400    DATA 51007400
14313 10406001    DATA 10406001
14314 00077707    DATA 00077707
14315 20330000    DATA 20330000
14316 77700070    DATA 77700070
14317 77700070    DATA 77700070
14320 64114650    DATA 64114650
14321 64114650    DATA 64114650
14322 0 01 04077   BRU  \NSKIP=1
14323 0 01 04077   BRU  \NOVFL0
14324 0 20*14324  \BP* *
14325 0 64 04046   \MUL MEMORY
14326 15447261    DATA 15447261
14327 13604526    DATA 13604526
14330 77700070    DATA 77700070
14331 64505442    DATA 64505442
14332 00077707    DATA 00077707
14333 00077707    DATA 00077707
14334 33556341    DATA 33556341
14335 33556341    DATA 33556341
14336 1 01 04077   BRU  \NSKIP=1,1  SET OVERFLOW
14337 0 01 04154   BRU  \OVFL0      OVERFLOW

```

```

CPU1      TAP=3.C                      PAGE 200
14340 0 20*14340  \BP* *
14341 2 64*32753   \MUL11 \MUL TEST4=11161,2  IA AND INDEXING
14342 03532233    DATA 03532233
14343 77163427    DATA 77163427
14344 11166616    DATA 11166616
14345 76765550    DATA 76765550
14346 66611161    DATA 66611161
14347 66611161    DATA 66611161
14350 71205134    DATA 71205134
14351 71205134    DATA 71205134
14352 0 01 04077   BRU  \NSKIP=1
14353 0 01 04143   BRU  \NOVFL0
14354 0 20*14354  \BP* *
14355 0 64 04046   \MUL12 \MUL MEMORY
14356 22541417    DATA 22541417
14357 76723246    DATA 76723246
14360 22255525    DATA 22255525
14361 25616366    DATA 25616366
14362 55522252    DATA 55522252
14363 55522252    DATA 55522252
14364 76106725    DATA 76106725
14365 76106725    DATA 76106725
14366 0 01 04077   BRU  \NSKIP=1
14367 0 01 04143   BRU  \NOVFL0

```

CPU1	TAP=3.0			PAGE 201
14370	0 20*14370	MUL13	NOP*	*
14371	0 64 04046		MUL	MEMORY
14372	53451005		DATA	53451005
14373	56403537		DATA	56403537
14374	33344434		DATA	33344434
14375	21726302		DATA	21726302
14376	44433343		DATA	44433343
14377	44433343		DATA	44433343
14400	33012655		DATA	33012655
14401	33012655		DATA	33012655
14402	0 01 04077		BRU	NBSKIP=1
14403	0 01 04143		BRU	NOVFL0
14404	0 20*14404	MUL14	NOP*	*
14405	0 64 04046		MUL	MEMORY
14406	15101573		DATA	15101573
14407	77040237		DATA	77040237
14410	44433343		DATA	44433343
14411	52035164		DATA	52035164
14412	33344434		DATA	33344434
14413	33344434		DATA	33344434
14414	75556616		DATA	75556616
14415	75556616		DATA	75556616
14416	0 01 04077		BRU	NBSKIP=1
14417	0 01 04143		BRU	NOVFL0

CPU1	TAP=3.0			PAGE 202
14420	0 20*14420	MUL15	NOP*	*
14421	0 64 04046		MUL	MEMORY
14422	71042702		DATA	71042702
14423	00066032		DATA	00066032
14424	55522252		DATA	55522252
14425	51624720		DATA	51624720
14426	22255525		DATA	22255525
14427	22255525		DATA	22255525
14430	77406364		DATA	77406364
14431	77406364		DATA	77406364
14432	0 01 04077		BRU	NBSKIP=1
14433	0 01 04143		BRU	NOVFL0
14434	0 20*14434	MUL16	NOP*	*
14435	0 64 04046		MUL	MEMORY
14436	17457571		DATA	17457571
14437	03223757		DATA	03223757
14440	66611161		DATA	66611161
14441	67567714		DATA	67567714
14442	11166616		DATA	11166616
14443	11166616		DATA	11166616
14444	06577626		DATA	06577626
14445	06577626		DATA	06577626
14446	0 01 04077		BRU	NBSKIP=1
14447	0 01 04143		BRU	NOVFL0

CPU1 TAP=3.0 PAGE 203

14450	0 20*14450	MUL17	NBP*	*
14451	0 64 04046		MUL	MEMORY
14452	53075604		DATA	53075604
14453	57066216		DATA	57066216
14454	77700070		DATA	77700070
14455	56071300		DATA	56071300
14456	00077707		DATA	00077707
14457	00077707		DATA	00077707
14460	31710530		DATA	31710530
14461	31710530		DATA	31710530
14462	0 01 04077		BRU	NSKIP=1
14463	0 01 04143		BRU	NOVFLB
14464	0 20*14464	MUL18	NBP*	*
14465	0 64 04046		MUL	MEMORY
14466	55617111		DATA	55617111
14467	12145626		DATA	12145626
14470	00077707		DATA	00077707
14471	04303070		DATA	04303070
14472	77700070		DATA	77700070
14473	77700070		DATA	77700070
14474	56055074		DATA	56055074
14475	56055074		DATA	56055074
14476	0 01 04077		BRU	NSKIP=1
14477	0 01 04143		BRU	NOVFLB

CPU1 TAP=3.0 PAGE 204

14500	0 20*14500	MUL19	NBP*	*
14501	0 64 04046		MUL	MEMORY
14502	72447427		DATA	72447427
14503	76276151		DATA	76276151
14504	11166616		DATA	11166616
14505	24566024		DATA	24566024
14506	66611161		DATA	66611161
14507	66611161		DATA	66611161
14510	11470206		DATA	11470206
14511	11470206		DATA	11470206
14512	0 01 04077		BRU	NSKIP=1
14513	0 01 04143		BRU	NOVFLB
14514	0 20*14514	MUL20	NBP*	*
14515	0 64 04046		MUL	MEMORY
14516	36427241		DATA	36427241
14517	71173165		DATA	71173165
14520	22255525		DATA	22255525
14521	72126104		DATA	72126104
14522	55522252		DATA	55522252
14523	55522252		DATA	55522252
14524	70726342		DATA	70726342
14525	70726342		DATA	70726342
14526	0 01 04077		BRU	NSKIP=1
14527	0 01 04143		BRU	NOVFLB

CPU1	TAP=3.0			PAGE 205
14530	0 20*14530	MUL21	NOP*	*
14531	0 64 04046		MUL	MEMORY
14532	10150477		DATA	10150477
14533	77004325		DATA	77004325
14534	33344434		DATA	33344434
14535	77001212		DATA	77001212
14536	44433343		DATA	44433343
14537	44433343		DATA	44433343
14540	74104173		DATA	74104173
14541	74104173		DATA	74104173
14542	0 01 04077		BRU	NBSKIP=1
14543	0 01 04143		BRU	NBSKIP=1
14544	0 20*14544	MUL22	NOP*	*
14545	0 64 04046		MUL	MEMORY
14546	61010463		DATA	61010463
14547	65577047		DATA	65577047
14550	44433343		DATA	44433343
14551	53467714		DATA	53467714
14552	33344434		DATA	33344434
14553	33344434		DATA	33344434
14554	25712202		DATA	25712202
14555	25712202		DATA	25712202
14556	0 01 04077		BRU	NBSKIP=1
14557	0 01 04143		BRU	NBSKIP=1

CPU1	TAP=3.0			PAGE 206
14560	0 20*14560	MUL23	NOP*	*
14561	0 64 04046		MUL	MEMORY
14562	62111173		DATA	62111173
14563	15523762		DATA	15523762
14564	55522252		DATA	55522252
14565	54111166		DATA	54111166
14566	22255525		DATA	22255525
14567	22255525		DATA	22255525
14570	40344101		DATA	40344101
14571	40344101		DATA	40344101
14572	0 01 04077		BRU	NBSKIP=1
14573	0 01 04143		BRU	NBSKIP=1
14574	0 20*14574	MUL24	NOP*	*
14575	0 64 04046		MUL	MEMORY
14576	65503143		DATA	65503143
14577	67201543		DATA	67201543
14600	66611161		DATA	66611161
14601	12433276		DATA	12433276
14602	11166616		DATA	11166616
14603	11166616		DATA	11166616
14604	32774725		DATA	32774725
14605	32774725		DATA	32774725
14606	0 01 04077		BRU	NBSKIP=1
14607	0 01 04143		BRU	NBSKIP=1

CPU1	TAP=3.C		PAGE 207
14610	0 20*14610	MUL25	NBP* *
14611	4 64 04046	MUL	MEMBRY,4
14612	57411100	DATA	57411100
14613	16425421	DATA	16425421
14614	77700070	DATA	77700070
14615	75165600	DATA	75165600
14616	00077707	DATA	00077707
14617	00077707	DATA	00077707
14620	43610437	DATA	43610437
14621	43610437	DATA	43610437
14622	4 01 04077	BRU	NBSKIP=1,4
14623	0 01 04143	BRU	NBVFL9
14624	0 20*14624	MUL26	NBP* *
14625	4 64 04046	MUL	MEMBRY,4
14626	15051535	DATA	15051535
14627	00764773	DATA	00764773
14630	00077707	DATA	00077707
14631	16360132	DATA	16360132
14632	77700070	DATA	77700070
14633	77700070	DATA	77700070
14634	02311421	DATA	02311421
14635	02311421	DATA	02311421
14636	4 01 04077	BRU	NBSKIP=1,4
14637	0 01 04143	BRU	NBVFL9

CPU1	TAP=3.C		PAGE 208
14640	0 20*14640	MUL27	NBP* *
14641	4 64 04046	MUL	MEMBRY,4
14642	57330170	DATA	57330170
14643	17312204	DATA	17312204
14644	11166616	DATA	11166616
14645	00443740	DATA	00443740
14646	66611161	DATA	66611161
14647	66611161	DATA	66611161
14650	42220642	DATA	42220642
14651	42220642	DATA	42220642
14652	4 01 04077	BRU	NBSKIP=1,4
14653	0 01 04143	BRU	NBVFL9
14654	0 20*14654	MUL28	NBP* *
14655	4 64 04046	MUL	MEMBRY,4
14656	03005166	DATA	03005166
14657	00355615	DATA	00355615
14660	22255525	DATA	22255525
14661	23630064	DATA	23630064
14662	55522252	DATA	55522252
14663	55522252	DATA	55522252
14664	04737527	DATA	04737527
14665	04737527	DATA	04737527
14666	4 01 04077	BRU	NBSKIP=1,4
14667	0 01 04143	BRU	NBVFL9

CPU1	TAP=3.0			PAGE 209
14670	0 20*14670	MUL29	NBP*	*
14671	4 64 04046		MUL	MEMORY,4
14672	62761652		DATA	62761652
14673	67532402		DATA	67532402
14674	33344434		DATA	33344434
14675	10014460		DATA	10014460
14676	44433343		DATA	44433343
14677	44433343		DATA	44433343
14700	24343434		DATA	24343434
14701	24343434		DATA	24343434
14702	4 01 04077		BRU	NBSKIP=1,4
14703	0 01 04143		BRU	NOVFL0
14704	0 20*14704	MUL30	NBP*	*
14705	4 64 04046		MUL	MEMORY,4
14706	32527245		DATA	32527245
14707	06745073		DATA	06745073
14710	44433343		DATA	44433343
14711	46420734		DATA	46420734
14712	33344434		DATA	33344434
14713	33344434		DATA	33344434
14714	10253726		DATA	10253726
14715	10253726		DATA	10253726
14716	4 01 04077		BRU	NBSKIP=1,4
14717	0 01 04143		BRU	NOVFL0

CPU1	TAP=3.0			PAGE 210
14720	0 20*14720	MUL31	NBP*	*
14721	4 64 04046		MUL	MEMORY,4
14722	01242560		DATA	01242560
14723	77401510		DATA	77401510
14724	55522252		DATA	55522252
14725	42064640		DATA	42064640
14726	22255525		DATA	22255525
14727	22255525		DATA	22255525
14730	63737373		DATA	63737373
14731	63737373		DATA	63737373
14732	4 01 04077		BRU	NBSKIP=1,4
14733	0 01 04143		BRU	NOVFL0
14734	0 20*14734	MUL32	NBP*	*
14735	4 64 04046		MUL	MEMORY,4
14736	76310175		DATA	76310175
14737	00361521		DATA	00361521
14740	66611161		DATA	66611161
14741	66277232		DATA	66277232
14742	11166616		DATA	11166616
14743	11166616		DATA	11166616
14744	66471421		DATA	66471421
14745	66471421		DATA	66471421
14746	4 01 04077		BRU	NBSKIP=1,4
14747	0 01 04143		BRU	NOVFL0

CPU1 TAP=3.0 PAGE 211

14750	0	20*14750	MUL33	NBP*	*
14751	4	64 04046		MUL	MEMORY,4
14752		32300533		DATA	32300533
14753		06361472		DATA	06361472
14754		77700070		DATA	77700070
14755		36302432		DATA	36302432
14756		00077707		DATA	00077707
14757		00077707		DATA	00077707
14760		07664067		DATA	07664067
14761		07664067		DATA	07664067
14762	4	01 04077		BRU	NBSKIP=1,4
14763	0	01 04143		BRU	NBVFL0
14764	0	20*14764	MUL34	NBP*	*
14765	4	64 04046		MUL	MEMORY,4
14766		23402515		DATA	23402515
14767		63723734		DATA	63723734
14770		00077707		DATA	00077707
14771		26006610		DATA	26006610
14772		77700070		DATA	77700070
14773		77700070		DATA	77700070
14774		54127724		DATA	54127724
14775		54127724		DATA	54127724
14776	4	01 04077		BRU	NBSKIP=1,4
14777	0	01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 212

15000	0	20*15000	MUL35	NBP*	*
15001	4	64 04046		MUL	MEMORY,4
15002		62360411		DATA	62360411
15003		10550561		DATA	10550561
15004		11166616		DATA	11166616
15005		33016416		DATA	33016416
15006		66611161		DATA	66611161
15007		66611161		DATA	66611161
15010		53323417		DATA	53323417
15011		53323417		DATA	53323417
15012	4	01 04077		BRU	NBSKIP=1,4
15013	0	01 04143		BRU	NBVFL0
15014	0	20*15014	MUL36	NBP*	*
15015	4	64 04046		MUL	MEMORY,4
15016		44436405		DATA	44436405
15017		30536721		DATA	30536721
15020		22255525		DATA	22255525
15021		76064526		DATA	76064526
15022		55522252		DATA	55522252
15023		55522252		DATA	55522252
15024		43154757		DATA	43154757
15025		43154757		DATA	43154757
15026	4	01 04077		BRU	NBSKIP=1,4
15027	0	01 04143		BRU	NBVFL0



CPU1	TAP=3,0			PAGE 213
15030	0 20*15030	MUL37	NBP*	*
15031	4 64 04046		MUL	MEMORY,4
15032	12254114		DATA	12254114
15033	06521556		DATA	06521556
15034	33344434		DATA	33344434
15035	21500510		DATA	21500510
15036	44433343		DATA	44433343
15037	44433343		DATA	44433343
15040	24474123		DATA	24474123
15041	24474123		DATA	24474123
15042	4 01 04077		BRU	NBSKIP=1,4
15043	0 01 04143		BRU	NOVFL0
15044	0 20*15044	MUL38	NBP*	*
15045	4 64 04046		MUL	MEMORY,4
15046	10310731		DATA	10310731
15047	07204746		DATA	07204746
15050	44433343		DATA	44433343
15051	64342230		DATA	64342230
15052	33344434		DATA	33344434
15053	33344434		DATA	33344434
15054	33534454		DATA	33534454
15055	33534454		DATA	33534454
15056	4 01 04077		BRU	NBSKIP=1,4
15057	0 01 04143		BRU	NOVFL0

CPU1	TAP=3,0			PAGE 214
15060	0 20*15060	MUL39	NBP*	*
15061	4 64 04046		MUL	MEMORY,4
15062	16516613		DATA	16516613
15063	05043667		DATA	05043667
15064	55522252		DATA	55522252
15065	76312562		DATA	76312562
15066	22255525		DATA	22255525
15067	22255525		DATA	22255525
15070	13044513		DATA	13044513
15071	13044513		DATA	13044513
15072	4 01 04077		BRU	NBSKIP=1,4
15073	0 01 04143		BRU	NOVFL0
15074	0 20*15074	MUL40	NBP*	*
15075	4 64 04046		MUL	MEMORY,4
15076	03573443		DATA	3573443
15077	02073303		DATA	02073303
15100	00000000		DATA	0
15101	11151642		DATA	11151642
15102	77777777		DATA	77777777
15103	77777777		DATA	77777777
15104	22062173		DATA	22062173
15105	22062173		DATA	22062173
15106	4 01 04077		BRU	NBSKIP=1,4
15107	0 01 04143		BRU	NOVFL0

CPU1	TAP=3.C			PAGE 215
15110	0 20*15110	MUL41	NBP*	*
15111	4 64 04046		MUL	MEMORY,4
15112	34330013		DATA	34330013
15113	77116344		DATA	77116344
15114	11111111		DATA	11111111
15115	30635022		DATA	30635022
15116	66666666		DATA	66666666
15117	66666666		DATA	66666666
15120	77027673		DATA	77027673
15121	77027673		DATA	77027673
15122	4 01 04077		BRU	NBSKIP=1,4
15123	0 01 04143		BRU	NBVFL0
15124	0 20*15124	MUL42	NBP*	*
15125	4 64 04046		MUL	MEMORY,4
15126	15470352		DATA	15470352
15127	02675464		DATA	02675464
15130	22222222		DATA	22222222
15131	65657500		DATA	65657500
15132	55555555		DATA	55555555
15133	55555555		DATA	55555555
15134	06577220		DATA	06577220
15135	06577220		DATA	06577220
15136	4 01 04077		BRU	NBSKIP=1,4
15137	0 01 04143		BRU	NBVFL0

CPU1	TAP=3.C			PAGE 216
15140	0 20*15140	MUL43	NBP*	*
15141	4 64 04046		MUL	MEMORY,4
15142	47453333		DATA	47453333
15143	03303112		DATA	03303112
15144	33333333		DATA	33333333
15145	44670636		DATA	44670636
15146	44444444		DATA	44444444
15147	44444444		DATA	44444444
15150	73443035		DATA	73443035
15151	73443035		DATA	73443035
15152	4 01 04077		BRU	NBSKIP=1,4
15153	0 01 04143		BRU	NBVFL0
15154	0 20*15154	MUL44	NBP*	*
15155	4 64 04046		MUL	MEMORY,4
15156	32432635		DATA	32432635
15157	05536742		DATA	05536742
15160	44444444		DATA	44444444
15161	02312574		DATA	02312574
15162	33333333		DATA	33333333
15163	33333333		DATA	33333333
15164	06664126		DATA	06664126
15165	06664126		DATA	06664126
15166	4 01 04077		BRU	NBSKIP=1,4
15167	0 01 04143		BRU	NBVFL0

CPU1	TAP=3.0			PAGE 217
15170	0 20*15170	MUL45	NOP*	*
15171	4 64 04046		MUL	MEMORY,4
15172	30556344		DATA	30556344
15173	07221555		DATA	07221555
15174	55555555		DATA	55555555
15175	20577040		DATA	20577040
15176	22222222		DATA	22222222
15177	22222222		DATA	22222222
15200	11334744		DATA	11334744
15201	11334744		DATA	11334744
15202	4 01 04077		BRU	NBSKIP=1,4
15203	0 01 04143		BRU	NBVFL0
15204	0 20*15204	MUL46	NOP*	*
15205	4 64 04046		MUL	MEMORY,4
15206	11430455		DATA	11430455
15207	04002564		DATA	04002564
15210	66666666		DATA	66666666
15211	42550272		DATA	42550272
15212	11111111		DATA	11111111
15213	11111111		DATA	11111111
15214	15330761		DATA	15330761
15215	15330761		DATA	15330761
15216	4 01 04077		BRU	NBSKIP=1,4
15217	0 01 04143		BRU	NBVFL0

CPU1	TAP=3.0			PAGE 218
15220	0 20*15220	MUL47	NOP*	*
15221	4 64 04046		MUL	MEMORY,4
15222	75513000		DATA	75513000
15223	00006074		DATA	00006074
15224	77777777		DATA	77777777
15225	35126000		DATA	35126000
15226	00000000		DATA	0
15227	00000000		DATA	0
15230	77654641		DATA	77654641
15231	77654641		DATA	77654641
15232	4 01 04077		BRU	NBSKIP=1,4
15233	0 01 04143		BRU	NBVFL0
15234	0 20*15234	MUL48	NOP*	*
15235	4 64 04046		MUL	MEMORY,4
15236	06431271		DATA	06431271
15237	00404502		DATA	00404502
15240	01234567		DATA	01234567
15241	17747764		DATA	17747764
15242	76543210		DATA	76543210
15243	76543210		DATA	76543210
15244	02371312		DATA	02371312
15245	02371312		DATA	02371312
15246	4 01 04077		BRU	NBSKIP=1,4
15247	0 01 04143		BRU	NBVFL0

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CPU1  TAP=3.0                                PAGE 219
15250  0 20*15250  MUL49  NOP*      *
15251  4 64 04046  MUL     MEMORY,4
15252  33330610  DATA  33330610
15253  02216520  DATA  02216520
15254  76543210  DATA  76543210
15255  77651600  DATA  77651600
15256  01234567  DATA  01234567
15257  01234567  DATA  01234567
15260  02521270  DATA  02521270
15261  02521270  DATA  02521270
15262  4 01 04077  BRU    NBSKIP=1,4
15263  0 01 04143  BRU    %OVFL5
15264  0 20*15264  MUL50  NOP*      *
15265  4 64 04046  MUL     MEMORY,4
15266  62512352  DATA  62512352
15267  74002276  DATA  74002276
15270  77777777  DATA  77777777
15271  11743170  DATA  11743170
15272  00000000  DATA  0
15273  00000000  DATA  0
15274  11445546  DATA  11445546
15275  11445546  DATA  11445546
15276  4 01 04077  BRU    NBSKIP=1,4
15277  0 01 04143  BRU    %OVFL5

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CPU1  TAP=3.0                                PAGE 220
15300  0 20*15300  MUL51  NOP*      *
15301  4 64 04046  MUL     MEMORY,4
15302  40000000  DATA  40000000
15303  40000000  DATA  40000000
15304  00000000  DATA  0
15305  00000000  DATA  0
15306  77777777  DATA  77777777
15307  77777777  DATA  77777777
15310  40000000  DATA  40000000
15311  40000000  DATA  40000000
15312  4 01 04077  BRU    NBSKIP=1,4
15313  0 01 04154  BRU    %OVFL5
15314  0 20*15314  MUL52  NOP*      *
15315  0 64 04046  MUL     MEMORY
15316  40000000  DATA  40000000
15317  40000000  DATA  40000000
15320  00000000  DATA  0
15321  00000000  DATA  0
15322  77777777  DATA  77777777
15323  77777777  DATA  77777777
15324  40000000  DATA  40000000
15325  40000000  DATA  40000000
15326  0 01 04077  BRU    NBSKIP=1
15327  0 01 04154  BRU    %OVFL5
15330  0 20*15330  DIV1   NOP*      *
15331  0 64 04046  DIV    MEMORY
15332  37777777  DATA  37777777
15333  40000000  DATA  40000000
15334  00000000  DATA  0
15335  00000000  DATA  0
15336  77700070  DATA  77700070
15337  77700070  DATA  77700070
15340  37777777  DATA  37777777
15341  37777777  DATA  37777777
15342  0 01 04077  BRU    NBSKIP=1
15343  0 01 04154  BRU    %OVFL5

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CPU1 TAP=3.0 PAGE 221

15344	0 20*15344	DIV2	NOP*	*
15345	0 65 04046		DIV	MEMORY
15346	37777777		DATA	37777777
15347	40000000		DATA	40000000
15350	00000002		DATA	2
15351	00000001		DATA	1
15352	66611161		DATA	66611161
15353	66611161		DATA	66611161
15354	37777777		DATA	37777777
15355	37777777		DATA	37777777
15356	0 01 04077		BRU	NBSKIP=1
15357	0 01 04154		BRU	OVFL0
15360	0 20*15360	DIV3	NOP*	*
15361	0 65 04046		DIV	MEMORY
15362	37777777		DATA	37777777
15363	40000000		DATA	40000000
15364	00000000		DATA	0
15365	00000000		DATA	0
15366	55522252		DATA	55522252
15367	55522252		DATA	55522252
