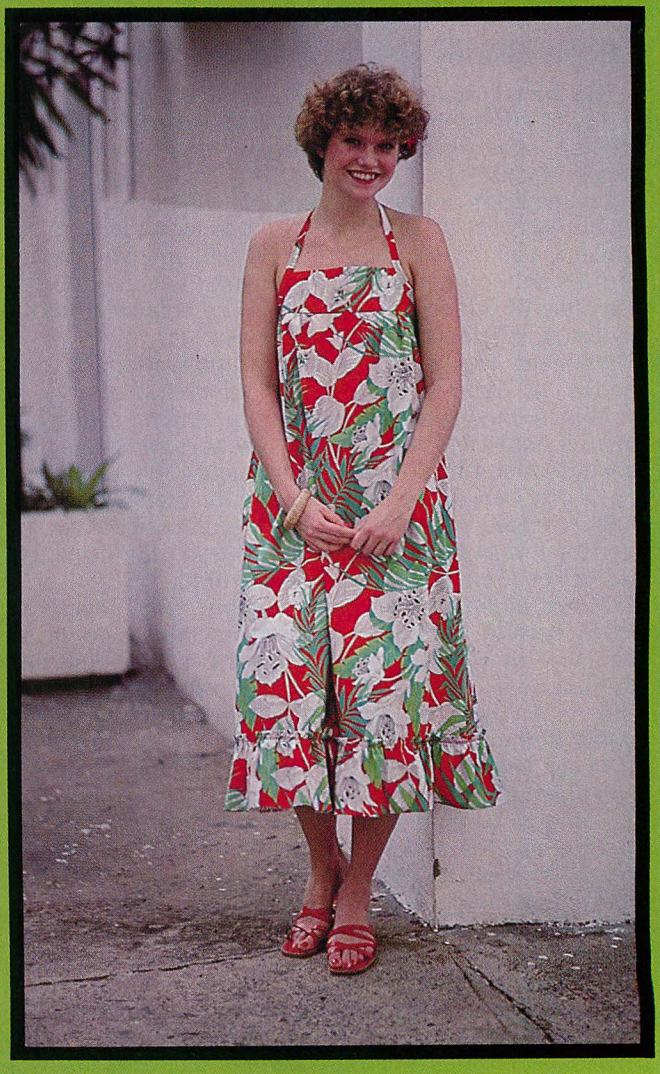
The Automated Dress Pattern for the Apple II

By Wm. V.R. Smith III



Side 1 of This Month's Floppy ROM*

The automated dress presented in this article and on the Floppy ROM was made available to INTERFACE AGE by the McCalls dress pattern company and is reprinted here by permission.

The concept of automating useful everyday items has been the goal of the microcomputer industry. The computer is quickly becoming a practical appliance for the home. Already the APPLE II has the capability of being part of a telecommunications network to check the stock market. Before long the era of electronic mail will be as commonplace as the mailman is today.

Imagine the possibility of the homemaker deciding to make a dress and going to her television to check a database for the type that is wanted. She could decide to make the "Make It Tonight™" pattern by McCalls. The next action is to request the pattern and have it printed on the household printer or facsimile machine.

Exciting idea, isn't it? The possibility not only exists but is available on the Floppy ROM supplied on page 80a of this issue. It's not quite the ideal master database but is still portable and useful.

WHAT IS NEEDED

In order to use the automated dress pattern, it is necessary to have the following equipment:

- An APPLE II with 16K of memory
- A record player to make the system tape from the Floppy ROM
- A 132 column printer

This equipment lineup provides the ideal situation and makes it possible to quickly use the supplied routines.

THE PROGRAM DESIGN

Patterns and pictures must be formatted and compacted for data transfer. The most difficult patterns to compress are those which are bulky in nature. A typical dress pattern, which requires a 132 column line printer for reproduction, proves to be a good test for a formatter of this type.

The pattern processor, shown in Program 1, will reproduce any pattern that is desired. The important point when using this portion of the program is: dress making is not as easy as it sounds, and the original documentation supplied with the dress pattern must be followed.

