

DRunible

note 1993:

I've forgotten what this did —
it combines SOAP code with Runible somewhere —
my old notes say 'arithmetic compiler
method of Runible in Runible'.
Maybe used to prepare illustration for CACM article?

Note Dec 2002

The first ^{SOAP} program converts a Runible statement
into a sequence of data cards
The DRunible program inputs these cards and
carries out the algorithm in the big CACM flowchart
The second SOAP program makes the output of
DRunible somewhat readable.

0001I Y1 Z I2 S YLI3 X I9R M AC635
0001I D 46J52BM16P0J22B7 F
I1 Z 1 F

PAGE 1
9/ 8/59

+
0001 1000 PLR
0002 MN2 EQU 1970
0003 N2 EQU 1967
0004 MN EQU 1968
0005 NN EQU 1969
0006 BLR 1950 1999
0007 TEMP1 EQU 9000
0008 R0001 EQU 9004
0009 S0001 BLR 0100 S0030
0010 C1 BLR 1927 1936
0011 C2 BLR 1877 1886
0012 COR C1
0013 1 01 0000 0007
0014 1 00 0000 0006
0015 1 00 0000 0006
0016 1 00 0000 8002
0017 1 00 0000 0000
0018 1 00 0000 0001
0019 1 00 0000 0060
0020 1 00 0000 8002
0021 1 00 0000 0000
0022 1 00 8000 0008
0023 COR C2
0024 1 01 0007 0007
0025 1 00 0000 0000
0026 1 00 0000 0006
0027 1 00 0000 0004
0028 1 00 0000 0004
0029 1 00 0000 0001
0030 1 00 0000 0001
0031 1 00 0000 0006
0032 1 00 0000 0000
0033 1 00 8000 0008
0034 COR
0035 F ALF F THINK
0036 GAMMA EQU 9002
0037 BIG10 10 0000 0000
0038 T0001 BLR 0200 0220
0039 U0001 BLR 0250 0259
0040 W0001 BLR 1977 W0010
0041 Q0001 BLR 1677 Q0010
0042 START SYN 1999
0043 START WR1 C1
0044 WR1 C2
0045 RAA 0000 ENTER
0046 ENTER RD1 R0001
0047 RAU R0004
0048 SRT 0004
0049 SLO 8002
0050 STD TEMP1
0051 ALO R0002
0052 SLT 0004
0053 STU R0002
0054 SLT 0006
0055 ALO TEMP1
0056 SLT 0002

*punch the two
initialize cards.*

1927 +01 0000 0007
1928 +00 0000 0006
1929 +00 0000 0006
1930 +00 0000 8002
1931 +00 0000 0000
1932 +00 0000 0001
1933 +00 0000 0060
1934 +00 0000 8002
1935 +00 0000 0000
1936 +00 8000 0008

1877 +01 0007 0007
1878 +00 0000 0000
1879 +00 0000 0006
1880 +00 0000 0004
1881 +00 0000 0004
1882 +00 0000 0001
1883 +00 0000 0001
1884 +00 0000 0006
1885 +00 0000 0000
1886 +00 8000 0008

0034 +66 0000 0000
0036 +10 0000 0000

1999 +71 1927 0005
0005 +71 1877 0011
0011 +80 0000 0017
0017 +70 9004 0041
0041 +60 9007 0049
0049 +30 0004 0009
0009 +16 8002 0067
0067 +24 9000 0023
0023 +15 9005 0031
0031 +35 0004 0091
0091 +21 9005 0099
0099 +35 0006 0013
0013 +15 9000 0021
0021 +35 0002 0027

*← 7 input values
I₀ = 6
I₁ = 6
I₂ = 8002
I₃ = 0
I₄ = 1
I₅ = 60
I₆ = 8002*

(7-per-card format code for plugboard, I guess.)

*I₇ = 0
I₈ = 6
I₉ = 4
I₁₀ = 4
I₁₁ = 1
I₁₂ = 1
I₁₃ = 6*

⊗ ?

0057		SLO	8002		0027	+16	8002	0035
0058		STD	TEMP1		0035	+24	9000	0141
0059		ALO	R0003		0141	+15	9006	0149
0060		SLT	0002		0149	+35	0002	0055
0061		STU	R0003		0055	+21	9006	0063
0062		SLT	0008		0063	+35	0008	0081
0063		ALO	TEMP1		0081	+15	9000	0039
0064		SLT	0002		0039	+35	0002	0045
0065		STU	R0004		0045	+21	9007	0003
0066		SET	R0001		0003	+27	9004	0008
0067		SIB	S0001A	store JAS Black.	0008	+28	2100	0012
0068		RAU	R0006		0012	+60	9009	0019
0069		SLT	0004		0019	+35	0004	0029
0070		SUP	F		0029	+11	0034	0089
0071		AXA	0006		0089	+50	0006	0095
0072		NZU	ENTER		0095	+44	0017	0000
0073		SXA	1		0000	+51	0001	0006
0074		RAL	S0001A		0006	+65	2100	0155
0075		SRT	6		0155	+30	0006	0069
0076		STL	GAMMA	SCAN1	0069	+20	9002	0026
0077	SCAN	RAU	GAMMA	2F	0076	+60	9002	0033
0078	2	NZU		1F	0033	+44	0037	0038
0079		SRT	0002		0037	+30	0002	0043
0080		STU	GAMMA		0043	+21	9002	0001
0081		SUP	8003		0001	+11	8003	0059
0082		NZE	9F	SCAN	0059	+45	0062	0076
0083	1	SXA	1		0038	+51	0001	0044
0084		BMA	END		0044	+41	0047	0048
0085		RAU	S0001A		0048	+60	2100	0305
0086		STU	GAMMA	2B	0305	+21	9002	0033
0087	9	BOV	MN1		0062	+47	0015	0167
0088		SLO	8002		0167	+16	8002	0025
0089		STD	TEMP1		0025	+24	9000	0131
0090		TLU	T0001		0131	+84	0200	0065
0091		ALO		8002	0065	+15	0018	8002
0092		RAL	0000		0018	+65	0000	0355
0093		LOD	8003		0355	+69	8003	0162
0094		SIA	TEMP2		0162	+23	0165	0068
0095		SLO	TEMP1		0068	+16	9000	0075
0096		SLT	0002		0075	+35	0002	0181
0097		NZU		TEMP2	0181	+44	0085	0165
0098		AUP	8001		0085	+10	8001	0093
0099		AUP	BIG10		0093	+10	0036	0191
0100		BOV	NN		0191	+47	1969	0046
0101		HLT	1234	START	0046	+01	1234	1999
0102	2F	EQU	1965					
0103	3F	EQU	1966					
0104		COR	T0001					
0105	1	UND						
0106	1	61	0070	2F	0200	+61	0070	1965
0107	1	62	0000	MN2	0201	+62	0000	1970
0108	1	63	3022	3F	0202	+63	3022	1966
0109	1	64	0330	2F	0203	+64	0330	1965
0110	1	69	1020	3F	0204	+69	1020	1966
0111	1	71	0000	N2	0205	+71	0000	1967
0112	1	73	0650	2F	0206	+73	0650	1965
0113	1	74	0140	MN	0207	+74	0140	1968
0114	1	77	0430	2F	0208	+77	0430	1965
0115	1	79	0660	2F	0209	+79	0660	1965
0116	1	82	0130	2F	0210	+82	0130	1965