15370	40000001		DATA	40000001
15371	40000001		DATA	40000001
15372	0 01 04077		BRU	NBSKIP=1
15373	0 01 04143		BRU	NBSKIP=1

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CPU1 TAP=3.0 PAGE 222

15374	0 20*15374	DIV4	NOP*	*
15375	0 65 04046		DIV	MEMORY
15376	37777777		DATA	37777777
15377	40000000		DATA	40000000
15400	00000002		DATA	2
15401	00000001		DATA	1
15402	44433343		DATA	44433343
15403	44433343		DATA	44433343
15404	40000001		DATA	40000001
15405	40000001		DATA	40000001
15406	0 01 04077		BRU	NBSKIP=1
15407	0 01 04154		BRU	OVFL0
15410	0 20*15410	DIV5	NOP*	*
15411	0 65 04046		DIV	MEMORY
15412	40000000		DATA	40000000
15413	37777777		DATA	37777777
15414	00000002		DATA	2
15415	00000000		DATA	0
15416	52222222		DATA	52222222
15417	52222222		DATA	52222222
15420	37777777		DATA	37777777
15421	37777777		DATA	37777777
15422	0 01 04077		BRU	NBSKIP=1
15423	0 01 04154		BRU	OVFL0

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CPU1 TAP=3.C PAGE 223

15424	0 20*15424	DIV6	\NBP*	*
15425	0 65 04046		DIV	MEMBRY
15426	40000000		DATA	40000000
15427	40000001		DATA	40000001
15430	00000002		DATA	2
15431	00000000		DATA	0
15432	33344434		DATA	33344434
15433	33344434		DATA	33344434
15434	40000001		DATA	40000001
15435	40000001		DATA	40000001
15436	0 01 04077		BRU	\N\$KIP=1
15437	0 01 04154		BRU	OVFL0
15440	0 20*15440	DIV7	\NBP*	*
15441	0 65 04046		DIV	MEMBRY
15442	40000000		DATA	40000000
15443	40000001		DATA	40000001
15444	00000000		DATA	0
15445	00000000		DATA	0
15446	22255525		DATA	22255525
15447	22255525		DATA	22255525
15450	00000000		DATA	0
15451	00000000		DATA	0
15452	0 01 04077		BRU	\N\$KIP=1
15453	0 01 04154		BRU	OVFL0

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CPU1 TAP=3.C PAGE 224

15454	0 20*15454	DIV8	\NBP*	*
15455	0 65 04046		DIV	MEMBRY
15456	37777776		DATA	37777776
15457	37777777		DATA	37777777
15460	00000002		DATA	2
15461	00000000		DATA	0
15462	11166616		DATA	11166616
15463	11166616		DATA	11166616
15464	37777777		DATA	37777777
15465	37777777		DATA	37777777
15466	0 01 04077		BRU	\N\$KIP=1
15467	0 01 04143		BRU	OVFL0
15470	0 20*15470	DIV9	\NBP*	*
15471	0 65 04046		DIV	MEMBRY
15472	37777777		DATA	37777777
15473	40000001		DATA	40000001
15474	00000002		DATA	2
15475	00000001		DATA	1
15476	00077707		DATA	00077707
15477	00077707		DATA	00077707
15500	40000000		DATA	40000000
15501	40000000		DATA	40000000
15502	0 01 04077		BRU	\N\$KIP=1
15503	0 01 04143		BRU	OVFL0

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CPU1  TAP=3.0                PAGE 225
15504 0 20*15504  DIV10  NBP*  *
15505 0 65 04046  DIV    MEMORY
15506 40000001  DATA  40000001
15507 40000001  DATA  40000001
15510 00000002  DATA  2
15511 40000002  DATA  40000002
15512 00000000  DATA  0
15513 00000000  DATA  0
15514 37777777  DATA  37777777
15515 37777777  DATA  37777777
15516 0 01 04077  BRU    NBSKIP=1
15517 0 01 04143  BRU    NOVFL0
15520 0 20*15520  DIV11  NBP*  *
15521 0 65 04046  DIV    MEMORY
15522 40000001  DATA  40000001
15523 37777777  DATA  37777777
15524 00000002  DATA  2
15525 40000002  DATA  40000002
15526 77777777  DATA  77777777
15527 77777777  DATA  77777777
15530 40000001  DATA  40000001
15531 40000001  DATA  40000001
15532 0 01 04077  BRU    NBSKIP=1
15533 0 01 04143  BRU    NOVFL0

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CPU1  TAP=3.0                PAGE 226
15534 0 20*15534  DIV12  NBP*  *
15535 0 65*04134  DIV*  TESTM          IA
15536 40000001  DATA  40000001
15537 40000000  DATA  40000000
15540 00000000  DATA  0
15541 00000000  DATA  0
15542 01234567  DATA  01234567
15543 01234567  DATA  01234567
15544 37777777  DATA  37777777
15545 37777777  DATA  37777777
15546 0 01 04077  BRU    NBSKIP=1
15547 0 01 04143  BRU    NOVFL0
15550 0 20*15550  DIV13  NBP*  *
15551 2 65 04047  DIV    MEMORY,37777,2  INDEXING
15552 40000001  DATA  40000001
15553 40000000  DATA  40000000
15554 00000000  DATA  0
15555 00000000  DATA  0
15556 77777777  DATA  77777777
15557 77777777  DATA  77777777
15560 40000001  DATA  40000001
15561 40000001  DATA  40000001
15562 0 01 04077  BRU    NBSKIP=1
15563 0 01 04154  BRU    OVFL0          OVERFLOW

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CPU1  TAP=3.0                PAGE 227
15564 0 20*15564  DIV14  NBP*  *
15565 2 65*2413R  DIV*  TEST4=17777,2
15566 40000000  DATA  40000000
15567 37777777  DATA  37777777
15570 00000001  DATA  1
15571 77777777  DATA  77777777
15572 77757777  DATA  77757777
15573 77757777  DATA  77757777
15574 37777777  DATA  37777777
15575 37777777  DATA  37777777
15576 0 01 04077  BRU  NSKIP=1
15577 0 01 04154  BRU  BVFL0
15600 0 20*15600  DIV15  NBP*  *
15601 0 65 04046  DIV  MEMORY
15602 37777771  DATA  37777771
15603 37777777  DATA  37777777
15604 00000000  DATA  0
15605 00000010  DATA  10
15606 56673214  DATA  56673214
15607 56673214  DATA  56673214
15610 40000010  DATA  40000010
15611 40000010  DATA  40000010
15612 0 01 04077  BRU  NSKIP=1
15613 0 01 04154  BRU  BVFL0

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CPU1  TAP=3.0                PAGE 228
15614 0 20*15614  DIV16  NBP*  *
15615 0 65 04046  DIV  MEMORY
15616 37777720  DATA  37777720
15617 37777760  DATA  37777760
15620 00000000  DATA  0
15621 00000000  DATA  2000
15622 75321700  DATA  75321700
15623 75321700  DATA  75321700
15624 40000100  DATA  40000100
15625 40000100  DATA  40000100
15626 0 01 04077  BRU  NSKIP=1
15627 0 01 04154  BRU  BVFL0
15630 0 20*15630  DIV17  NBP*  *
15631 0 65 04046  DIV  MEMORY
15632 37777400  DATA  37777400
15633 37777400  DATA  37777400
15634 00000000  DATA  0
15635 00400000  DATA  400000
15636 61111111  DATA  61111111
15637 61111111  DATA  61111111
15640 40001000  DATA  40001000
15641 40001000  DATA  40001000
15642 0 01 04077  BRU  NSKIP=1
15643 0 01 04154  BRU  BVFL0

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CPU1 TAP=3.0 PAGE 229

15644	0 20*15644	DIV18	NOP*	*	
15645	0 65 04046		DIV	MEMORY	
15646	37777777		DATA	37777777	
15647	40000000		DATA	40000000	
15650	00000001		DATA	1	
15651	00000000		DATA	0	
15652	70000000		DATA	70000000	
15653	70000000		DATA	70000000	
15654	40000001		DATA	40000001	
15655	40000001		DATA	40000001	
15656	0 01 04077		BRU	NOSKIP=1	
15657	0 01 04154		BRU	OVFL0	OVERFLOW
15660	0 20*15660	DIV19	NOP*	*	
15661	0 65 04046		DIV	MEMORY	
15662	37777777		DATA	37777777	
15663	40000000		DATA	40000000	
15664	00000004		DATA	4	
15665	00000002		DATA	2	
15666	77777770		DATA	77777770	
15667	77777770		DATA	77777770	
15670	40000001		DATA	40000001	
15671	40000001		DATA	40000001	
15672	0 01 04077		BRU	NOSKIP=1	
15673	0 01 04154		BRU	OVFL0	OVERFLOW

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15674	0 20*15674	DIV20	NOP*	*	
15675	0 65 04046		DIV	MEMORY	
15676	17777777		DATA	17777777	
15677	40000002		DATA	40000002	
15700	00000002		DATA	2	
15701	00000001		DATA	1	
15702	66666661		DATA	66666661	
15703	66666661		DATA	66666661	
15704	60000000		DATA	60000000	
15705	60000000		DATA	60000000	
15706	0 01 04077		BRU	NOSKIP=1	
15707	0 01 04143		BRU	NOVFL0	
15710	0 20*15710	DIV21	NOP*	*	
15711	0 65 04046		DIV	MEMORY	
15712	60000001		DATA	60000001	
15713	37777776		DATA	37777776	
15714	00000000		DATA	0	
15715	00000000		DATA	0	
15716	55555552		DATA	55555552	
15717	55555552		DATA	55555552	
15720	60000000		DATA	60000000	
15721	60000000		DATA	60000000	
15722	0 01 04077		BRU	NOSKIP=1	
15723	0 01 04143		BRU	NOVFL0	

CPU1 TAP=3.C PAGE 231

15724	0 20*15724	DIV22	NBP*	*
15725	0 65 04046		DIV	MEMBRY
15726	60000002		DATA	60000002
15727	37777774		DATA	37777774
15730	00000000		DATA	0
15731	00000000		DATA	0
15732	44444443		DATA	44444443
15733	44444443		DATA	44444443
15734	60000000		DATA	60000000
15735	60000000		DATA	60000000
15736	0 01 04077		BRU	NBSKIP=1
15737	0 01 04143		BRU	NBVFL0
15740	0 20*15740	DIV23	NBP*	*
15741	0 65 04046		DIV	MEMBRY
15742	60000004		DATA	60000004
15743	37777770		DATA	37777770
15744	00000000		DATA	0
15745	00000000		DATA	0
15746	33333334		DATA	33333334
15747	33333334		DATA	33333334
15750	60000000		DATA	60000000
15751	60000000		DATA	60000000
15752	0 01 04077		BRU	NBSKIP=1
15753	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.C PAGE 232

15754	0 20*15754	DIV24	NBP*	*
15755	0 65 04046		DIV	MEMBRY
15756	60000010		DATA	60000010
15757	37777760		DATA	37777760
15760	00000000		DATA	0
15761	00000000		DATA	0
15762	22222225		DATA	22222225
15763	22222225		DATA	22222225
15764	60000000		DATA	60000000
15765	60000000		DATA	60000000
15766	0 01 04077		BRU	NBSKIP=1
15767	0 01 04143		BRU	NBVFL0
15770	0 20*15770	DIV25	NBP*	*
15771	0 65 04046		DIV	MEMBRY
15772	60000020		DATA	60000020
15773	37777740		DATA	37777740
15774	00000000		DATA	0
15775	00000000		DATA	0
15776	11111116		DATA	11111116
15777	11111116		DATA	11111116
16000	60000000		DATA	60000000
16001	60000000		DATA	60000000
16002	0 01 04077		BRU	NBSKIP=1
16003	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 233

16004	0 20*16004	DIV26	NBP*	*
16005	0 65 04046		DIV	MEMORY
16006	60000040		DATA	60000040
16007	37777700		DATA	37777700
16010	00000000		DATA	0
16011	00000000		DATA	0
16012	00000007		DATA	7
16013	00000007		DATA	7
16014	60000000		DATA	60000000
16015	60000000		DATA	60000000
16016	0 01 04077		BRU	NBSKIP=1
16017	0 01 04143		BRU	NBVFL0
16020	0 20*16020	DIV27	NBP*	*
16021	0 65 04046		DIV	MEMORY
16022	60000100		DATA	60000100
16023	37777600		DATA	37777600
16024	00000000		DATA	0
16025	00000000		DATA	0
16026	77777707		DATA	77777707
16027	77777707		DATA	77777707
16030	60000000		DATA	60000000
16031	60000000		DATA	60000000
16032	0 01 04077		BRU	NBSKIP=1
16033	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 234

16034	0 20*16034	DIV28	NBP*	*
16035	0 65 04046		DIV	MEMORY
16036	60000200		DATA	60000200
16037	37777400		DATA	37777400
16040	00000000		DATA	0
16041	00000000		DATA	0
16042	66666616		DATA	66666616
16043	66666616		DATA	66666616
16044	60000000		DATA	60000000
16048	60000000		DATA	60000000
16046	0 01 04077		BRU	NBSKIP=1
16047	0 01 04143		BRU	NBVFL0
16050	0 20*16050	DIV29	NBP*	*
16051	0 65 04046		DIV	MEMORY
16052	60000400		DATA	60000400
16053	37777000		DATA	37777000
16054	00000000		DATA	0
16055	00000000		DATA	0
16056	55555525		DATA	55555525
16057	55555525		DATA	55555525
16060	60000000		DATA	60000000
16061	60000000		DATA	60000000
16062	0 01 04077		BRU	NBSKIP=1
16063	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.C PAGE 235

16064	0 20*16064	DIV30	NBP*	*
16065	0 65 04046		DIV	MEMORY
16066	60001000		DATA	60001000
16067	37776000		DATA	37776000
16070	00000000		DATA	0
16071	00000000		DATA	0
16072	44444434		DATA	44444434
16073	44444434		DATA	44444434
16074	60000000		DATA	60000000
16075	60000000		DATA	60000000
16076	0 01 04077		BRU	NBSKIP=1
16077	0 01 04143		BRU	NBVFL9
16100	0 20*16100	DIV31	NBP*	*
16101	0 65 04046		DIV	MEMORY
16102	60002000		DATA	60002000
16103	37774000		DATA	37774000
16104	00000000		DATA	0
16105	00000000		DATA	0
16106	33333343		DATA	33333343
16107	33333343		DATA	33333343
16110	60000000		DATA	60000000
16111	60000000		DATA	60000000
16112	0 01 04077		BRU	NBSKIP=1
16113	0 01 04143		BRU	NBVFL9

CPU1 TAP=3.C PAGE 236

16114	0 20*16114	DIV32	NBP*	*
16115	0 65 04046		DIV	MEMORY
16116	60004000		DATA	60004000
16117	37770000		DATA	37770000
16120	00000000		DATA	0
16121	00000000		DATA	0
16122	22222252		DATA	22222252
16123	22222252		DATA	22222252
16124	60000000		DATA	60000000
16125	60000000		DATA	60000000
16126	0 01 04077		BRU	NBSKIP=1
16127	0 01 04143		BRU	NBVFL9
16130	0 20*16130	DIV33	NBP*	*
16131	0 65 04046		DIV	MEMORY
16132	60010000		DATA	60010000
16133	37760000		DATA	37760000
16134	00000000		DATA	0
16135	00000000		DATA	0
16136	11111161		DATA	11111161
16137	11111161		DATA	11111161
16140	60000000		DATA	60000000
16141	60000000		DATA	60000000
16142	0 01 04077		BRU	NBSKIP=1
16143	0 01 04143		BRU	NBVFL9

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CPU1  TAP=3.C                               PAGE 237
16144 0 20*16144  DIV34  NOP*  *
16145 0 65 04046  DIV    DIV  MEMORY
16146 60020000  DATA  DATA  60020000
16147 37740000  DATA  DATA  37740000
16150 00000000  DATA  DATA  0
16151 00000000  DATA  DATA  0
16152 00000070  DATA  DATA  70
16153 00000070  DATA  DATA  70
16154 60000000  DATA  DATA  60000000
16155 60000000  DATA  DATA  60000000
16156 0 01 04077  BRU    BRU    NBSKIP=1
16157 0 01 04143  BRU    BRU    NBSKIP=1
16160 0 20*16160  DIV35  NOP*  *
16161 0 65 04046  DIV    DIV  MEMORY
16162 60040000  DATA  DATA  60040000
16163 37700000  DATA  DATA  37700000
16164 00000000  DATA  DATA  0
16165 00000000  DATA  DATA  0
16166 77777077  DATA  DATA  77777077
16167 77777077  DATA  DATA  77777077
16170 60000000  DATA  DATA  60000000
16171 60000000  DATA  DATA  60000000
16172 0 01 04077  BRU    BRU    NBSKIP=1
16173 0 01 04143  BRU    BRU    NBSKIP=1

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CPU1  TAP=3.C                               PAGE 238
16174 0 20*16174  DIV36  NOP*  *
16175 0 65 04046  DIV    DIV  MEMORY
16176 60100000  DATA  DATA  60100000
16177 37600000  DATA  DATA  37600000
16200 00000000  DATA  DATA  0
16201 00000000  DATA  DATA  0
16202 66666166  DATA  DATA  66666166
16203 66666166  DATA  DATA  66666166
16204 60000000  DATA  DATA  60000000
16205 60000000  DATA  DATA  60000000
16206 1 01 04077  BRU    BRU    NBSKIP=1.1
16207 0 01 04154  BRU    BRU    NBSKIP=1.1
16210 0 20*16210  DIV37  NOP*  *
16211 0 65 04046  DIV    DIV  MEMORY
16212 60200000  DATA  DATA  60200000
16213 37400000  DATA  DATA  37400000
16214 00000000  DATA  DATA  0
16215 00000000  DATA  DATA  0
16216 55555255  DATA  DATA  55555255
16217 55555255  DATA  DATA  55555255
16220 60000000  DATA  DATA  60000000
16221 60000000  DATA  DATA  60000000
16222 0 01 04077  BRU    BRU    NBSKIP=1
16223 0 01 04143  BRU    BRU    NBSKIP=1

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SET OVERFLOW
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CPU1 TAP=3.0 PAGE 239

16224	0 20*16224	DIV38	NBP*	*
16225	0 65 04046		DIV	MEMORY
16226	60400000		DATA	60400000
16227	37000000		DATA	37000000
16230	00000000		DATA	0
16231	00000000		DATA	0
16232	44444344		DATA	44444344
16233	44444344		DATA	44444344
16234	60000000		DATA	60000000
16235	60000000		DATA	60000000
16236	0 01 04077		BRU	NBSKIP=1
16237	0 01 04143		BRU	NBVFL0
16240	0 20*16240	DIV39	NBP*	*
16241	0 65 04046		DIV	MEMORY
16242	61000000		DATA	61000000
16243	36000000		DATA	36000000
16244	00000000		DATA	0
16245	00000000		DATA	0
16246	33333433		DATA	33333433
16247	33333433		DATA	33333433
16250	60000000		DATA	60000000
16251	60000000		DATA	60000000
16252	0 01 04077		BRU	NBSKIP=1
16253	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 240

16254	0 20*16254	DIV40	NBP*	*
16255	4 65 04046		DIV	MEMORY,4
16256	62000000		DATA	62000000
16257	34000000		DATA	34000000
16260	00000000		DATA	0
16261	00000000		DATA	0
16262	22222522		DATA	22222522
16263	22222522		DATA	22222522
16264	60000000		DATA	60000000
16265	60000000		DATA	60000000
16266	4 01 04077		BRU	NBSKIP=1,4
16267	0 01 04143		BRU	NBVFL0
16270	0 20*16270	DIV41	NBP*	*
16271	4 65 04046		DIV	MEMORY,4
16272	64000000		DATA	64000000
16273	30000000		DATA	30000000
16274	00000000		DATA	0
16275	00000000		DATA	0
16276	11111611		DATA	11111611
16277	11111611		DATA	11111611
16300	60000000		DATA	60000000
16301	60000000		DATA	60000000
16302	4 01 04077		BRU	NBSKIP=1,4
16303	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 241

16304	0 20*16304	DIV42	NOP*	*
16305	4 65 04046		DIV	MEMORY,4
16306	70000000		DATA	70000000
16307	20000000		DATA	20000000
16310	00000000		DATA	0
16311	00000000		DATA	0
16312	00000700		DATA	700
16313	00000700		DATA	700
16314	60000000		DATA	60000000
16315	60000000		DATA	60000000
16316	4 01 04077		BRU	NBSKIP=1,4
16317	0 01 04143		BRU	OVFL0
16320	0 20*16320	DIV43	NOP*	*
16321	4 65 04046		DIV	MEMORY,4
16322	60000000		DATA	60000000
16323	20000000		DATA	20000000
16324	00000000		DATA	0
16325	00000000		DATA	0
16326	77770777		DATA	77770777
16327	77770777		DATA	77770777
16330	40000000		DATA	40000000
16331	40000000		DATA	40000000
16332	4 01 04077		BRU	NBSKIP=1,4
16333	0 01 04143		BRU	OVFL0

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16334	0 20*16334	DIV44	NOP*	*
16335	4 65 04046		DIV	MEMORY,4
16336	44542115		DATA	44542115
16337	11640050		DATA	11640050
16340	71160352		DATA	71160352
16341	63164415		DATA	63164415
16342	66661666		DATA	66661666
16343	66661666		DATA	66661666
16344	20100711		DATA	20100711
16345	20100711		DATA	20100711
16346	4 01 04077		BRU	NBSKIP=1,4
16347	0 01 04154		BRU	OVFL0
16350	0 20*16350	DIV45	NOP*	*
16351	4 65 04046		DIV	MEMORY,4
16352	55440464		DATA	55440464
16353	05153205		DATA	5153205
16354	51761317		DATA	51761317
16355	70242676		DATA	70242676
16356	55552555		DATA	55552555
16357	55552555		DATA	55552555
16360	12021725		DATA	12021725
16361	12021725		DATA	12021725
16362	4 01 04077		BRU	NBSKIP=1,4
16363	0 01 04154		BRU	OVFL0

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CPU1  TAP=3.0                                PAGE 243
16364 0 20*16364  DIV46  NOP*      *
16365 4 65 04046  DIV      MEMORY,4
16366 56763275  DATA      56763275
16367 17503715  DATA      17503715
16370 2710031   DATA      2710031
16371 52670641  DATA      52670641
16372 44443444  DATA      44443444
16373 44443444  DATA      44443444
16374 00727427  DATA      727427
16375 00727427  DATA      727427
16376 4 01 04077  BRU      \NSKIP=1,4
16377 0 01 04154  BRU      \OVFLB
16400 0 20*16400  DIV47  NOP*      *
16401 4 65 04046  DIV      MEMORY,4
16402 704547     DATA      704547
16403 77047436  DATA      77047436
16404 35534245  DATA      35534245
16405 24263720  DATA      24263720
16406 33334333  DATA      33334333
16407 33334333  DATA      33334333
16410 41254457  DATA      41254457
16411 41254457  DATA      41254457
16412 4 01 04077  BRU      \NSKIP=1,4
16413 0 01 04143  BRU      \OVFLB

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CPU1  TAP=3.0                                PAGE 244
16414 0 20*16414  DIV48  NOP*      *
16415 4 65 04046  DIV      MEMORY,4
16416 16657605  DATA      16657605