One of the prime considerations in pattern compacting is the definition of the equipment which will ultimately be used to reproduce it. As mentioned earlier, the pattern used for this program was designed for a 132 wide column printer. Therefore, each point of the dress must be in one of 132 columns and on one line of the paper (Figure 1). This was done originally by tracing the pattern onto the 132 wide column paper and defining the characters that would be used to represent the points. For this application asterisks and colons are used for the pattern points.

Once the points are determined, compacting is performed by converting a string of characters into a simple code. The most obvious string is a line of asterisks or colons. The code is then established to advise the processor that a line of characters will be printed and in which column to begin and in which to end. The code must fit into the computer's memory along with the necessary status flags. One byte instructions of up to 255 possible code combinations are used. The first 132 are reserved for the columns with the remaining codes established by the programmer.

For the "Make It Tonight™" dress pattern, ten pages of pattern were compacted into ¾K of memory using the formatter in Program 1.

Although the concept represented here is for a dress pattern, the basic idea is the same for compacting data for maps, schematics, pictures, and diagrams, which will make it possible to quickly transfer design data and make storage of valuable designing plans much easier.

THE DRESS MAKER

The program that handles the actual creation of the dress pattern is shown in Program 2. This program provides the functions shown in the program menu (Figure 2).

It is important to point out that the dress pattern chosen for this experiment is designed to fit sizes 9 to 13. No provision was made in this program to dynamically adjust the pattern size. Any modifications to the size are made by using the McCalls Fitbook. However, the possibility to dynamically adjust the size does exist. This is based on the idea that each portion of the dress pattern changes by a specific ratio, which then makes it possible to use an algorithm that takes the original data (Programs 3 through 6) and scales it either up or down. Of course, this will only work within the limitations of the printer size.

The processing program makes the assumption that each part of the dress is a unique entity and is defined by the points in the database. Table 1 describes the function of each of the data programs 3 through 6.

TABLE I

Pattern #	Program #	Lines
Front Yoke dress b	3	1000-10C8
Front Yoke dress b	4	1000-1060
Back and Front	5	1000-10D0
3 Patterns Tiebelt Arm Hole and Binding Ruffle	6	1000-12B0

SUMMARY

In creating the automated dress pattern, some reservations as to practicality were encountered. The major concern is of what use will it be. Nothing really new in this industry. The use is in the functional concept of automating dress patterns or sail boat plans. The plans are available in total for the price of a low cost media such as a magazine.

Also important in the concept is the ability to develop an automated library of useful designs that can be restructured at will.

In a later issue of INTERFACE AGE, the structure of the necessary algorithm to restructure designs will be presented. But for now, program the pattern and teach your wife how to use the program.□

ABOUT THE AUTHOR

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*Floppy ROM is a trademark of INTERFACE AGE Magazine, Cerritos, California.