HAND STOCK FORM NO. 14110 9

0117	1	87	0230	2F
0118	1	88	2022	3F
0119	1	89	0550	2F
0120	1	99	9999	NN
0121		COR		
0122	3	SLT	0001	
0123		SLO	8002	
0124		SLT	0002	
0125		ALO	8001	
0126		SRT	0001	2F
0127	2	SLT	2	
0128		STU	W0002	
0129		SUP	8003	
0130		SLT	1	
0131		STU	W0003	
0132		SUP	8003	
0133		SLT	1	
0134		STU	W0004	
0135		BOV		SW1
0136		WR1	W0001	START
0137	END	RAL		1F
0138		00	0650	0000
0139	1	SCT	0002	2B
0140	SCAN1	RAL	S0001	
0141		SLT	2	
0142		SLO	8002	
0143		SRT	2	
0144		SLO	8002	
0145		TLU	U0001	
0146		STD	TEMP1	
0147		ALO		8002
0148		RAL	0000	
0149		SLO	TEMP1	
0150		SLT	3	
0151		NZU		1F
0152		HLT	1234	START
0153	1	SRT	3	
0154		STL	W0005	BEGIN
0155	U0001	63	0000	0000
0156	U0002	69	0000	0001
0157	U0003	88	0000	0000
0158	U0004	99	9000	0000
0159	- W0001	01	0000	0004
0160	W0010	00	8000	0008
0161	NN	RAL	TEMP1	
0162		SLT	2	
0163		ALO	N	
0164		SRT	1	
0165		STL	N	
0166		SXB	1	
0167		LOD	SWON	
0168		STD	SW1	SCAN
0169	N2	RAB	0	
0170		RAC	2	SCAN
0171	MN	SCT	1	SCAN
0172	MN1	SLO	B	
0173		NZE		1F
0174		ALO	8001	
0175		AUP	GAMMA	
0176		SLT	2	

0211	+87	0230	1965
0212	+88	2022	1966
0213	+89	0550	1965
0214	+99	9999	1969
1966	+35	0001	0073
0073	+16	8002	0231
0231	+35	0002	0087
0087	+15	8001	0145
0145	+30	0001	1965
1965	+35	0002	0071
0071	+21	1978	0281
0281	+11	8003	0139
0139	+35	0001	0195
0195	+21	1979	0032
0032	+11	8003	0189
0189	+35	0001	0245
0245	+21	1980	0083
0083	+47	0086	0088
0086	+71	1977	1999
0047	+65	0050	0405
0050	+00	0650	0000
0405	+36	0002	1965
0026	+65	0100	0455
0455	+35	0002	0061
0061	+16	8002	0169
0169	+30	0002	0175
0175	+16	8002	0133
0133	+84	0250	0265
0265	+24	9000	0171
0171	+15	0024	8002
0024	+65	0000	0505
0505	+16	9000	0163
0163	+35	0003	0221
0221	+44	0225	0176
0225	+01	1234	1999
0176	+30	0003	0135
0135	+20	1981	0084
0250	+63	0000	0000
0251	+69	0000	0001
0252	+88	0000	0000
0253	+99	9000	0000
1977	-01	0000	0004
1986	+00	8000	0008
1969	+65	9000	0077
0077	+35	0002	0183
0183	+15	0136	0241
0241	+30	0001	0097
0097	+20	0136	0239
0239	+53	0001	0295
0295	+69	0098	0051
0051	+24	0088	0076
1967	+82	0000	0173
0173	+88	0002	0076
1968	+36	0001	0076
0015	+16	0168	0223
0223	+45	0226	0177
0226	+15	8001	0233
0233	+10	9002	0291
0291	+35	0002	0147