16417 60202004  DATA      60202004
16420 72043476  DATA      72043476
16421 17350247  DATA      17350247
16422 22225222  DATA      22225222
16423 22225222  DATA      22225222
16424 41653276  DATA      41653276
16425 41653276  DATA      41653276
16426 4 01 04077  BRU      \NSKIP=1,4
16427 0 01 04143  BRU      \OVFLB
16430 0 20*16430  DIV49  NOP*      *
16431 4 65 04046  DIV      MEMORY,4
16432 21002075  DATA      21002075
16433 46227270  DATA      46227270
16434 00010113  DATA      10113
16435 05612335  DATA      5612335
16436 11116111  DATA      11116111
16437 11116111  DATA      11116111
16440 16152677  DATA      16152677
16441 16152677  DATA      16152677
16442 4 01 04077  BRU      \NSKIP=1,4
16443 0 01 04154  BRU      \OVFLB

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16444	0	20*16444	DIV50	NOP*	*
16445	4	65 04046		DIV	MEMORY,4
16446		11412441		DATA	11412441
16447		63420721		DATA	63420721
16450		75316651		DATA	75316651
16451		13535047		DATA	13535047
16452		00007000		DATA	7000
16453		00007000		DATA	7000
16454		47440035		DATA	47440035
16455		47440035		DATA	47440035
16456	4	01 04077		BRU	NBSKIP=1,4
16457	0	01 04143		BRU	NOVFL0
16460	0	20*16460	DIV51	NOP*	*
16461	4	65 04046		DIV	MEMORY,4
16462		77471243		DATA	77471243
16463		76072766		DATA	76072766
16464		15235633		DATA	15235633
16465		74455603		DATA	74455603
16466		77707777		DATA	77707777
16467		77707777		DATA	77707777
16470		06455137		DATA	6455137
16471		06455137		DATA	6455137
16472	4	01 04077		BRU	NBSKIP=1,4
16473	0	01 04143		BRU	NOVFL0

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16474	0	20*16474	DIV52	NOP*	*
16475	4	65 04046		DIV	MEMORY,4
16476		62577376		DATA	62577376
16477		56002562		DATA	56002562
16500		14460725		DATA	14460725
16501		61556456		DATA	61556456
16502		66616666		DATA	66616666
16503		66616666		DATA	66616666
16504		27440716		DATA	27440716
16505		27440716		DATA	27440716
16506	4	01 04077		BRU	NBSKIP=1,4
16507	0	01 04143		BRU	NOVFL0
16510	0	20*16510	DIV53	NOP*	*
16511	4	65 04046		DIV	MEMORY,4
16512		03423023		DATA	3423023
16513		04363677		DATA	4363677
16514		22540776		DATA	22540776
16515		30736776		DATA	30736776
16516		55525555		DATA	55525555
16517		55525555		DATA	55525555
16520		31222477		DATA	31222477
16521		31222477		DATA	31222477
16522	4	01 04077		BRU	NBSKIP=1,4
16523	0	01 04143		BRU	NOVFL0

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16524	0 20*16524	DIV54	NBP*	*
16525	4 65 04046		DIV	MEMORY,4
16526	74576514		DATA	74576514
16527	74520707		DATA	74520707
16530	52404733		DATA	52404733
16531	47016161		DATA	47016161
16532	44434444		DATA	44434444
16533	44434444		DATA	44434444
16534	37111644		DATA	37111644
16535	37111644		DATA	37111644
16536	4 01 04077		BRU	NBSKIP=1,4
16537	0 01 04143		BRU	NBVFL9
16540	0 20*16540	DIV55	NBP*	*
16541	4 65 04046		DIV	MEMORY,4
16542	33130202		DATA	33130202
16543	41676363		DATA	41676363
16544	14073355		DATA	14073355
16545	31043510		DATA	31043510
16546	33343333		DATA	33343333
16547	33343333		DATA	33343333
16550	43107232		DATA	43107232
16551	43107232		DATA	43107232
16552	4 01 04077		BRU	NBSKIP=1,4
16553	0 01 04143		BRU	NBVFL9

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16554	0 20*16554	DIV56	NBP*	*
16555	4 65 04046		DIV	MEMORY,4
16556	04417370		DATA	4417370
16557	72014004		DATA	72014004
16560	71706720		DATA	71706720
16561	13437770		DATA	13437770
16562	22252222		DATA	22252222
16563	22252222		DATA	22252222
16564	47574674		DATA	47574674
16565	47574674		DATA	47574674
16566	4 01 04077		BRU	NBSKIP=1,4
16567	0 01 04143		BRU	NBVFL9
16570	0 20*16570	DIV57	NBP*	*
16571	4 65 04046		DIV	MEMORY,4
16572	12257535		DATA	12257535
16573	23676546		DATA	23676546
16574	73604361		DATA	73604361
16575	10403014		DATA	10403014
16576	11161111		DATA	11161111
16577	11161111		DATA	11161111
16600	20517362		DATA	20517362
16601	20517362		DATA	20517362
16602	4 01 04077		BRU	NBSKIP=1,4
16603	0 01 04143		BRU	NBVFL9

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16604	0	20*16604	DIV58	NOP*	*
16605	4	65 04046		DIV	MEMORY,4
16606		42262332		DATA	42262332
16607		60034171		DATA	60034171
16610		30122704		DATA	30122704
16611		71272720		DATA	71272720
16612		00070000		DATA	70000
16613		00070000		DATA	70000
16614		54202442		DATA	54202442
16615		54202442		DATA	54202442
16616	4	01 04077		BRU	NOSKIP=1,4
16617	0	01 04154		BRU	OVFL0
					OVERFLOW
16620	0	20*16620	DIV59	NOP*	*
16621	4	65 04046		DIV	MEMORY,4
16622		66562553		DATA	66562553
16623		03305057		DATA	3305057
16624		54177240		DATA	54177240
16625		47476622		DATA	47476622
16626		77077777		DATA	77077777
16627		77077777		DATA	77077777
16630		03070242		DATA	3070242
16631		03070242		DATA	3070242
16632	4	01 04077		BRU	NOSKIP=1,4
16633	0	01 04154		BRU	OVFL0
					OVERFLOW

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16634	0	20*16634	DIV60	NOP*	*
16635	4	65 04046		DIV	MEMORY,4
16636		02377223		DATA	2377223
16637		74660235		DATA	74660235
16640		45265627		DATA	45265627
16641		21636425		DATA	21636425
16642		66166666		DATA	66166666
16643		66166666		DATA	66166666
16644		46523256		DATA	46523256
16645		46523256		DATA	46523256
16646	4	01 04077		BRU	NOSKIP=1,4
16647	0	01 04143		BRU	OVFL0
					OVERFLOW
16650	0	20*16650	DIV61	NOP*	*
16651	4	65 04046		DIV	MEMORY,4
16652		32272650		DATA	32272650
16653		40444131		DATA	40444131
16654		71430106		DATA	71430106
16655		04571155		DATA	4571155
16656		55255555		DATA	55255555
16657		55255555		DATA	55255555
16660		31716246		DATA	31716246
16661		31716246		DATA	31716246
16662	4	01 04077		BRU	NOSKIP=1,4
16663	0	01 04154		BRU	OVFL0
					OVERFLOW

CPU1 TAP=3.0 PAGE 251

16664	0	20*16664	DIV62	NBP*	*
16665	4	65 04046		DIV	MEMORY,4
16666		45641207		DATA	45641207
16667		65653241		DATA	65653241
16670		70677650		DATA	70677650
16671		65317434		DATA	65317434
16672		44344444		DATA	44344444
16673		44344444		DATA	44344444
16674		60336670		DATA	60336670
16675		60336670		DATA	60336670
16676	4	01 04077		BRU	NSKIP=1,4
16677	0	01 04154		BRU	OVFL0
16700	0	20*16700	DIV63	NBP*	*
16701	4	65 04046		DIV	MEMORY,4
16702		62311602		DATA	62311602
16703		14027473		DATA	14027473
16704		73170133		DATA	73170133
16705		41214356		DATA	41214356
16706		33433333		DATA	33433333
16707		33433333		DATA	33433333
16710		00753715		DATA	753715
16711		00753715		DATA	753715
16712	4	01 04077		BRU	NSKIP=1,4
16713	0	01 04154		BRU	OVFL0

CPU1 TAP=3.0 PAGE 252

16714	0	20*16714	DIV64	NBP*	*
16715	4	65 04046		DIV	MEMORY,4
16716		67745772		DATA	67745772
16717		12231200		DATA	12231200
16720		01721272		DATA	1721272
16721		64527135		DATA	64527135
16722		22522222		DATA	22522222
16723		22522222		DATA	22522222
16724		46770716		DATA	46770716
16725		46770716		DATA	46770716
16726	4	01 04077		BRU	NSKIP=1,4
16727	0	01 04143		BRU	NSVFL0
16730	0	20*16730	DIV65	NBP*	*
16731	4	65 04046		DIV	MEMORY,4
16732		50253200		DATA	50253200
16733		26042655		DATA	26042655
16734		53333102		DATA	53333102
16735		46425510		DATA	46425510
16736		11611111		DATA	11611111
16737		11611111		DATA	11611111
16740		01160135		DATA	1160135
16741		01160135		DATA	1160135
16742	4	01 04077		BRU	NSKIP=1,4
16743	0	01 04154		BRU	OVFL0

CPU1	TAP=3.0			PAGE 253
16744	0 20*16744	DIV66	NBP*	*
16745	4 65 04046		DIV	MEMORY,4
16746	00312075		DATA	312075
16747	76212415		DATA	76212415
16750	33376625		DATA	33376625
16751	00414240		DATA	414240
16752	00700000		DATA	700000
16753	00700000		DATA	700000
16754	70544122		DATA	70544122
16755	70544122		DATA	70544122
16756	4 01 04077		BRU	NBSKIP=1,4
16757	0 01 04143		BRU	NBVFL0
16760	0 20*16760	DIV67	NBP*	*
16761	4 65 04046		DIV	MEMORY,4
16762	34230727		DATA	34230727
16763	72062320		DATA	72062320
16764	24317475		DATA	24317475
16765	76225116		DATA	76225116
16766	70777777		DATA	70777777
16767	70777777		DATA	70777777
16770	14254051		DATA	14254051
16771	14254051		DATA	14254051
16772	4 01 04077		BRU	NBSKIP=1,4
16773	0 01 04154		BRU	NBVFL0

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CPU1	TAP=3.0			PAGE 254
16774	0 20*16774	DIV68	NBP*	*
16775	4 65 04046		DIV	MEMORY,4
16776	06662624		DATA	6662624
16777	11565411		DATA	11565411
17000	32035730		DATA	32035730
17001	20731660		DATA	20731660
17002	61666666		DATA	61666666
17003	61666666		DATA	61666666
17004	26415534		DATA	26415534
17005	26415534		DATA	26415534
17006	4 01 04077		BRU	NBSKIP=1,4
17007	0 01 04143		BRU	NBVFL0
17010	0 20*17010	DIV69	NBP*	*
17011	4 65 04046		DIV	MEMORY,4
17012	02425672		DATA	2425672
17013	75175170		DATA	75175170
17014	02176161		DATA	2176161
17015	05337450		DATA	5337450
17016	52555555		DATA	52555555
17017	52555555		DATA	52555555
17020	42360576		DATA	42360576
17021	42360576		DATA	42360576
17022	4 01 04077		BRU	NBSKIP=1,4
17023	0 01 04143		BRU	NBVFL0

CPU1 TAP=3.0 PAGE 255

17024	0 20*17024	DIV70	NBP*	*
17025	4 65 04046		DIV	MEMORY,4
17026	11631731		DATA	11631731
17027	15626505		DATA	15626505
17030	22222044		DATA	22222044
17031	12777521		DATA	12777521
17032	43444444		DATA	43444444
17033	43444444		DATA	43444444
17034	26570515		DATA	26570515
17035	26570515		DATA	26570515
17036	4 C1 04077		BRU	NBSKIP=1,4
17037	0 C1 04143		BRU	NBFL0
17040	0 20*17040	DIV71	NBP*	*
17041	4 65 04046		DIV	MEMORY,4
17042	67352527		DATA	67352527
17043	70505773		DATA	70505773
17044	55464166		DATA	55464166
17045	71775561		DATA	71775561
17046	34333333		DATA	34333333
17047	34333333		DATA	34333333
17050	77253076		DATA	77253076
17051	77253076		DATA	77253076
17052	4 C1 04077		BRU	NBSKIP=1,4
17053	0 C1 04143		BRU	NBFL0

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CPU1 TAP=3.0 PAGE 256

17054	0 20*17054	DIV72	NBP*	*
17055	4 65 04046		DIV	MEMORY,4
17056	00156137		DATA	156137
17057	77421446		DATA	77421446
17060	76543640		DATA	76543640
17061	01563506		DATA	1563506
17062	25222222		DATA	25222222
17063	25222222		DATA	25222222
17064	61144207		DATA	61144207
17065	61144207		DATA	61144207
17066	4 C1 04077		BRU	NBSKIP=1,4
17067	0 C1 04143		BRU	NBFL0
17070	0 20*17070	DIV73	NBP*	*
17071	4 65 04046		DIV	MEMORY,4
17072	56106526		DATA	56106526
17073	36762602		DATA	36762602
17074	41641171		DATA	41641171
17075	74640044		DATA	74640044
17076	16111111		DATA	16111111
17077	16111111		DATA	16111111
17100	55427614		DATA	55427614
17101	55427614		DATA	55427614
17102	4 C1 04077		BRU	NBSKIP=1,4
17103	0 C1 04143		BRU	NBFL0

CPU1 TAP=3.0 PAGE 257

17104	0	20*17104	DIV74	NBP*	*
17105	4	65 04046		DIV	MEMORY,4
17106		74711330		DATA	74711330
17107		74170301		DATA	74170301
17110		12011202		DATA	12011202
17111		57266103		DATA	57266103
17112		07000000		DATA	7000000
17113		07000000		DATA	7000000
17114		32317176		DATA	32317176
17115		32317176		DATA	32317176
17116	4	01 04077		BRU	NBSKIP=1,4
17117	0	01 04143		BRU	OVFL0
17120	0	20*17120	DIV75	NBP*	*
17121	4	65 04046		DIV	MEMORY,4
17122		37404050		DATA	37404050
17123		50274231		DATA	50274231
17124		31755437		DATA	31755437
17125		11150140		DATA	11150140
17126		07777777		DATA	07777777
17127		07777777		DATA	07777777
17130		06174407		DATA	6174407
17131		06174407		DATA	6174407
17132	4	01 04077		BRU	NBSKIP=1,4
17133	0	01 04154		BRU	OVFL0

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CPU1 TAP=3.0 PAGE 258

17134	0	20*17134	DIV76	NBP*	*
17135	4	65 04046		DIV	MEMORY,4
17136		16141140		DATA	16141140
17137		77764213		DATA	77764213
17140		70702140		DATA	70702140
17141		23655013		DATA	23655013
17142		16666666		DATA	16666666
17143		16666666		DATA	16666666
17144		07054017		DATA	7054017
17145		07054017		DATA	7054017
17146	4	01 04077		BRU	NBSKIP=1,4
17147	0	01 04154		BRU	OVFL0
17150	0	20*17150	DIV77	NBP*	*
17151	4	65 04046		DIV	MEMORY,4
17152		22130502		DATA	22130502
17153		06705260		DATA	6705260
17154		64012150		DATA	64012150
17155		76657624		DATA	76657624
17156		25555555		DATA	25555555
17157		25555555		DATA	25555555
17160		71531776		DATA	71531776
17161		71531776		DATA	71531776
17162	4	01 04077		BRU	NBSKIP=1,4
17163	0	01 04154		BRU	OVFL0

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CPU1      TAP=3.0                      PAGE 259
17164    0 20*17164    DIV78  NOP*   *
17165    4 65 04046    DIV    MEMORY,4
17166    32777271    DATA  32777271
17167    22571422    DATA  22571422
17170    57217524    DATA  57217524
17171    52402376    DATA  52402376
17172    34444444    DATA  34444444
17173    34444444    DATA  34444444
17174    72121446    DATA  72121446
17175    72121446    DATA  72121446
17176    4 01 04077    BRU    NOSKIP=1,4
17177    0 01 04154    BRU    OVFL0                OVERFLOW
17200    0 20*17200    DIV79  NOP*   *
17201    4 65 04046    DIV    MEMORY,4
17202    40751345    DATA  40751345
17203    25145043    DATA  25145043
17204    44374146    DATA  44374146
17205    75317137    DATA  75317137
17206    43333333    DATA  43333333
17207    43333333    DATA  43333333
17210    27153034    DATA  27153034
17211    27153034    DATA  27153034
17212    4 01 04077    BRU    NOSKIP=1,4
17213    0 01 04154    BRU    OVFL0                OVERFLOW
17214    0 20 06404    NOP

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CPU1      TAP=3.0                      PAGE 260
17215    52641200    UIM    BCD    ' U 01 = CPU EXERCISERS 2.011
17216    01124012
17217    23476412
17220    25672551
17221    23316225
17222    51621202
17223    33003712
17224    52121212    UAM    BCD    '      THIS UNIT CONTAINS THE CPU EXERCISERS!
17225    12126330
17226    31621264
17227    45316312
17230    23464563
17231    21314562
17232    12633025
17233    12234764
17234    12256725
17235    51233162
17236    25516212
17237    52266445    BCD    ' FUNCTION 0 IS AN INSTRUCTION EXAMINER, '
17240    23633146
17241    45120012
17242    31621221
17243    45123145
17244    62635164
17245    23633146
17246    45122567
17247    21443145
17250    25513312
17251    52266445    BCD    ' FUNCTION 1 IS A ADD EXERCISER!
17252    23633146
17253    45120112
17254    31621221
17255    12212424
17256    12256725
17257    51233162
17260    25511212

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17261	52266445	BCD	' FUNCTION 2 IS A SHIFT EXERCISER'
17262	23633146		
17263	45120212		
17264	31621221		
17265	12623-31		
17266	26631225		
17267	67255123		
17270	31622551		
17271	52266445	BCD	' FUNCTION 3 IS A MULTIPLY EXERCISER'
17272	23633146		
17273	45120212		
17274	31621221		
17275	12446443		
17276	63314743		
17277	70122467		
17300	25512331		
17301	62255112		
17302	52266445	BCD	' FUNCTION 4 IS A DIVIDE EXERCISER'
17303	23633146		
17304	45120412		
17305	31621221		
17306	12243165		
17307	31242512		
17310	25672551		
17311	23316225		
17312	51121212		
17313	52266445	BCD	' FUNCTION 22 IS A MULTIPLY ANALYZER'
17314	23633146		
17315	45120202		
17316	12316212		
17317	21124464		
17320	43633147		
17321	43701221		
17322	45214370		
17323	71255112		
17324	52266445	BCD	' FUNCTION 23 IS A DIVIDE ANALYZER''

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17325	23633146		
17326	45120203		
17327	12316212		
17330	21122431		
17331	65312425		
17332	12214*21		
17333	43707125		
17334	51371212		
17335	52121212	UVM BCD	' FAW ''
17336	26216452		
17337	37121212		
17340	52261200	FIMO BCD	' F 00 = FULL INSTRUCTION EXAMINER''
17341	00124012		
17342	26644343		
17343	12314562		
17344	63516423		
17345	63314445		
17346	12256721		
17347	44314525		
17350	51371212		
17351	52121212	FAMO BCD	' THIS FUNCTION IS SIMILAR TO THE OLD'
17352	12126330		
17353	31621226		
17354	64452363		
17355	31464512		
17356	31621262		
17357	31443143		
17360	21511263		
17361	46126330		
17362	25124643		
17363	24121212		
17364	52110300	BCD	' 930 INSTRUCTION EXAMINER. IT TESTS ALL'
17365	12314562		
17366	63516423		
17367	63314445		
17370	12256721		

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17371	44314825		
17372	51331212		
17373	31631263		
17374	25626362		
17375	12214743		
17376	52633225	BCD	' THE CPU INSTRUCTIONS BY CHECKING THE '
17377	12234764		
17400	12314862		
17401	63514423		
17402	63314645		
17403	62122270		
17404	12233225		
17405	23423145		
17406	27126737		
17407	25121212		
17410	52512527	BCD	' REGISTERS, MEMORY AND OVERFLOW FOR THE'
17411	31626325		
17412	51627712		
17413	44754446		
17414	51701221		
17415	45241246		
17416	65255126		
17417	43466412		
17420	26465112		
17421	63302512		
17422	52475146	BCD	' PROPER RESULT.'
17423	47255112		
17424	51256264		
17425	43633212		
17426	52121212	BCD	' THE FUNCTION VARIABLES CONTAIN THE'
17427	12126330		
17430	25122664		
17431	45236331		
17432	46451265		
17433	21513121		
17434	22432562		

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17435	12234645		
17436	63213145		
17437	12633225		
17440	52512527	BCD	' REGISTERS BEFORE THE INSTRUCTION, THE'
17441	31626325		
17442	51621222		
17443	25264651		
17444	25126330		
17445	25123145		
17446	62635164		
17447	23633146		
17450	45731263		
17451	30251212		
17452	52314562	BCD	' INSTRUCTION EXECUTED, AND THE FUNCTION'
17453	63516423		
17454	63314645		
17455	12256725		
17456	23646325		
17457	24731221		
17460	45241263		
17461	30251226		
17462	64452363		
17463	31464512		
17464	52316325	BCD	' ITERATION WORD.'
17465	51214331		
17466	46451266		
17467	46512433		
17470	52121212	BCD	' IF A MULTIPLY OR DIVIDE ERROR OCCURS, I'
17471	12123126		
17472	12211244		
17473	64436331		
17474	47437112		
17475	46511224		
17476	31653124		
17477	25122551		
17500	51465112		

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```
17501 46232364
17502 51627312
17503 52211222 BCD ' A BREAKDOWN BY T TIMES MAY BE PRINTED BY'
17504 51252142
17505 24466645
17506 12227712
17507 63126331
17510 44256212
17511 44217012
17512 22251247
17513 51314563
17514 25241222
17515 70121212
17516 52635121 BCD ' TRANSFERING TO FUNCTION 22 OR FUNCTION 23'
17517 45622625
17520 51314527
17521 12634612
17522 26644523
17523 63314445
17524 12020212
17525 46511226
17526 64452363
17527 31464512
17530 02031712
17531 52512562 BCD ' RESPECTIVLY. AFTER THE OUTPUT, CONTROL IS'
17532 47252363
17533 31654370
17534 33122126
17535 63255112
17536 63302412
17537 46646347
17540 64637312
17541 23464563
17542 51464312
17543 31621212
17544 52512563 BCD ' RETURNED, AND YOU MAY RETURN TO THE FAILING'
```

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```
17545 64514525
17546 24731221
17547 45241270
17550 46641244
17551 21701251
17552 25636451
17553 45124346
17554 12633725
17555 12262131
17556 43314527
17557 52632562 BCD ' TEST BY TYPING F 01T. SETTING BPI BEFORE'
17560 63122270
17561 12637047
17562 31452712
17563 26120001
17564 63331212
17565 62256363
17566 31452712
17567 22470112
17570 22252646
17571 51251212
17572 52637047 BCD ' TYPING THE T WILL LOOP ON THE FAILING TEST.'
17573 31452712
17574 63302512
17575 63126631
17576 43431243
17577 46464712
17600 46451263
17601 30251226
17602 21314331
17603 45271263
17604 25624333
17605 37121212
17606 52121212 FVMO BCD ' F1* CREG AREG BREG XREG INST !!
17607 26316612
17610 12121212
```

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```
17611 23512F27
17612 12121P12
17613 12215125
17614 2712121P
17615 12122P51
17616 25271P12
17617 12121P67
17620 51232712
17621 12121P12
17622 31456P63
17623 52371P12
17624 52761P00 FIM1 BCD ' F O I * ADD EXERCISER'
17625 01124P12
17626 21242P12
17627 25677551
17630 23316225
17631 51371P12
17632 52321P12 FAM1 BCD ' THIS FUNCTION GENERATES RANDOM ADDS AND,
17633 12121P63
17634 30716P12
17635 26644F23
17636 63514K45
17637 12277545
17640 25517163
17641 25621251
17642 21457446
17643 44122124
17644 24621221
17645 45241P12
17646 52234K44 BCD ' COMPARES THE RESULT WITH SIMULATED ADDS.'
17647 47215125
17650 62126P30
17651 25125125
17652 52644P63
17653 12663163
17654 30126231
```