0177		STU	GAMMA		
0178		RAL	140D	2B	
0179	B	ALF	B	THINK	
0180	140D	01	4000	0000	
0181	1	RSL	N	5F	
0182	5	SRT	10 B		
0183		STL	NBAR		
0184		STU	N		
0185		NZC	1F		
0186		RAC	0002	SCAN	
0187	1	HLT	4444	START	
0188	MN2	RAL	N	5B	
0189	SWON	NZC	1F		
0190		RAL	N		
0191		SRT	0010B		
0192		STL	Q0002		
0193		STU	Q0004		
0194		LOD		3F	
0195		00	0000	0001	
0196	3	STD	Q0003		
0197		LOD	W0005		
0198		STD	Q0005		
0199		WR1	Q0001	SWOFF	
0200	1	RSC	0050B		
0201		AXC	101		
0202		LOD	NBAR		
0203		AXC	8001		
0204		RAL	N		
0205		BMI	1F		
0206		AUP	501	2F	
0207	1	SUP	501	2F	
0208	2	FMP	8007		
0209		STU	Q0002		
0210		LOD		3F	
0211		00	0000	0001	
0212	3	STD	Q0003		
0213		LOD	W0005		
0214		STD	Q0005		
0215		LOD		3F	
0216		00	0000	0002	
0217	3	STD	Q0004		
0218		WR1	Q0001	SWOFF	
0219	501	00	0000	0049	
0220	- Q0001	01	0000	0004	
0221	Q0010	00	8000	0008	
0222	SWOFF	WR1	W0001	BEGIN	
0223	BEGIN	RAC	0		
0224		RAB	0		
0225		RAL	SWOFF		
0226		STD	SW1		
0227		STU	N	SCAN	
0228	1020	NOP	0	START	
0229		END			
	DRUNC	IBL	E CORR	ESPOND	ENCE TABLE
		IO	I1	I2	
A		0	7	0	
N		N	1	ARITH	
)		6	6	0	
+		1	3	0	
X		2	3	0	

0147	+21	9002	0555
0555	+65	0058	1965
0168	+62	0000	0000
0058	+01	4000	0000
0177	+66	0136	0341
0341	+30	4010	0315
0315	+20	0269	0022
0022	+21	0136	0289
0289	+48	0042	0143
0143	+88	0002	0076
0042	+01	4444	1999
1970	+65	0136	0341
0098	+48	0151	0002
0002	+65	0136	0391
0391	+30	4010	0365
0365	+20	1678	0331
0331	+21	1680	0283
0283	+69	0186	0339
0186	+00	0000	0001
0339	+24	1679	0082
0082	+69	1981	0134
0134	+24	1681	0184
0184	+71	1677	0441
0151	+89	4050	0158
0158	+58	0101	0014
0014	+69	0269	0072
0072	+58	8001	0028
0028	+65	0136	0491
0491	+46	0094	0345
0345	+10	0148	0053
0094	+11	0148	0053
0053	+39	8007	0153
0153	+21	1678	0381
0381	+69	0234	0137
0234	+00	0000	0001
0137	+24	1679	0132
0132	+69	1981	0284
0284	+24	1681	0334
0334	+69	0187	0040
0187	+00	0000	0002
0040	+24	1680	0333
0333	+71	1677	0441
0148	+00	0000	0049
1677	-01	0000	0004
1686	+00	8000	0008
0441	+71	1977	0084
0084	+88	0000	0090
0090	+82	0000	0096
0096	+65	0441	0395
0395	+24	0088	0541
0541	+21	0136	0076
1020	+00	0000	1999

+0000000180 -0000000000 -0000000000 +0000000079 +0000000000 +0000000199 +0000000000 +0000000000

$I_7 \leftarrow 150$ $L \leftarrow 150$
 $READ$
 $E_k \leftarrow 0$
 $I_{150} \leftarrow I_0$
 $I_{14} \leftarrow I_1$ } this corresponds to " $i \leftarrow i-1$ "

 $n \equiv 7+1$ $J \equiv 7+2$ ($\equiv 7+5$)
 $D_j \leftarrow (S_i)_0 + (S_{n+1})_0$ i.e. $(S_i)00000 + n$
 $OP_j \leftarrow RAL$
 $i \leftarrow j$
 $j \leftarrow n+1$
 $O = O(i)$
 $K \leftarrow k-1$
 $D_j \leftarrow 8002$
 $OP_j \leftarrow RAA$
 $D_{n+1} \leftarrow -1000$ i.e. $I_0 \rightarrow A$
 $OP_{n+1} \leftarrow RAL$
 $j \leftarrow j+2$

 $S_i \leftarrow t$
 $I_3 = OP_{j-1}$
 $\text{if } OP_{j-1} > 6$
 $OP_{j-1} \leftarrow OP_{j-1} + 1$

180 25
0 45
0 05
79 stations submerged.
199 submerge partial

0010+ I15Z1S113
0000+ IL15S45RZ8002SI13D2
0000+ I5Z1S1
0000+ I7Z0
0003+ GO TO L13SI18R
0014+ I15Z0
0017+ I117Z1180
0000+ IL15S45RZ117S4850
0000+ I17Z1S117
0000+ I16Z15
0000+ I5Z1S1
0000+ GO TO 15
0013+ I15Z1
0000+ GO TO 17
0018+ I4Z14M1
0015+ I3Z16S5XI4
0000+ GO TO 16IFIL13S2RU0
0000+ 15a GOTO 113S19S113S113M2BR
0019+ I2Z1L13S1R
0000+ GO TO 20IFIL12S45RU9000
0000+ 14a IL12S45RZ1
0000+ GOTO26
0020+ IL12S1RZM1
0000+ IL12S45RZ7000SI4
0026+ I12Z20
0000+ 2a I14Z8002
0000+ GO TO 27IFIL12M1RW1
0000+ IL12M1RZ8
0000+ I12Z28
0000+ GO TO 27
0021+ I15Z8
0000+ IL15S45RZ9000
0000+ I13Z2
0000+ GO TO 29
0023+ I13Z0
0000+ IL13M1RZ1
0000+ IL13M1RZ7000SI4IFIL13S1RS
0000+ 45RU9001
0000+ GO TO 27
0025+ GO TO 27 IF16U8003
0000+ 25a IL15M1RZ2SIL15M1RIF3WILI5M1
0000+ R
0000+ GO TO 27 IF3WILI5M1R
0000+ 25b I15Z2
0000+ IL15S45RZ8002
0029+ I5Z1S15
0027+ I7Z0
0000+ 7a GO TO L29SIL13S2RR
0030+ GO TO 35IF15UI16S1
0000+ GOTT040IF113U0
0000+ 30a I1L13S1RZM1
0000+ IL1L13M1RZM1
0000+ I13Z1I13M1
0040+ I15Z10S113S1I3
0000+ GO TO 41
0035+ I116Z1I16S10
0000+ 35a GO TO 36 IF 10WILI16M1R
0000+ IL116S44RZIL116S43R
0000+ I2Z1L116M2R
0000+ IL116M2RZM1