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```
17655 44644321
17656 63252412
17657 21242462
17660 33121P12
17661 52633P25 BCD ' THE SIMULATION MAKES NO USE OF THE ADDER OR THE
17662 12623144
17663 64432163
17664 31464512
17665 44214225
17666 62124546
17667 12646P25
17670 1P462612
17671 63302P12
17672 21242425
17673 51124651
17674 12633P25
17675 52623P31 BCD ' SHIFT LOGIC.'
17676 26631P43
17677 46273123
17700 33121P12
17701 52121P12 BCD ' THERE ARE FIVE FUNCTION VARIABLES FIM,
17702 12126P30
17703 25512512
17704 21512P12
17705 26316525
17706 12266445
17707 23633146
17710 45126521
17711 51312122
17712 43256P12
17713 26316673
17714 52235125 BCD ' CREG, AREG, BREG, AND XREG. FIM IS THE
17715 27731P21
17716 51252773
17717 12225125
17720 27731221
```

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```
17721 45241267
17722 51252733
17723 12122631
17724 66123162
17725 12633025
17726 52456444 BCD I NUMBER OF ITERATIONS FOR ONE PASS. I
17727 22255112
17730 46261231
17731 63255121
17732 63314645
17733 62122646
17734 51124645
17735 25124721
17736 62623312
17737 52633025 BCD I THE REGISTERS REPRESENT THE STARTING CONDITIONS. I
17740 12512527
17741 31626325
17742 51621251
17743 25475125
17744 62254463
17745 12633025
17746 12626321
17747 51633145
17750 27122346
17751 45243163
17752 31464462
17753 52264451 BCD I FOR THE PRESENT TEST CASE. I I
17754 12633025
17755 12475125
17756 62254463
17757 12632562
17760 63122321
17761 62253337
17762 52121212 FVM1 BCD I F1W CREG AREG BREG XREG I I
17763 26316412
17764 12121212
```

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```
17765 12235125
17766 27121212
17767 12122151
17770 25271212
17771 12121222
17772 51252712
17773 12121212
17774 67512527
17775 52371212
17776 52261200 FVM2 BCD I F 02 = SHIFT EXERCISER I I
17777 02124012
20000 62303126
20001 63122567
20002 25512331
20003 62255137
20004 52121212 FVM2 BCD I THIS FUNCTION GENERATES RANDOM SHIFTS. I
20005 12126330
20006 31621226
20007 64452363
20010 31464412
20011 27254525
20012 51216325
20013 62125121
20014 45244444
20015 12623031
20016 26636212
20017 52214524 BCD I AND COMPARES THE RESULT WITH SIMULATED SHIFTS. I
20020 12234644
20021 47215125
20022 62126330
20023 25125125
20024 62644363
20025 12663163
20026 30126331
20027 44644321
20030 63252412
```

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20031 62303126  
20032 63623312  
20033 52633025  
20034 12623144  
20035 64432163  
20036 31464512  
20037 44622562  
20040 12633025  
20041 12434627  
20042 31232143  
20043 12314562  
20044 63516423  
20045 63314445  
20046 62122145  
20047 24121212  
20050 52624222  
20051 33121263  
20052 30255125  
20053 12314212  
20054 45461264  
20055 62251246  
20056 26126330  
20057 26122124  
20060 24255133  
20061 12121212  
20062 52121212  
20063 12126330  
20064 25512512  
20065 21512512  
20066 62256525  
20067 45122664  
20070 45236331  
20071 46451265  
20072 21513121  
20073 22432562  
20074 73121212

BCD I THE SIMULATION USES THE LOGICAL INSTRUCTIONS AND I

BCD I SKB. THERE IS NO USE OF THE ADDER. I

BCD I THERE ARE SEVEN FUNCTION VARIABLES. I

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20075 52263166  
20076 73122351  
20077 25277312  
20100 21512527  
20101 73122251  
20102 25277312  
20103 67512527  
20104 73122145  
20105 24123145  
20106 62633312  
20107 52263166  
20110 12316212  
20111 63302512  
20112 45644222  
20113 25511246  
20114 26123163  
20115 25512163  
20116 31464562  
20117 12472351  
20120 12472162  
20121 62331212  
20122 63302512  
20123 51252731  
20124 62632551  
20125 62121212  
20126 52215125  
20127 12633025  
20130 12626321  
20131 51633145  
20132 27122346  
20133 45243163  
20134 31464562  
20135 12462612  
20136 63302512  
20137 47512562  
20140 25456312

BCD I FIW, CREG, AREG, BREG, XREG, AND INST. I

BCD I FI\* IS THE NUMBER OF ITERATIONS PER PASS. THE REGISTERS I

BCD I ARE THE STARTING CONDITIONS OF THE PRESENT TEST. I

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```
20141 63256263
20142 52232162
20143 25331212 BCD ' CASE. INST IS THE SHIFT INSTRUCTION BEING TESTED.'
20144 3145243
20145 12316212
20146 63302512
20147 62303126
20150 63123145
20151 62635164
20152 23633146
20153 45122225
20154 31452712
20155 63256263
20156 25243312
20157 52371212
20160 52121212 FVM2 BCD ' '
20161 26316612 BCD ' FVM CREG AREG BREG XREG INST '
20162 12121212
20163 12235125
20164 27121212
20165 12122151
20166 25271212
20167 12121222
20170 51252712
20171 12121212
20172 67512527
20173 12121212
20174 12314562
20175 63523712
20176 52261200 FVM3 BCD ' F 03 = MULTIPLY EXERCISER.'
20177 03124012
20200 44644363
20201 31474370
20202 12256725
20203 51233162
20204 25513712
```

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```
20205 52121212 FAM3 BCD ' THIS FUNCTION GENERATES RANDOM MULTIPLIES AND
20206 12633031
20207 62122664
20210 45236331
20211 46451227
20212 25452551
20213 21632562
20214 12512145
20215 24464412
20216 44644363
20217 31474331
20220 25621221
20221 45241212
20222 52234444 BCD ' COMPARES THE RESULT WITH SIMULATED MULTIPLIES, THE
20223 47215125
20224 62126330
20225 25125125
20226 62644363
20227 12663163
20230 30126231
20231 44644321
20232 63252412
20233 44644363
20234 31474331
20235 25623312
20236 12633025
20237 52623144 BCD ' SIMULATION USES THE LOGICAL INSTRUCTIONS.'
20240 64432163
20241 31464512
20242 64622562
20243 12633025
20244 12434427
20245 31232143
20246 12314562
20247 63516423
20250 63314445
```

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20251 62331212  
20252 52454612  
20253 64622512  
20254 46261263  
20255 30251221  
20256 24242551  
20257 12465112  
20260 62303126  
20261 63621221  
20262 51251244  
20263 21242533  
20264 52121212  
20265 12126330  
20266 25512512  
20267 21512512  
20270 26316525  
20271 12266445  
20272 23633146  
20273 45126521  
20274 51312122  
20275 43256212  
20276 26316673  
20277 52235125  
20300 27731221  
20301 51252773  
20302 12225125  
20303 27731221  
20304 45241267  
20305 51252733  
20306 12122631  
20307 66123162  
20310 12633225  
20311 52456444  
20312 22255112  
20313 46261231  
20314 63255121

BCD ' NO USE OF THE ADDER OR SHIFTS ARE MADE.'

BCD ' THERE ARE FIVE FUNCTION VARIABLES FIW.'

BCD ' CREG, AREG, BREG, AND XREG. FIW IS THE'

BCD ' NUMBER OF ITERATIONS FOR ONE PASS.'

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20315 63314645  
20316 62122646  
20317 51124645  
20320 25124721  
20321 62623312  
20322 52633025  
20323 12512527  
20324 31626325  
20325 51621251  
20326 25475125  
20327 62254563  
20330 12633225  
20331 12626321  
20332 51633145  
20333 27122746  
20334 45243163  
20335 31464562  
20336 52264651  
20337 12633225  
20340 12475125  
20341 62254563  
20342 12632562  
20343 63122321  
20344 62253312  
20345 52312612  
20346 63302551  
20347 25123162  
20350 12214512  
20351 25515146  
20352 51731270  
20353 46641244  
20354 21701227  
20355 25631221  
20356 12512527  
20357 31626325  
20360 51121212

BCD ' THE REGISTERS REPRESENT THE STARTING CONDITIONS.'

BCD ' FOR THE PRESENT TEST CASE.'

BCD ' IF THERE IS AN ERROR, YOU MAY GET A REGISTER'



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20361	52225125	BCD	! BREAKDOWN BY T TIMES, BY TYPING OF 22T!
20362	21422446		
20363	66451222		
20364	70126312		
20365	63314425		
20366	62731222		
20367	70126370		
20370	47314527		
20371	12402612		
20372	02026312		
20373	52234645	BCD	! CONTROL WILL BE RETURNED AFTER THE OUTPUT, AND!
20374	63514443		
20375	12663143		
20376	43122225		
20377	12512563		
20400	64514525		
20401	24122126		
20402	63255112		
20403	63302512		
20404	46646347		
20405	64637312		
20406	21452412		
20407	52704664	BCD	! YOU MAY RETURN TO THE ERROR CASE BY TYPING!
20410	12442170		
20411	12512563		
20412	64514512		
20413	63461263		
20414	30251225		
20415	51514651		
20416	12232162		
20417	25122270		
20420	12637047		
20421	31452712		
20422	52402612	BCD	! OF 3T. SETTING BP1 BEFORE TYPING THE T!
20423	03633312		
20424	12622563		

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20425	63314527		
20426	12224701		
20427	12222526		
20430	46512512		
20431	63704731		
20432	45271263		
20433	30251263		
20434	52663143	BCD	! WILL HOLD THE EXERCISER IN THE TEST LOOP.!!
20435	43123046		
20436	43241263		
20437	30251225		
20440	67255123		
20441	31622551		
20442	12314512		
20443	63302512		
20444	63256263		
20445	12434446		
20446	47333712		
20447	52261200	FIM4 BCD	! F 04 = DIVIDE EXERCISER!!
20450	04124012		
20451	24316531		
20452	24251225		
20453	67255123		
20454	31622551		
20455	37121212		
20456	52121212	FAM4 BCD	! THIS FUNCTION GENERATES RANDOM DIVIDES AND!
20457	12633031		
20460	62122664		
20461	45236331		
20462	46451227		
20463	25452551		
20464	21632562		
20465	12512145		
20466	24464412		
20467	24316531		
20470	24256212		

20471	21452412		
20472	52234444	BCD	' COMPARES THE RESULT WITH SIMULATED DIVIDES. THE'
20473	47215125		
20474	62126330		
20475	25125125		
20476	62644763		
20477	12663163		
20500	30126231		
20501	44644721		
20502	63252412		
20503	24316531		
20504	24250733		
20505	12126730		
20506	25121212		
20507	52623144	BCD	' SIMULATION USES THE LOGICAL INSTRUCTIONS.'
20510	64432163		
20511	31464512		
20512	64622562		
20513	12433725		
20514	12434427		
20515	31232143		
20516	12314562		
20517	63516423		
20520	63314445		
20521	62331212		
20522	52454412	BCD	' NO USE OF THE ADDER OR SHIFTS ARE MADE.'
20523	64622512		
20524	46261263		
20525	30251221		
20526	24242551		
20527	12465112		
20530	62333126		
20531	63621221		
20532	51251244		
20533	21242533		
20534	52121212	BCD	' THERE ARE FIVE FUNCTION VARIABLES FIVE'

20535	12126330		
20536	25512512		
20537	21512512		
20540	26316525		
20541	12266445		
20542	23633146		
20543	45126521		
20544	51312122		
20545	43256212		
20546	26316673		
20547	52235125	BCD	' CREG, AREG, BREG, AND XREG. FIVE IS THE'
20550	27731221		
20551	51252773		
20552	12225125		
20553	27731221		
20554	45241267		
20555	51252733		
20556	12263166		
20557	12316212		
20560	63302512		
20561	52456444	BCD	' NUMBER OF ITERATIONS FOR ONE PASS.'
20562	22255112		
20563	46261231		
20564	63255121		
20565	63314445		
20566	62122446		
20567	51124445		
20570	25124721		
20571	62623312		
20572	52633725	BCD	' THE REGISTERS REPRESENT THE STARTING CONDITIONS'
20573	12512527		
20574	31626725		
20575	51621251		
20576	25475125		
20577	62254563		
20600	12633725		

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20601	12626321		
20602	51633145		
20603	27122346		
20604	45243143		
20605	31464462		
20606	52264651	BCD	! FOR THE PRESENT TEST CASE,!
20607	12633025		
20610	12475125		
20611	62254563		
20612	12632562		
20613	63122321		
20614	62253312		
20615	52312412	BCD	! IF THERE IS AN ERROR, YOU MAY GET A REGISTER!
20616	63302551		
20617	25123162		
20620	12214512		
20621	25515146		
20622	51731270		
20623	46641244		
20624	21701227		
20625	25631221		
20626	12512427		
20627	31626325		
20630	51121212		
20631	52225125	BCD	! BREAKDOWN BY T TIMES, BY TYPING =F 23T!
20632	21422446		
20633	66451222		
20634	70126312		
20635	63314425		
20636	62731222		
20637	70126370		
20640	47314527		
20641	12402612		
20642	02036312		
20643	52234645	BCD	! CONTROL WILL BE RETURNED AFTER THE OUTPUT, AND!
20644	63514643		

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20645	12663143		
20646	43122225		
20647	12512563		
20650	64514525		
20651	24122126		
20652	63255112		
20653	63302512		
20654	46646347		
20655	64637312		
20656	21452412		
20657	52704664	BCD	! YOU MAY RETURN TO THE ERROR CASE BY TYPING!
20660	12442170		
20661	12512563		
20662	64514512		
20663	63461263		
20664	30251225		
20665	51514651		
20666	12232162		
20667	25122270		
20670	12637047		
20671	31452712		
20672	52402612	BCD	! =F 4T. SETTING BP1 BEFORE TYPING THE T!
20673	04633312		
20674	12622563		
20675	63314527		
20676	12224701		
20677	12222526		
20700	46512512		
20701	63704731		
20702	45271263		
20703	30251263		
20704	52663143	BCD	! WILL HOLD THE EXERCISER IN THE TEST LOOP.!!
20705	43123046		
20706	43241263		
20707	30251225		
20710	67255123		

20711	31622551		
20712	12314512		
20713	63302512		
20714	63256263		
20715	17434446		
20716	47333712		
20717	52261202	FIM22 BCD	' F 22 = MULTIPLY ANALYZER'
20720	07124012		
20721	44644363		
20722	31474370		
20723	12214521		
20724	43707125		
20725	51371212		
20726	52121212	FAM22 BCD	' THIS FUNCTION GENERATES THE INTERMEDIATE'
20727	12126330		
20730	31621226		
20731	64452263		
20732	31464512		
20733	27254525		
20734	51210225		
20735	62126330		
20736	25123145		
20737	63256144		
20740	25243121		
20741	63251012		
20742	52220325	BCD	' STEPS OF A MULTIPLY INSTRUCTION.'
20743	47621246		
20744	26122112		
20745	44644363		
20746	31474370		
20747	12314562		
20750	63516423		
20751	63634445		
20752	33121212		
20753	52121212	BCD	' UPON ENTERING THIS FUNCTION, CONTROL WILL'
20754	12126447		

20755	44451225		
20756	44632451		
20757	31452712		
20760	63303162		
20761	12266445		
20762	23633146		
20763	45731223		
20764	46456351		
20765	46431266		
20766	31434312		
20767	52222512	BCD	' BE RETURNED TO THE TTY. THEN SET THE FUNCTION'
20770	51256364		
20771	51452524		
20772	12634612		
20773	63302512		
20774	63637033		
20775	12126330		
20776	25451262		
20777	25631263		
21000	30251226		
21001	64452263		
21002	31464512		
21003	52652151	BCD	' VARIABLES. THE VARIABLES ARE PRESET TO THE LAST'
21004	31212243		
21005	25623712		
21006	12633025		
21007	12652151		
21010	31212243		
21011	25621221		
21012	51251247		
21013	51256225		
21014	63126346		
21015	12633025		
21016	12432162		
21017	63121212		
21020	52256725	BCD	' EXERCISER CASE AND MAY BE USED AS THEY ARE TO'

21021 51233162  
 21022 25511223  
 21023 21622512  
 21024 21452412  
 21025 44217112  
 21026 22251264  
 21027 62252412  
 21030 21621263  
 21031 30257112  
 21032 21512512  
 21033 63461212  
 21034 52214521  
 21035 43707125  
 21036 12633121  
 21037 63122321  
 21040 62253312  
 21041 52121212  
 21042 12122346  
 21043 45635146  
 21044 43123162  
 21045 12512563  
 21046 64514525  
 21047 24122646  
 21050 43434666  
 21051 31452712  
 21052 63302512  
 21053 46646347  
 21054 64631212  
 21055 52312412  
 21056 70466412  
 21057 23214425  
 21060 12265146  
 21061 44122664  
 21062 45236331  
 21063 46451203  
 21064 12634612

BCD 'ANALYZE THAT CASE.'

BCD 'CONTROL IS RETURNED FOLLOWING THE OUTPUT.'

BCD 'IF YOU CAME FROM FUNCTION 3 TO ANALYZE AN '

21065 21452143  
 21066 70712512  
 21067 21451212  
 21070 52255151  
 21071 46517312  
 21072 62256312  
 21073 22470112  
 21074 21452412  
 21075 63704725  
 21076 12402612  
 21077 03633312  
 21100 52633031  
 21101 62126631  
 21102 43431243  
 21103 46464712  
 21104 46451263  
 21105 30251262  
 21106 21442512  
 21107 63256263  
 21110 12232162  
 21111 25126330  
 21112 21631212  
 21113 52633125  
 21114 12255151  
 21115 46511246  
 21116 23236451  
 21117 25241246  
 21120 45331212  
 21121 62314431  
 21122 43215143  
 21123 70123126  
 21124 12704664  
 21125 12232144  
 21126 25121212  
 21127 52265146  
 21130 44122664

BCD 'ERROR, SET BP, AND TYPE #F 3T.'

BCD 'THIS WILL LOOP ON THE SAME TEST CASE THAT'

BCD 'THE ERROR OCCURED ON. SIMILARLY IF YOU CAME'

BCD 'FROM FUNCTION 0, YOU MAY RETURN TO THE SAME'

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```
21131 45236331
21132 46451200
21133 73127046
21134 64124421
21135 70125125
21136 63645145
21137 12634612
21140 63302512
21141 62214425
21142 52232162 BCD ' CASE BY TYPING =F OT.!!
21143 25122270
21144 12637047
21145 31452712
21146 40261200
21147 63333712
21150 52121223 FVM22 BCD ' CREG AREG BREG XREG !!
21151 51252712
21152 12121212
21153 21512527
21154 12121212
21155 12225125
21156 27121212
21157 12126751
21160 25275237
21161 52261202 FIM23 BCD ' F 23 = DIVIDE ANALYZER!!
21162 03124212
21163 24316531
21164 24231221
21165 45214270
21166 71255137
21167 52121212 FAM23 BCD ' THIS FUNCTION GENERATES AND DISPLAYS THE
21170 12126330
21171 31621226
21172 64452763
21173 31464512
21174 27254525
```