F OP_j ← RSL or RSU
F D_j ← 8002 or 8003
F 1 ← 1+1
F L_p ← 0
F 13+5=18 n: 13+1=14 + 13+3=16
F OP₁ ← RAL
F 10010
F D_j ← ABCA
F L+1
F B ← j
F 1 ← 1+1
F
F k ← k-1
F * ← 16+5j
F 11 if E_k = 4
F 10 0+19+0 + E_k
F 1 ← E_k 4
F 10 if D_{E_k} = 9000
F D_{E_k} ← ACC
F
F OP_{E_k} ← L
F D_{E_k} ← W00+K
F OP_{E_k} ← STL
F R_M ← 8002
F 10 if OP_{E_k} is RAL (or L, what I hope is impossible)
F OP_{E_k} ← LDD
F ESTD
F
F OP_j ← LDD
F D_j ← FLOAT
F 0 ← 2
F
F E_k ← 0
F 1 E_k ← 1 ACC
F E_k ← W00+K if D_{E_k} = 9001.
F
F OP_{j-1} + 2 if 3 ≥ OP_{j-1}
F
F otherwise I₁ ← RAL
F D₁ ← F002
F 1 ← 1+1
F L_p ← 0
F 29 + E_k 5
F 30 (address) 10 if 1 = 101
F 0 10 if E_k 3 = 0
F I_{E_k} ← L
F I_{E_k} ← L
F E_k 3
F OP₁ ← AL0 + 0 + E_k 3
F D_j ← E_k 2, 14, 16 37
F OP₁ ← AL0
F 36 if OP₁ is ≤ 10
F D₁ ← D₁ 2
F I₂ ← I₁ 2
F I₁ 2 ← -1

? the published says 9000... and I tend to believe it
?
? the published says ≤ 10. I think no problem.
1 = 14
R 10 add.

this agrees with my handwritten patch to the flowchart

0000+	IL116M1RZ12	F	$OP_{p-1} \leftarrow OP_{p-2}$
0000+	IL116M1RZ0IF12U8	F	<i>but change to RAL if OP_{p-2} was LDD.</i>
0036+	GO TO L37S113R	F	$go\ to\ 37+0$
0031+	GO TO 28IF15UI16S1IF3W1116	F	$TIMES: to\ 28\ if\ 1=\beta+1\ and\ 3 \geq OP_p.$
0000+	GO TO L22S113R	F	$22+0$
0022+	GO TO 42IF3W115M1R	F	$3 \geq OP_{p-1}$
0000+22	115Z2	F	$OP_p \leftarrow RAM$
0000+	IL15S45RZ8002	F	$D_1 \leftarrow SUR$
0000+	15Z1S15	F	$1++$
0024+	12Z21S113	F	$TOMP = 12 \leftarrow MP+0$
0000+	GO TO 43	F	
0042+	IL15M1RZIL15M1RS2	F	$OP_{p-1} \leftarrow 4 = 2$
0000+	GO TO 24	F	
0028+	12Z1116	F	$TOMP \leftarrow OP_p$
0000+	1116Z21S113	F	$OP_p \leftarrow MP+0$
0000+28	GO TO 44 IF10W1116M1R	F	$if\ 10 \geq OP_{p-1}$
0000+28	IL116S44RZIL116S43R	F	$D_{j-1} \leftarrow D_{j-2}$
0000+	IL116M1RZIL116M2R	F	$OP_{p-1} \leftarrow OP_{p-2}$
0000+	IL116M1RZ0IFIL116M1RU8	F	$or\ to\ RAL\ if\ LDD.$
0000+	IL116M2RZM1	F	$OP_{p-2} \leftarrow -1$
0044+	GOTO39IFRRL12D2RU0	F	$\&\ to\ 39\ if\ TOMP\ is\ even.$
0000+44	12ZIL116M1R	F	$12 \leftarrow OP_{p-1}$
0000+	GOTO45IF12W7	F	
0000+	IL116M1RZ12S1	F	$OP_{p-1} \leftarrow 4 = 1$
0000+	IL16M1RZ12M1IFRRL12D2RU1	F	
0039+	GO TO 37 IF 114U8003	F	
0000+39	12ZIL15M2R	F	$12 \leftarrow OP_{p-2}$
0000+39	IL15M2RZ12S2IF3W12	F	$increase\ OP_{p-2}\ by\ 2\ if\ it\ was\ < 4$
0000+	GOTO37IF3W12	F	$ad\ 9\ to\ 37$
0000+39	115ZIL15M1R	F	$OP_p \leftarrow OP_{p-1}$
0000+	IL15S45RZIL15S44R	F	$D_1 \leftarrow D_{j-1}$
0000+	IL15S44RZ8002	F	$D_{p-1} \leftarrow SUR$
0000+	IL15M1RZ2	F	$OP_{p-1} \leftarrow RAM.$
0000+	GO TO 38	F	$1++\ ad\ 10\ to\ 37.$
0045+	115Z1116	F	$OP_p \leftarrow OP_p$
0000+	IL15S45RZIL116S45R	F	$D_j \leftarrow D_p$
0000+	1116Z1S113	F	
0000+	IL116S45RZ8002S113D2	F	$RSL\ SUR\ on\ RSU\ SUR$
0000+	15Z1S15	F	$1++$
0000+	GO TO 39	F	
0032+	12Z24S113	F	$DIVISION: TOMP \leftarrow OVR+0.$
0043+	GOTO46 IF 113U2	F	
0000+43	GO TO 47IF113W1	F	
0049+	115Z12	F	$OP_p \leftarrow TOMP$
0041+	IL15S45RZIL13M1R	F	$D_1 \leftarrow EK_2$
0038+	15Z1S1	F	$1++.$
0037+	115Z0	F	$R_p \leftarrow 0$
0000+	16Z8002S113D2	F	$L_m \leftarrow SUR+1/20$
0000+	116Z0	F	$\beta \leftarrow 0$
0000+	GO TO 16	F	
0046+	118ZIL15M1R	F	$18 \leftarrow OP_{p-1}$
0000+	GO TO 48 IF118W7	F	$to\ 18\ if\ it\ is\ \geq 7.$
0000+46	IL15M1RZ118S1	F	
0000+	IL15M1RZ118M1IFRRL118D2RU1	F	$OP_{p-1} \leftarrow 1$
0047+	11L13S1RZM1	F	$OP_{p-1} \leftarrow -1$
0000+	IL113S1RM1RZM1	F	-1
0000+	GO TO 49	F	
0048+	115Z1S113	F	
0000+	IL15S45RZ8002S113D2	F	$RSL\ SUR\ on\ RSU\ SUR.$
0000+	15Z1S1	F	

MANO STOCK FORM NO. 14110-6

0000+ GO TO 47
0033+ GOTOL50SI13R
0052+ I7Z1
0050+ ILI5S45RZ9003SI13
0000+ ILI5S47RZ9003SI13
0000+ I15Z8
0000+ ILI5S2RZ8
0000+ ^{52a}GO TO 38IFI15U1
0000+ GO TO 53IR113W1
0000+ ^{50b}ILI13S1RZM1
0000+ ILILI3S1RM1RZM1
0053+ ILI5S45RZIL13M1R
0000+ I15Z8
0000+ ILI5S1RZ28
0000+ ILI5S45RZ1
0000+ I5Z3SI5
0000+ GO TO 37
0034+ GO TO 54IFI5UI16S1
0000+ ^{34a}ILI5S45RZIL15S44R
0000+ I15Z28
0000+ GO TO 55IFI13U0
0000+ ^{34b}ILI13S1RZM1
0000+ ILILI3S1RM1RZM1
0055+ ILI5M1RZ8
0000+ ILI5S44RZIL13M1R
0000+ I5Z15S1
0000+ GO TO 56
0054+ GOT057IF9WILI5M2R
0000+ ^{54a}I2ZIL116M2R
0000+ ILI16M1RZ12
0000+ ILI16M1RZ0IFI2U8
0000+ ILI16S44RZIL116S43R
0000+ ILI16M2RZM1
0057+ GOT058IFIL116M1RU0
0000+ ^{57a}I116Z20SI13
0000+ GO TO 56
0058+ I116Z28
0000+ ILI16M1RZ8
0056+ I2Z60
0077+ PCHII2PCHILI2S45RIFI12W0
0000+ GO TO 79 IF I2 W I5M1
0000+ I2Z12S1
0000+ G77
0006+ GO TO L57SI18R
0062+ GOTOLI6M7936RIFI3U1IFI13U2
0060+ I3Z15S5XI4
0000+ G64IFIL118S7RVII16IFI5UI16S
0000+ 1
0065+ I13Z1
0000+ I13Z7000SI4IFI11U6
0000+ ILI3S1RZ0
0000+ G61
0066+ GO TO 68 IF3WILI5M1R
0000+ ^{66a}ILI5M1RZ2SILI5M1R
0000+ GO TO 67
0000+ I15Z2
0000+ ILI5S45RZ8002
0000+ I5Z1SI5
0067+ I13Z0
0000+ I15Z8

F Power
F $L_p \leftarrow ACC$
F $D_j \leftarrow 9003 + \theta$
F $D_{j+2} \leftarrow D_j$
F $? \quad I_{j+2} \leftarrow LDD.$
F $? \quad \text{if } R_p = ACC$
F $? \quad \text{if } \theta \neq 0 \dots \text{is type, should say } I13. \text{ (acc to Flanchard). ? also the branch goes other way on chart.}$
F $OP_{Ek_4} \leftarrow L1$
F $D_j \leftarrow E_{k_2}$
F $OP_j \leftarrow LDD$
F $OP_{j+1} \leftarrow STD$
F $D_j \leftarrow ACC$
F assignment: ask if $j = \beta + 1$
F $D_j \leftarrow D_{j-1}$
F $OP_j \leftarrow STD$
F $? \quad \text{if } E_{k_5} = 0$
F $IE_{k_5} \leftarrow L1$
F $E_{k_5-1} \leftarrow L1$
F $OP_{j-1} \leftarrow LDD.$
F $D_{j-1} \leftarrow E_{k_2}$
F $j++$
F to 57 if $? \quad OP_{j-2}$
F $x \leftarrow OP_{\beta-2}$
F $OP_{\beta-1} \leftarrow x$
F or RAL
F $D_{\beta-1} \leftarrow D_{\beta-2}$
F $OP_{\beta-2} \leftarrow -1$
F to 58 if $OP_{\beta-1} = RAL.$
F $OP_{\beta} \leftarrow STL + \theta$
F $OP_{\beta} \leftarrow STD$
F $OP_{\beta-1} \leftarrow LDD$
F x
F push OP_x and D_x if $OP_x \geq 0.$
F scanning $\rightarrow$ or n : go to 57 + code of S_{x+1}
F $\leftarrow$ want: if $\beta = 1$ and $\theta = 2$ then go to $L_m - 7936!$
F $15 + 5K$
F if $j = \beta + 1$ and $R(I18) > OP_{\beta}$
F $E_{k_2} \leftarrow 1$
F or $7000 + k$ if S is i
F $E_{k_3} \leftarrow 0.$
F $? \quad \text{to } G_j$
F to 68 if $3 \geq OP_{j-1}$
F $OP_{j-1} \leftarrow z + OP_{j+1}$
F $OP_j \leftarrow RAL$
F $D_j \leftarrow 8002$
F $1 \leftarrow j + 1$
F $\theta \leftarrow 0$
F $OP_j \leftarrow LDD$

9003 PAX
9005 PPAOT

? it's not what the Flanchard says in box 53

? Flanchard says E_{k_5} but E_{k_7} is right.