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```
21175 51216325
21176 62122145
21177 24122431
21200 62474321
21201 70621263
21202 30251212
21203 52314563 BCD ' INTERMEDIATE STEPS OF A DIVIDE INSTRUCTION.!'
21204 25514425
21205 24312163
21206 25126243
21207 25476212
21210 46261221
21211 12243165
21212 31242512
21213 31456263
21214 51642763
21215 31464533
21216 52121212 BCD ' UPON ENTERING THIS FUNCTION, CONTROL WILL
21217 12126447
21220 46451225
21221 45632551
21222 31452712
21223 63303162
21224 12266445
21225 23633146
21226 45731223
21227 46456351
21230 46431266
21231 31434312
21232 52222512 BCD ' BE RETURNED TO THE TTY. THEN SET THE FUNCTION!'
21233 51256364
21234 51452824
21235 12634612
21236 63302512
21237 63637233
21240 12126330
```

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21241	25451262		
21242	25631263		
21243	30251266		
21244	64452363		
21245	31464512		
21246	52652151	BCD	' VARIABLES, THE VARIABLES ARE PRESET TO THE LAST;
21247	31212243		
21250	25623312		
21251	12633025		
21252	12652151		
21253	31212243		
21254	25621221		
21255	51251247		
21256	51256225		
21257	63126346		
21260	12633025		
21261	12432162		
21262	63121212		
21263	52256725	BCD	' EXERCISER CASE AND MAY BE USED AS THEY ARE TO;
21264	51233162		
21265	25511223		
21266	21622512		
21267	21452412		
21270	44217012		
21271	22251264		
21272	62252412		
21273	21621263		
21274	30257012		
21275	21512512		
21276	63461212		
21277	52214521	BCD	' ANALYZE THAT CASE;
21300	43707125		
21301	12633021		
21302	63122321		
21303	62253312		
21304	52121212	BCD	' CONTROL IS RETURNED FOLLOWING THE OUTPUT;

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21305	12122346		
21306	45635146		
21307	43123162		
21310	12512563		
21311	64514525		
21312	24122646		
21313	43434666		
21314	31452712		
21315	63302512		
21316	46646367		
21317	64631212		
21320	52312612	BCD	' IF YOU CAME FROM FUNCTION 4 TO ANALYZE AN I
21321	70466412		
21322	23214425		
21323	12265146		
21324	44122664		
21325	45236331		
21326	46451204		
21327	12634612		
21330	21452143		
21331	70712512		
21332	21451212		
21333	52255151	BCD	' ERROR, SET BP1 AND TYPE =F &T;
21334	46517312		
21335	62256312		
21336	22470112		
21337	21452412		
21340	63704725		
21341	12402612		
21342	04633312		
21343	52633031	BCD	' THIS WILL LOOP ON THE SAME TEST CASE THAT;
21344	62126431		
21345	43431243		
21346	46464712		
21347	46451263		
21350	30251262		

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```
21351 21442512
21352 63256263
21353 12232162
21354 85126330
21355 21631212
21356 52633025 BCD I THE ERROR OCCURED ON. SIMILARLY IF YOU CAMEI
21357 12255151
21360 46511246
21361 23236451
21362 25241246
21363 45331212
21364 62314431
21365 43215143
21366 70123126
21367 12704664
21370 12232144
21371 25121212
21372 52265146 BCD I FROM FUNCTION O, YOU MAY RETURN TO THE SAMEI
21373 44122664
21374 45236331
21375 46451200
21376 73127046
21377 64124421
21400 70125125
21401 63445145
21402 12634612
21403 63302512
21404 62214425
21405 52232162 BCD I CASE BY TYPING OF OT.II
21406 25122270
21407 12617047
21410 31452712
21411 40241200
21412 63333712
21413 52121223 FV=23 BCD I CREG AREQ BREG XREG II
21414 51252712
```

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```
21415 12121212
21416 21012527
21417 12121212
21420 12225125
21421 27121212
21422 12126751
21423 25275237
21424 52211251 AADD BCD I A REGISTER ERROR DURING ADDII
21425 25273162
21426 63255112
21427 25515146
21430 51122464
21431 51314527
21432 12212424
21433 37121212
21434 52221251 BADD BCD I B REGISTER ERROR DURING ADDII
21435 25273162
21436 63255112
21437 25515146
21440 51122464
21441 51314527
21442 12212424
21443 37121212
21444 22671251 XADD BCD I X REGISTER ERROR DURING ADDII
21445 25273162
21446 63255112
21447 25515146
21450 51122464
21451 51314527
21452 12212424
21453 37121212
21454 52466525 OFADD BCD I OVERFLOW ERROR DURING ADDII
21455 51264346
21456 66122551
21457 51465112
21460 24645131
```



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21461	45271221			
21462	24243712			
21463	52211251	ASFT	BCD	' A REGISTER ERROR DURING SHIFT!'
21464	25273162			
21465	63255112			
21466	25515146			
21467	51122464			
21470	51314527			
21471	12623031			
21472	26633752			
21473	52221251	BSFT	BCD	' B REGISTER ERROR DURING SHIFT!'
21474	25273162			
21475	63255112			
21476	25515146			
21477	51122464			
21500	51314527			
21501	12623031			
21502	26633752			
21503	12121212			
21504	52671251	XSFT	BCD	' X REGISTER ERROR DURING SHIFT!'
21505	25273162			
21506	63255112			
21507	25515146			
21510	51122464			
21511	51314527			
21512	12623031			
21513	26633752			
21514	12121212			
21515	52466525	BSFT	BCD	' OVERFLOW ERROR DURING SHIFT!'
21516	51264346			
21517	66122551			
21520	51465112			
21521	24645131			
21522	45271262			
21523	30312663			
21524	37121212			

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21525	52211251	AMUL	BCD	' A REGISTER ERROR DURING MULTIPLY!'
21526	25273162			
21527	63255112			
21530	25515146			
21531	51122464			
21532	51314527			
21533	12446443			
21534	63314743			
21535	70371212			
21536	52221251	BMUL	BCD	' B REGISTER ERROR DURING MULTIPLY!'
21537	25273162			
21540	63255112			
21541	25515146			
21542	51122464			
21543	51314527			
21544	12446443			
21545	63314743			
21546	70371212			
21547	52671251	XMUL	BCD	' X REGISTER ERROR DURING MULTIPLY!'
21550	25273162			
21551	63255112			
21552	25515146			
21553	51122464			
21554	51314527			
21555	12446443			
21556	63314743			
21557	70371212			
21560	52466525	BFMUL	BCD	' OVERFLOW ERROR DURING MULTIPLY!'
21561	51264346			
21562	66122551			
21563	51465112			
21564	24645131			
21565	45271244			
21566	64436331			
21567	47437037			
21570	52211251	ADIV	BCD	' A REGISTER ERROR DURING DIVIDE!'

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21571	25273162				
21572	63255112				
21573	25515146				
21574	51122464				
21575	51314527				
21576	12243165				
21577	31242537				
21600	52221251	BDIV	BCD	' B REGISTER ERROR DURING DIVIDE''	
21601	25273162				
21602	63255112				
21603	25515146				
21604	51122464				
21605	51314527				
21606	12243165				
21607	31242537				
21610	52671251	XDIV	BCD	' X REGISTER ERROR DURING DIVIDE''	
21611	25273162				
21612	63255112				
21613	25515146				
21614	51122464				
21615	51314527				
21616	12243165				
21617	31242537				
21620	52466525	OPDIV	BCD	' OVERFLOW ERROR DURING DIVIDE''	
21621	51264346				
21622	66122551				
21623	51465112				
21624	24645131				
21625	45271224				
21626	31653124				
21627	25371212				
21630	52121231	ISSBX	BCD	' IS S/B XREG OVERFLOW ERRORS''	
21631	62121212				
21632	12121212				
21633	62612212				
21634	12121212				

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21635	12675125				
21636	27121212				
21637	46652551				
21640	26434666				
21641	12122551				
21642	51465162				
21643	52371212				
21644	52314562	SKPER	BCD	' INSTRUCTION FAILED TO SKIP''	
21645	63516423				
21646	63314645				
21647	12262131				
21650	43252412				
21651	63461262				
21652	42314737				
21653	52314562	NSKPER	BCD	' INSTRUCTION ERRONEOUSLY SKIPPED''	
21654	63516423				
21655	63314645				
21656	12255151				
21657	46432546				
21660	64624370				
21661	12624231				
21662	47472524				
21663	37121212				
21664	52211251	AERROR	BCD	' A REGISTER ERROR''	
21665	25273162				
21666	63255112				
21667	25515146				
21670	51371212				
21671	52221251	BERROR	BCD	' B REGISTER ERROR''	
21672	25273162				
21673	63255112				
21674	25515146				
21675	51371212				
21676	52671251	XERROR	BCD	' X REGISTER ERROR''	
21677	25273162				
21700	63255112				



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		* UNIT TABLE			
22002	0 20 17215	UPT	NBP	UIM	
22003	0 20 17284		NBP	UAM	
22004	0 20 17339		NBP	UVM	
22005	0 01 22007		ONE	FAW	
22006	20000000		DATA	20000000	UNIT ID
22007	76000000	FAW	DATA	76000000	

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		* FUNCTION TABLE			
22010	0 20 17340	FPT0	NBP	FIM0	
22011	0 20 17351		NBP	FAM0	
22012	0 20 17606		NBP	FVM0	
22013	0 06 22062		SIX	FIW	
22014	0 00 04172		PZE	FUNC1	
22015	40000000		DATA	40000000	
22016	0 20 17624	FPT1	NBP	FIM1	
22017	0 20 17632		NBP	FAM1	
22020	0 20 17762		NBP	FVM1	
22021	0 05 22062		FIVE	FIW	
22022	0 00 04303		PZE	FUNC2	
22023	20000000		DATA	20000000	
22024	0 20 17776	FPT2	NBP	FIM2	
22025	0 20 20004		NBP	FAM2	
22026	0 20 20160		NBP	FVM2	
22027	0 05 22062		FIVE	FIW	
22030	0 00 04433		PZE	FUNC3	
22031	10000000		DATA	10000000	
22032	0 20 20176	FPT3	NBP	FIM3	
22033	0 20 20205		NBP	FAM3	
22034	0 20 17762		NBP	FVM1	
22035	0 05 22062		FIVE	FIW	
22036	0 00 04546		PZE	FUNC4	
22037	04000000		DATA	04000000	
22040	0 20 20447	FPT4	NBP	FIM4	
22041	0 20 20456		NBP	FAM4	
22042	0 20 17762		NBP	FVM1	
22043	0 05 22062		FIVE	FIW	
22044	0 00 04661		PZE	FUNC22	
22045	02000000		DATA	02000000	

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22046	0 20 20717	FPT22	NBP	FIM22
22047	0 20 20726		NBP	FAM22
22050	0 20 21150		NBP	FVM22
22051	0 04 22063		FOUR	CCC
22052	0 00 04717		PZE	FUNC23
22053	00000002		DATA	00000002
22054	0 20 21161	FPT23	NBP	FIM23
22055	0 20 21167		NBP	FAM23
22056	0 20 21413		NBP	FVM23
22057	0 04 22063		FOUR	CCC
22060	0 00 04755		PZE	FUCEND
22061	00000001		DATA	00000001

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22062	00000200	* FUNCTION VARIABLES	FIW	DATA	200	FUNCTION ITERATION WORD
22063	0 00 00000		CCC	PZE		
22064	0 00 00000		AAA	PZE		
22065	0 00 00000		BBB	PZE		
22066	0 00 00000		XXX	PZE		
22067	0 00 00000		INST	PZE		

```
* BURST DISPLAY
22070 0 00 00000 A2 PZE
22071 0 00 00000 B2 PZE
22072 0 00 00000 C2 PZE
22073 0 00 00000 A00DSP PZE
22074 0 00 00000 B00DSP PZE
22075 0 00 00000 BCREG PZE
22076 0 00 00000 LINEB PZE
```

```
22077 0 00 00000 TIMOUT PZE
22100 0 00 00000 A1 PZE
22101 0 00 00000 B1 PZE
22102 0 00 00000 C1 PZE
22103 0 00 00000 X1 PZE
22104 0 00 00000 X2 PZE
22105 0 00 00000 A3 PZE
22106 0 00 00000 B3 PZE
22107 0 00 00000 X3 PZE
22110 0 00 00000 A4 PZE
22111 0 00 00000 B4 PZE
22112 0 00 00000 C4 PZE
22113 0 00 00000 X4 PZE
22114 0 00 00000 A5 PZE
22115 0 00 00000 B5 PZE
22116 0 00 00000 A00 PZE
22117 0 00 00000 B00 PZE
22120 0 00 00000 BZ0 PZE
22121 0 00 00000 C2 PZE
22122 0 00 00000 RF PZE
22123 0 00 00000 IX PZE
22124 0 00 00000 K0 PZE
22125 0 00 00000 PFLAG PZE
22126 0 00 00000 PFORMAT PZE
22127 0 00 00000 WK30 PZE
22130 0 00 00000 WK31 PZE
22131 0 00 00000 WK32 PZE
22132 0 00 00000 WK33 PZE
22133 0 00 00000 WK34 PZE
22134 0 00 00000 WK35 PZE
22135 0 00 00000 WK36 PZE
22136 0 00 00000 WK40 PZE
22137 0 00 00000 WK20 PZE
22140 0 00 00000 PF PZE
22141 0 00 00000 AAAA PZE
22142 0 00 00000 AIS PZE
```



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```

22231 63005237
22232 63105237 BCD IT8 IT5 IT2 ITR IT7 IT4 IT1 ITP IT6 IT3 ITO II
22233 63055237
22234 63025237
22235 63515237
22236 63075237
22237 63045237
22240 63015237
22241 63475237
22242 63065237
22243 63035237
22244 63005237
22245 63105237 BCD IT8 IT5 IT2 ITP II
22246 63055237
22247 63025237
22250 63475237

```

END

LITERALS USED:

```

22251 00000004
22252 00010203
22253 04050407
22254 00037777
22255 00000261
22256 00000100
22257 00000077
22260 40000000
22261 00000000
22262 00000001
22263 06700777
22264 06600000
22265 00000700
22266 06710000
22267 00000600
22270 06604000
22271 06730777
22272 77777777