? Flanchard says $OP_{\beta-1}$ (OK since $j = \beta + 1$).

damir cod!

should be labeled 68.

Ig was changed op. no 46 but felt like that was not why
8002
-9975
66

[Signature]

0000+ ILI5S45RZ9002
0000+ I5Z1S15
0000+ GO TO 65
0064+ I13ZIL116S45R
0000+ ILI3S1RZ1S1116
0061+ ILI3M1RZ113
0000+ ILI3S2RZ15
0000+ ILI3S3RZ1180
0000+ I15ZL6M11RD5
0000+ GO TO L68S113R
0068+ I6Z8003
0000+ I15Z8
0000+ GO TO L68S11R
0069+ ILI5S45RZ9001
0000+ GO TO 71
0074+ ILI5S45RZ9000
0000+ ILI5S1RZ22
0000+ ILI5S46RZ7000S14
0000+ I5Z1S52
0000+ GO TO 72
0070+ GO TO 72IF113UI7
0000+70 ILI5S45RZ1
0000+ ILI5S45RZ7000S14IF11U6
0000+ GO TO 73IF115M1RU0
0000+70 I15Z16M15984516
0000+ GO TO 71
0073+ ILI5M1RZ8
0000+ I15Z28
0071+ I5Z1S15
0072+ I14Z16
0000+ I6Z8002
0063+ GO TO 11 IF 11U1
0000+60 I4Z1S14
0000+ 17Z0
0000+ GO TO 78
0007+ GO TO 75IF1W1L15M1R
0000+70 ILI5S45RZ16
0000+ I15Z4
0000+ I5Z1S15
0000+ GO TO 76
0075+ ILI5M1RZ4
0076+ I6Z8002
0000+ 17Z0
0000+ GO TO 59F

F $D_j \leftarrow 9002 \text{ AX.}$
F $j++$
F
F $E_{k2} \leftarrow D_j$
F $E_{k3} \leftarrow OP_j + 1$
F $L_{k1} \leftarrow 0$
F $E_{k4} \leftarrow j$
F $E_{k5} \leftarrow j \text{ type of } S_{i+1}$
F $R_i \leftarrow (G - \text{type}) \div 5$ so it's 1 or n or 0 otherwise
F $G \leftarrow 0$
F $L_m \leftarrow 8003$
F $OP_1 \leftarrow LAD$
F $G \leftarrow I1$ is with 69 or 74
F $D_j \leftarrow 9001 \text{ FUTAC}$
F
F $D_1 \leftarrow 9000$
F $OP_{j+1} \leftarrow STU$
F $D_{j+1} \leftarrow WUO + K.$
F $j \leftarrow j+2$
F
F $D_j \leftarrow ICC$
F $D_j \leftarrow W + K \text{ if } S_i = 1$
F $D_j \leftarrow 73 \text{ if } OP_{j-1} = RAL$
F $OP_1 \leftarrow STU \text{ or } STL$
F $OP_{j-1} \leftarrow LDD$
F $OP_1 \leftarrow STD.$
F
F $R_m \leftarrow L_m$
F $L_m \leftarrow 8002$
F
F $k++$
F $L_p \leftarrow 0$
F
F $G \leftarrow 75 \text{ if } j \geq OP_{j-1}$
F $D_j \leftarrow L_m$
F $OP_j \leftarrow RAM$
F $j++$
F $OP_{j-1} \leftarrow RAM$
F $L_m \leftarrow 8002$
F $L_p \leftarrow 0$
F

flow chart says $E_{k5} \leftarrow S_{i+1}$ so it's 1 or n or 0 otherwise

well it's $W(i)$, so it's $K.$

16004
-15984
20

this goes to read a new symbol without advancing I18 and I160, so it is left...

0001 PLR
0002 COR 9000
0003 0 RD1 1999 0
0004 1999 RAL 1952
0005 STD 1983
0006 SLO 591
0007 NZE 9F
0008 RAL 1953
0009 NZE 0B
0010 SRT 4
0011 SLO 1D601
0012 BMI 0B
0013 SLO 451
0014 BMI 3F
0015 SLO 8001
0016 BMI 0B

9000 +70 1999 9000
1999 +65 1952 9001
9001 +24 1983 9002
9002 +16 9003 9004
9004 +45 9005 9006
9005 +65 1953 9007
9007 +45 9008 9000
9008 +30 0004 9009
9009 +16 9010 9011
9011 +46 9000 9012
9012 +16 9013 9014
9014 +46 9015 9016
9016 +16 8001 9017
9017 +46 9018 9000

0017		ALO	46I	
0018		SLT	5	
0019		ALO	8005	
0020		STL	1985	
0021		RAL	1954	
0022		BMI		4F
0023		RAU	TAGA	4F
0024	4	STU	1980	
0025		RAM	1954	
0026		SLT	7	8003
0027	0	RAL	ACC	4F
0028	1	RAB	1	5F
0029	2	RAB	1	5F
0030	3	RAB	1	5F
0031	5	RAB	1	5F
0032	7	RAB	1	5F
0033	8	RAB	1	5F
0034	9	SRT	3	
0035		ALO		8002
0036		59	1100	4F
0037	5	SUP	8003	
0038		SLT	1	
0039		SLO	8002	
0040		SLT	1	
0041		ALO	8001	
0042		SLT	1	
0043		SLO	8002	
0044		SLT	1	
0045		ALO	8001	
0046		SRT	9	
0047		ALO	10 B	4F
0048	4	STU	1979	
0049		STL	1978	1F
0050	1	WR1	1977	0B
0051	3	ALO	46I	
0052		SLT	5	
0053		ALO	8005	
0054		STL	1985	
0055		LOD	1954	
0056		RAB	8001	
0057		RAL	1500B	
0058		STD	1980	
0059		STU	1978	
0060		STD	1979	1B
0061	9	AXA	1	0B
0062	1499	ALF	...	THINK
0063	1500	ALF	RAL	THINK
0064	1501	ALF	RSL	THINK
0065	1502	ALF	RAU	THINK
0066	1503	ALF	RSU	THINK
0067	1504	ALF	RAM	THINK
0068	1505	ALF	RSM	THINK
0069	1508	ALF	LOD	THINK
0070	1509	ALF	RAA	THINK
0071	1510	ALF	ALO	THINK
0072	1511	ALF	SLO	THINK
0073	1512	ALF	FAD	THINK
0074	1513	ALF	FSB	THINK
0075	1514	ALF	AML	THINK
0076	1515	ALF	SML	THINK

9018	+15	9019	9020
9020	+35	0005	9021
9021	+15	8005	9022
9022	+20	1985	9023
9023	+65	1954	9024
9024	+46	9025	9026
9025	+60	9027	9026
9026	+21	1980	9028
9028	+67	1954	9029
9029	+35	0007	8003
0000	+65	9030	9031
0001	+82	0001	9032
0002	+82	0002	9032
0003	+82	0003	9032
0005	+82	0005	9032
0007	+82	0007	9032
0008	+82	0008	9032
0009	+30	0003	9033
9033	+15	9034	8002
9034	+59	1100	9031
9032	+11	8003	9035
9035	+35	0001	9036
9036	+16	8002	9037
9037	+35	0001	9038
9038	+15	8001	9039
9039	+35	0001	9040
9040	+16	8002	9041
9041	+35	0001	9042
9042	+15	8001	9043
9043	+30	0009	9044
9044	+15	4010	9031
9031	+21	1979	9045
9045	+20	1978	9046
9046	+71	1977	9000
9015	+15	9019	9047
9047	+35	0005	9048
9048	+15	8005	9049
9049	+20	1985	9050
9050	+69	1954	9051
9051	+82	8001	9052
9052	+65	5500	9053
9053	+24	1980	9054
9054	+21	1978	9055
9055	+24	1979	9046
9006	+50	0001	9000
1499	+18	1818	0000
1500	+79	6173	0000
1501	+79	8273	0000
1502	+79	6184	0000
1503	+79	8284	0000
1504	+79	6174	0000
1505	+79	8274	0000
1508	+73	7664	0000
1509	+79	6161	0000
1510	+61	7376	0000
1511	+82	7376	0000
1512	+66	6164	0000
1513	+66	8262	0000
1514	+61	7473	0000
1515	+82	7473	0000

0077	1516	ALF	FAM	THINK
0078	1517	ALF	FSM	THINK
0079	1520	ALF	STL	THINK
0080	1521	ALF	MPY	THINK
0081	1522	ALF	STU	THINK
0082	1523	ALF	FMP	THINK
0083	1524	ALF	DVR	THINK
0084	1526	ALF	FDV	THINK
0085	1528	ALF	STD	THINK
0086	11	ALF	I0000	THINK
0087	12	ALF	Y0000	THINK
0088	13	ALF	C0000	THINK
0089	15	ALF	ABC00	THINK
0090	17	ALF	W0000	THINK
0091	18	ALF	8000	THINK
0092	100	ALF	FLOAT	THINK
0093	101	ALF	FLTAC	THINK
0094	102	ALF	FIX	THINK
0095	103	ALF	P FIX	THINK
0096	105	ALF	P FLT	THINK
0097	1986	ALF		THINK
0098	1977	ALF		THINK
0099	1981	ALF		THINK
0100	1982	ALF		THINK
0101	1984	ALF		THINK
0102	59I	00	0	59
0103	1D60I	00	1	60
0104	45I	00	0	45
0105	46I	00	0	46
0106	TAGA	ALF	A	THINK
0107	ACC	ALF	ACC	THINK
0108	1970	RAA	0	0B
0109		END		
0002			C0002	
0002		RAL		
0004			ACC	
0004			W0001	
0004		LOD		
0004		STD		
0006			I0006	
0006		RAL		
0007		RSL		
0009		LOD		
0009			FLOAT	
0009		STU		
0009			W0002	
0011			I0005	
0011		RAL		
0012		RSL		
0013		LOD		
0013			FLTAC	
0014			I0002	
0014		RAL		
0015			ACC	
0015		STL		
0015		ALO		
0015			I0005	
0015		...		
0015		RSL		
0016		...		

1516	+66	6174	0000
1517	+66	8274	0000
1520	+82	8373	0000
1521	+74	7788	0000
1522	+82	8384	0000
1523	+66	7477	0000
1524	+64	8579	0000
1526	+66	6485	0000
1528	+82	8364	0000
0011	+69	9090	9090
0012	+88	9090	9090
0013	+63	9090	9090
0015	+61	6263	9090
0017	+86	9090	9090
0018	+00	9890	9090
0100	+66	7376	6183
0101	+66	7383	6163
0102	+66	6987	0000
0103	+77	0066	6987
0105	+77	0066	7383
1986	+00	0000	0000
1977	+00	0000	0000
1981	+00	0000	0000
1982	+00	0000	0000
1984	+00	0000	0000
9003	+00	0000	0059
9010	+00	0001	0060
9013	+00	0000	0045
9019	+00	0000	0046
9027	+00	0000	6100
9030	+61	6363	0000
1970	+80	0000	9000
0001	0000	+00	0000 0008
0001	0000	+00	0000 0000
0002	0000	+00	0000 0070
0002	0000	+00	0000 0000
0001	0000	+00	0000 0073
0002	0000	+00	0000 0000
0003	0000	+00	0000 0008
0003	0000	+00	0000 0000
0003	0000	+00	0000 0000
0004	0000	+00	0000 0000
0004	0000	+00	0000 0074
0005	0000	+00	0000 0000
0005	0000	+00	0000 0000
0006	0000	+00	0000 0008
0006	0000	+00	0000 0000
0006	0000	+00	0000 0000
0007	0000	+00	0000 0000
0007	0000	+00	0000 0069
0008	0000	+00	0000 0008
0008	0000	+00	0000 0000
0007	0000	+00	0000 0000
0007	0000	+00	0000 0026
0008	0000	+00	0000 0035
0007	0000	+00	0000 0000
0006	0000	+00	0000 0000
0007	0000	+00	0000 0000
0005	0000	+00	0000 0020