```

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22273 37777777
22274 53577045
22275 00000777
22276 00000060
22277 00100000
22300 00037000
22301 00004000
22302 00077000
22303 00010000
22304 66666666
22305 11111111
22306 00000002
22307 00000177
22310 00000237
22311 00000273
22312 00000377
22313 00000020
22314 00000161
22315 00000003
22316 77777750
22317 77777776
22320 70000000

```

22321 CELLS USED BY PROGRAM

LOCAL SYMBOLS USED \*

A00	22116+	A000SP	22073+	A1	22100+
A2	22070+	A3	22105+	A4	22110+
A5	22114+	AAA	22064+	AAAA	22141+
AADD	21424+	ABC	7044+	ADC1	10034+
ADC2	10050+	ADC3	10064+	ADC4	10100+



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ADC5	N	10114*	ADC6	N	10130*	ADC7	N	10144*
ADC8	N	10160*	ADD1	N	7534*	ADD2	N	7550*
ADD3	N	7564*	ADD4	N	7600*	ADD5	N	7614*
ADD6	N	7630*	ADD7	N	7644*	ADD8	N	7660*
ADDSIM		4756*	ADIV	N	21570*	ADLUP		5001*
ADM1	N	11530*	ADM2	N	11544*	ADM3	N	11560*
ADM4	N	11574*	ADM5	N	11610*	ADM6	N	11624*
ADM7	N	11640*	ADM8	N	11654*	AERROR		21664*
AGAIN0		4025*	AGAIN1		4201*	AGAIN2		4312*
AGAIN3		4444*	AGAIN4		4557*	AIS		22142*
AL2		5632*	AMUL		21525*	AR1		5604*
AREG	N	410	ASB		22143*	ASFT		21463*
B00		22117*	B00DSP		22074*	B1		22101*
B2		22071*	B3		22106*	B4		22111*
B5		22115*	BAC	N	7030*	BADD		21434*
BBB		22065*	BBBB		22144*	BCREG		22075*
BDIV		21600*	BEGIN		6276*	BERROR		21671*
BIGPBP		5757*	BIS		22145*	BIT0		5471*
BIT1		5472*	BIT10		5503*	BIT11		5504*
BIT12		5505*	BIT13		5506*	BIT14		5507*
BIT15		5510*	BIT16		5511*	BIT17		5512*
BIT18		5513*	BIT19		5514*	BIT2		5473*
BIT20		5515*	BIT21		5516*	BIT22		5517*
BIT23		5520*	BIT3		5474*	BIT4		5475*
BIT5		5476*	BIT6		5477*	BIT7		5500*
BIT8		5501*	BIT9		5502*	BMUL		21536*
BR1		5612*	BREG	N	411	BR11	N	7454*
BR12	N	7470*	BR13	N	7504*	BR14	N	7520*
BRM1	N	11670*	BRM2	N	11704*	BRM3	N	11720*
BRM4	N	11734*	BRM5	N	11750*	BRM6	N	11764*
BRM7	N	12000*	BRR1	N	12264*	BRR2	N	12300*
BRX1	N	10774*	BRX2	N	11010*	BRX3	N	11024*
BRX4	N	11040*	BRX5	N	11054*	BRX6	N	11070*
BSB		22146*	BSFT		21473*	BT0AR1		5246*
BT0AL1		5361*	BZ0		22120*	C1		22102*
C2		22072*	C4		22112*	CAB	N	6764*

CPU1 TAP=3.0

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CARRY		22147*	CARRET		21725*	CAX	N	7074*
CBA	N	7000*	CBX	N	7124*	CCC		22063*
CLA	N	6720*	CLB	N	6734*	CLEAR		6013*
CLENUM	N	6130*	CLR	N	6750*	CLROP		6146*
CLX	N	6704*	CNA1	N	7234*	CNA2	N	7250*
CNA3	N	7264*	CNA4	N	7300*	CNA5	N	7314*
CNA6	N	7330*	CNA7	N	7344*	CNA8	N	7360*
CNASIM		5045*	COMMON		5775*	CRYOUT		22150*
CXA	N	7080*	CXB	N	7140*	CZ		22121*
DIV1	N	15330*	DIV10	N	15504*	DIV11	N	15520*
DIV12	N	15534*	DIV13	N	15550*	DIV14	N	15564*
DIV15	N	15600*	DIV16	N	15614*	DIV17	N	15630*
DIV18	N	15644*	DIV19	N	15660*	DIV2	N	15344*
DIV20	N	15674*	DIV21	N	15710*	DIV22	N	15724*
DIV23	N	15740*	DIV24	N	15754*	DIV25	N	15770*
DIV26	N	16004*	DIV27	N	16020*	DIV28	N	16034*
DIV29	N	16050*	DIV3	N	15360*	DIV30	N	16064*
DIV31	N	16100*	DIV32	N	16114*	DIV33	N	16130*
DIV34	N	16144*	DIV35	N	16160*	DIV36	N	16174*
DIV37	N	16210*	DIV38	N	16224*	DIV39	N	16240*
DIV4	N	15374*	DIV40	N	16254*	DIV41	N	16270*
DIV42	N	16304*	DIV43	N	16320*	DIV44	N	16334*
DIV45	N	16350*	DIV46	N	16364*	DIV47	N	16400*
DIV48	N	16414*	DIV49	N	16430*	DIV5	N	15410*
DIV50	N	16444*	DIV51	N	16460*	DIV52	N	16474*
DIV53	N	16510*	DIV54	N	16524*	DIV55	N	16540*
DIV56	N	16554*	DIV57	N	16570*	DIV58	N	16604*
DIV59	N	16620*	DIV6	N	15424*	DIV60	N	16634*
DIV61	N	16650*	DIV62	N	16664*	DIV63	N	16700*
DIV64	N	16714*	DIV65	N	16730*	DIV66	N	16744*
DIV67	N	16760*	DIV68	N	16774*	DIV69	N	17010*
DIV7	N	15440*	DIV70	N	17024*	DIV71	N	17040*
DIV72	N	17054*	DIV73	N	17070*	DIV74	N	17104*
DIV75	N	17120*	DIV76	N	17134*	DIV77	N	17150*
DIV78	N	17164*	DIV79	N	17200*	DIV8	N	15454*
DIV9	N	14470*	DIVERT		450	DIVSIM		6175*

DBNE		452	OCSIZ	N	404	DTIME		22217+
EAX1	N	12154+	EAX2	N	12170+	EAX3	N	12204+
EAX4	N	12270+	EAX5	N	12234+	EAX6	N	12250+
EBR		434	EBM1	N	12564+	EBR1	N	6624+
EBR2	N	6640+	EBR3	N	6654+	EBR4	N	6670+
ERRBR		460	ERRBRS		414	ETR1	N	6464+
ETH2	N	6500+	ETR3	N	6514+	ETR4	N	6530+
ETHIT		4337+	EXU1	N	11230+	EXU2	N	11244+
EXJ3	N	11260+	EXU4	N	11274+	FAMQ		17351+
FAM1		17632+	FAM2		20004+	FAM22		20726+
FAM23		21167+	FAM3		20205+	FAM4		20456+
FAM		22007+	FDONE		456	FIMQ		17340+
FIM1		17624+	FIM2		17776+	FIM22		20717+
FIM23		21161+	FIM3		20176+	FIM4		20447+
FIMISH		6344+	FIM		22062+	FLAGS	N	332
FORMAT		22126+	FPTC		22010+	FPT1		22016+
FPT2		22024+	FPT22		22046+	FPT23		22054+
FPT3		22032+	FPT4		22040+	FUCEND		4755+
FUNCT		424	FUNCO	N	4006+	FUNC1		4172+
FUNC2		4303+	FUNC22		4661+	FUNC23		4717+
FUNC3		4433+	FUNC4		4546+	FVMO		17606+
FV1		17762+	FVM2		20160+	FVM22		21150+
FV23		21413+	I30T44		5765+	I31	N	243
I33	N	247	I56I74		5764+	IEXT		5751+
IPLG		22162+	ILLFXT		6027+	MSG		6055+
IIST		22067+	INT31	N	242	INT33	N	246
ISSBX		21630+	ITABLE		6023+	IK		22151+
IA		22123+	KO		22124+	LAST		6402+
LCYAR1		2445+	LC		5165+	LDE	N	7204+
LEPT		5155+	LINE8		22076+	LBCKS	N	402
LHS		5147+	LRSHA1		5441+	LSH1	N	13224+
LS-10	N	13400+	LSH11	N	13414+	LSH12	N	13430+
LS-2	N	13240+	LSH3	N	13254+	LSH4	N	13270+
LS-5	N	13304+	LSH6	N	13320+	LSH7	N	13334+
LS-8	N	13350+	LSH9	N	13364+	LSHAB1		5326+
MEMORY		4046+	VERRR		21703+	MIN1	N	11370+

MIN2	N	11404+	MIN3	N	11420+	MIN4	N	11434+
MODLUP		4026+	MODULE		22163+	MRG1	N	6544+
MRG2	N	6560+	MRG3	N	6574+	MRG4	N	6610+
MTIME		22165+	MTITLE		21726+	MUL1	N	14150+
MUL10	N	14324+	MUL11	N	14340+	MUL12	N	14354+
MUL13	N	14370+	MUL14	N	14404+	MUL15	N	14420+
MUL16	N	14434+	MUL17	N	14450+	MUL18	N	14464+
MUL19	N	14500+	MUL2	N	14164+	MUL20	N	14514+
MUL21	N	14530+	MUL22	N	14544+	MUL23	N	14560+
MUL24	N	14574+	MUL25	N	14610+	MUL26	N	14624+
MUL27	N	14640+	MUL28	N	14654+	MUL29	N	14670+
MUL3	N	14208+	MUL30	N	14704+	MUL31	N	14720+
MUL32	N	14734+	MUL33	N	14750+	MUL34	N	14764+
MUL35	N	15000+	MUL36	N	15014+	MUL37	N	15030+
MUL38	N	15044+	MUL39	N	15060+	MUL4	N	14214+
MUL40	N	15074+	MUL41	N	15110+	MUL42	N	15124+
MUL43	N	15140+	MUL44	N	15154+	MUL45	N	15170+
MUL46	N	15204+	MUL47	N	15220+	MUL48	N	15234+
MUL49	N	15250+	MUL5	N	14230+	MUL50	N	15264+
MUL51	N	15300+	MUL52	N	15314+	MUL6	N	14244+
MUL7	N	14260+	MUL8	N	14274+	MUL9	N	14310+
MULSTV		4067+	MULT1		6165+	MULT2		6125+
MULT3		4170+	MULT4		6114+	ND		5175+
NB01	N	13444+	NB010	N	13620+	NB011	N	13634+
NB012	N	13650+	NB013	N	13664+	NB014	N	13700+
NB015	N	13714+	NB016	N	13730+	NB017	N	13744+
NB018	N	13760+	NB02	N	13460+	NB03	N	13474+
NB04	N	13510+	NB05	N	13524+	NB06	N	13540+
NB07	N	13554+	NB08	N	13570+	NB09	N	13604+
NB0NE		4214+	NBERR		4106+	NBP1		6404+
NBP2	N	6420+	NBP3	N	6434+	NBP4	N	6450+
NBSKIP		4100+	NBVERR		21707+	NBVFLO		4143+
NBXPBR		21653+	NBJECT		430	OBERROR		21716+
BFADD		21454+	BFDIV		21620+	OFIS		22152+
BFLAG		22125+	BFMUL		21560+	OF5B		22153+
BFSFT		21515+	BF		22140+	OK		4163+

BTB1	N	7374+	BTB2	N	7410+	BTB3	N	7424+
BTB4	N	7440+	BUT1	N	5677+	BUT2	N	5703+
BUTFLG		22156+	BVFLB		415+	BVRFLB	N	413
BVT1	N	12314+	BVT2	N	12330+	BVT3	N	12344+
BVT4	N	12360+	PBP	N	5050+	PBP1	N	12014+
PBP2	N	12030+	PBP3	N	12044+	PBP4	N	12060+
PBP5	N	12074+	PBP6	N	12110+	PBP7	N	12124+
PBP8	N	12140+	PBPED		6042+	PBPST		4061+
PRIV1	N	13774+	PRIV2	N	14010+	PRIV3	N	14024+
PRIV4	N	14040+	PRIV5	N	14054+	PRIV6	N	14070+
PRIV7	N	14104+	PRIV8	N	14120+	PRIV9	N	14134+
RAOSIZ	N	403	RANDBM		5053+	RCYAB1		5457+
RC		5137+	REGOUT		5665+	REB1	N	12440+
REB2	N	12454+	REB3	N	12470+	REB4	N	12504+
REB5	N	12520+	REB6	N	12534+	REB7	N	12550+
REPORT		454	RESULT		21747+	RETURN		440
RF		22122+	RIGHT	N	5127+	RL1		415
RL2		416	RL4	N	417	RLV1	N	12374+
RLV2	N	12410+	RLV3	N	12424+	RSA		5522+
RS-1	N	12740+	RSH10	N	13114+	RSH11	N	13130+
RS-12	N	12144+	RSH13	N	13160+	RSH14	N	13174+
RS-15	N	12210+	RSH2	N	12754+	RSH3	N	12770+
RS-4	N	13004+	RSH5	N	13020+	RSH6	N	13034+
RS-7	N	13050+	RSHA	N	13064+	RSH9	N	13100+
RS-AB1		5221+	SEED		406	SETBZ0		5656+
SET30		4237+	SFTBL	N	5521+	SFTBk		5106+
SFTS1A		5071+	SHIFT1		4350+	SHIFT2		4364+
SKA1	N	10524+	SKA2	N	10540+	SKA3	N	10554+
SKA4	N	10570+	SKA5	N	10604+	SKA6	N	10620+
SKB1	N	10414+	SKB2	N	10430+	SKB3	N	10444+
SKB4	N	10460+	SKB5	N	10474+	SKB6	N	10510+
SKD1	N	12600+	SKD2	N	12614+	SKD3	N	12630+
SKD4	N	12644+	SKD5	N	12660+	SKD6	N	12674+
SKD7	N	12710+	SKD8	N	12724+	SKG1	N	10634+
SKG2	N	10650+	SKG3	N	10664+	SKG4	N	10700+
SKG5	N	10714+	SKG6	N	10730+	SKG7	N	10744+

SKB8	N	10760+	SKIP		4072+	SKM1	N	11104+
SKF2	N	11120+	SKM3	N	11134+	SKM4	N	11150+
SKM5	N	11164+	SKM6	N	11200+	SKM7	N	11214+
SK-1	N	10334+	SKN2	N	10350+	SKN3	N	10364+
SKN4	N	10400+	SKPER		21644+	SKR1	N	11450+
SKR2	N	11464+	SKR3	N	11500+	SKR4	N	11514+
SPIT	N	21773+	SPRINT		6046+	SPUR		5731+
SPUR1		736+	STA1	N	11310+	STA2	N	11324+
STATJS		401	STE	N	7170+	SUB1	N	7674+
SUB2	N	7710+	SUB3	N	7724+	SUB4	N	7740+
SUB5	N	7754+	SUB6	N	7770+	SUB7	N	10004+
SUB8	N	10020+	SUC1	N	10174+	SUC2	N	10210+
SUC3	N	10224+	SUC4	N	10240+	SUC5	N	10254+
SUC6	N	10270+	SUC7	N	10304+	SUC8	N	10320+
SUM		22154+	SYSIZE	N	405	T40		261
TEMP		22155+	TESTX	N	4126+	TESTA	N	4113+
TESTAC		4267+	TESTB	N	4120+	TESTB0		6264+
TESTM		4134+	TIME	N	407	TIMOUT		22077+
UAM		17224+	UAM	N	400	UJM		17215+
UNIT		429	UPT		22002+	UYM		17335+
WK20		22137+	WK30		22127+	WK31		22130+
WK32		22131+	WK33		22132+	WK34		22133+
WK35		22134+	WK36		22135+	WK40		22136+
X1		22103+	X2		22104+	X3		22107+
X4		22113+	XAB	N	7014+	XADD		21444+
XDIV		21610+	XEE	N	7220+	XERROR		21476+
XIS		22157+	XMA1	N	11340+	XMA2	N	11354+
XMOL		21547+	XREG	N	412	XSAVE	N	22164+
XSB		22160+	XSFY		21504+	XXA	N	7110+
XXB		7154+	XXX		22066+	XXXX		22161+