MANO STOCK FORM NO. 14110 8

0016		W0002	
0016	STL		
0016	RAU		
0016		8002	
0016	RSU		
0016	...		
0016	...		
0016	MPY		
0016		I0006	
0017	LOD		
0017			FLOAT
0017	...		
0017	...		
0017	FDV		
0017		C0002	
0018		ACC	
0018	STU		
0019	RAL		
0019		ABC00	
0019	RAU		
0019	FAD		
0019		C0002	
0019	...		
0019	FDV		
0020		ACC	
0020		W0001	
0020	STU		
0022		Y0002	
0022	RAL		
0024		ACC	
0024		W0002	
0024	LOD		
0024	STD		
0026		Y0001	
0026	RAL		
0028		ACC	
0028	LOD		
0028	STD		
0029		C0001	
0029	RAL		
0030	RAU		
0030	FAD		
0030		Y0001	
0030	...		
0030	LOD		
0030	RAL		
0030	RAU		
0031	...		
0031	...		
0031	FMP		
0031		Y0002	
0032	FAD		
0032		W0001	
0033		ACC	
0033		W0001	
0033	STU		
0035		I0003	
0035	RAL		
0037	LOD		
0037			FLOAT

0004	0000	+00	0000	0000
0004	0000	+00	0000	0026
0009	0000	+00	0000	0022
0009	0000	+00	0000	0000
0009	0000	+00	0000	0000
0004	0000	+00	0000	0047
0003	0000	+00	0000	0000
0010	0000	+00	0000	0049
0010	0000	+00	0000	0041
0011	0000	+00	0000	0021
0011	0000	+00	0000	0000
0002	0000	+00	0000	0047
0001	0000	+00	0000	0000
0012	0000	+00	0000	0049
0012	0000	+00	0000	0041
0013	0000	+00	0000	0070
0013	0000	+00	0000	0000
0014	0000	+00	0000	0014
0014	0000	+00	0000	0000
0014	0000	+00	0000	0025
0014	0000	+00	0000	0035
0013	0000	+00	0000	0000
0012	0000	+00	0000	0000
0013	0000	+00	0000	0000
0015	0000	+00	0000	0070
0015	0000	+00	0000	0000
0015	0000	+00	0000	0000
0016	0000	+00	0000	0008
0016	0000	+00	0000	0000
0017	0000	+00	0000	0070
0017	0000	+00	0000	0000
0016	0000	+00	0000	0073
0017	0000	+00	0000	0000
0018	0000	+00	0000	0008
0018	0000	+00	0000	0000
0019	0000	+00	0000	0070
0018	0000	+00	0000	0073
0019	0000	+00	0000	0000
0020	0000	+00	0000	0008
0020	0000	+00	0000	0000
0020	0000	+00	0000	0025
0020	0000	+00	0000	0035
0019	0000	+00	0000	0000
0018	0000	+00	0000	0000
0019	0000	+00	0000	0000
0019	0000	+00	0000	0000
0017	0000	+00	0000	0047
0016	0000	+00	0000	0000
0021	0000	+00	0000	0049
0021	0000	+00	0000	0041
0022	0000	+00	0000	0040
0022	0000	+00	0000	0041
0023	0000	+00	0000	0070
0023	0000	+00	0000	0000
0023	0000	+00	0000	0000
0024	0000	+00	0000	0008
0024	0000	+00	0000	0000
0025	0000	+00	0000	0000
0025	0000	+00	0000	0074

0037	STU	
0037		W0002
0039		I0004
0039	RAL	
0041	LOD	
0041		FLTAC
0042		I0001
0042	RAL	
0043		ACC
0043	STL	
0043	LOD	
0043	STD	
0043	MPY	
0043		I0004
0043	LOD	
0043	RAL	
0043	...	
0043	RAU	
0044	...	
0044		W0002
0044	STL	
0044	LOD	
0044	STD	
0044	...	
0044	...	
0044	ALO	
0044		I0003
0045		8002
0045	RAA	
0045		C0000A
0045	RAL	
0046	RAU	
0046		C0000A
0046	STD	
0046	LOD	
0046		W0001

0026	0000	+00	0000	0000
0026	0000	+00	0000	0000
0027	0000	+00	0000	0008
0027	0000	+00	0000	0000
0028	0000	+00	0000	0000
0028	0000	+00	0000	0069
0029	0000	+00	0000	0008
0029	0000	+00	0000	0000
0028	0000	+00	0000	0000
0028	0000	+00	0000	0026
0027	0000	+00	0000	0000
0028	0000	+00	0000	0000
0029	0000	+00	0000	0000
0028	0000	+00	0000	0000
0028	0000	+00	0000	0000
0027	0000	+00	0000	0000
0028	0000	+00	0000	0000
0026	0000	+00	0000	0020
0025	0000	+00	0000	0000
0025	0000	+00	0000	0026
0024	0000	+00	0000	0000
0025	0000	+00	0000	0000
0025	0000	+00	0000	0030
0026	0000	+00	0000	0000
0030	0000	+00	0000	0040
0030	0000	+00	0000	0041
0031	0000	+00	0000	0009
0031	0000	+00	0000	0000
0032	0000	+00	0000	0000
0032	0000	+00	0000	0000
0032	0000	+00	0000	0025
0033	0000	+00	0000	0034
0033	0000	+00	0000	0000
0032	0000	+00	0000	0055
0032	0000	+00	0000	0000