PROGRAM LISTING 1

```
100 DIM A$(100),S$(50)
105 CALL -936
110 S$=" *:=+-#$%!ABCDEFGHIJKLMNOPQR
    STUVWXYZ<>;.0123456789"
199 X=4098
200 REM
300 PRINT X-4097;" IS ";: INPUT
    A
305 IF A=0 THEN GOSUB 6000
310 IF A=170 THEN 4000
350 POKE X,A
360 IF A=240 THEN 5000
400 IF A=0 THEN 700
410 IF A=150 THEN 2000
420 IF A=160 THEN 3000
450 IF A=250 THEN 7000
600 X=X+1: GOTO 200
700 POKE 4096,X MOD 256: POKE 4097
    ,X/256
800 INPUT "WANT TO SAVE ",A$: IF
    A$(1,1)="Y" THEN GOSUB 950
900 END
950 INPUT "1 - DISK; 2 - TAPE",
    A: IF A=2 THEN 1000: INPUT
    "FILE NAME ",A$
960 L=X-4096: PRINT "BSAVE ";A$
    ;",A4096,L";L
970 END
1000 POKE 60,0: POKE 61,16: POKE
    62,1: POKE 63,16: CALL -307

1100 POKE 60,2: POKE 61,16: POKE
    62, PEEK (4096): POKE 63, PEEK
    (4097): CALL -307
1200 RETURN
2000 REM  ********************
2001 REM  WORDS IN FILE
2002 REM  ********************
2010 X=X+1: INPUT "TAB COLUMN # "
    ,A
2020 POKE X,A
2030 X=X+1: INPUT "TYPE MESSAGE "
    ,A$
2040 FOR I=1 TO LEN(A$)
2045 FOR Y=1 TO LEN(S$)
2050 IF A$(I,I)#S$(Y,Y) THEN 2060
    : POKE X,Y:X=X+1
2060 NEXT Y,I: POKE X,255: GOTO
    600
3000 REM  **********************
3001 REM       REPEAT
3002 REM  **********************
3010 X=X+1: INPUT "TAB COLUMN # "
    ,A: POKE X,A
3020 X=X+1: INPUT "REPEAT TO COLUMN #
    ",A: POKE X,A: GOTO 600
4000 REM  ********************
4001 REM  CHANGE CHAR
4002 REM  ********************
4010 INPUT "CHANGE TO WHAT CHAR "
    ,A$
4020 FOR I=1 TO LEN(S$)
4030 IF A$#S$(I,I) THEN 4040: POKE
    X,169+I
4040 NEXT I: GOTO 600
5000 REM
5001 REM  ******************
5002 REM  SET COLUMN CHR
5003 REM  ******************
5010 X=X+1: INPUT "COLUMN #",A: POKE
    X,A:X=X+1: GOTO 4000
6000 REM  **********************
6001 REM      MENU
6002 REM  **********************
6010 PRINT " 150 - ASCII STRING"

6020 PRINT " 160 - REPEAT CHAR "

6030 PRINT " 170 - CHANGE CHAR."

6035 PRINT " 240 - SET COLUMN   "

6037 PRINT " 250 - REPEAT LINES"

6040 PRINT "   0 - END"
6050 PRINT : INPUT A: IF A#0 THEN
    310: GOTO 700
7000 REM
7001 REM  ********************
7002 REM    PRINT L LINES
7003 REM  ********************
7010 INPUT "REPEAT HOW MANY TIMES "
    ,L
7020 X=X+1: POKE X,L
7030 GOTO 600
8000 REM
8001 REM  PATTERN FORMATTER
8002 REM
8003 REM  CREATED BY WM. DEPEW
8004 REM  AND WM. SMITH : SOFTAPE
```

PROGRAM LISTING 2

```
  0 DIM S$(50),A$(30),P(135)
  1 REM  AUTOMATED DRESS PATTERN
  2 CALL -936
  3 P=2
  4 LEN=131:P1=1
  5 FOR V=1 TO 132:P(V)=1: NEXT
    V
  6 S$=" *:=+-#$%!ABCDEFGHIJKLMNOPQR
    STUVWXYZ    0123456789"
 10 REM  AUTOMATED DRESS PATTERN
 20 VTAB 2: PRINT "MCCALLS DRESS PAT
    TERN #6066": VTAB 4: PRINT
    "FOR USE ON ANY 132 COLUMN PRINT
    ER"
 30 VTAB 10: TAB 9: PRINT "1 - LOAD
    A PATTERN FROM CASSETTE": VTAB
    12: TAB 9: PRINT "2 - PRINT PATT
    ERN ON PRINTER"
 40 VTAB 14: TAB 9: PRINT "3 - INSTR
    UCTIONS FOR DRESS"
 50 VTAB 20: INPUT "YOUR SELECTION #
    ",C
 70 IF C=1 THEN 7000
 75 IF C=3 THEN 9000
 80 CALL -936
100 LP=1:P=2
110 ABLE=4096:ABLEEND= PEEK (ABLE)
    + PEEK (ABLE+1)*256
120 FOR X=ABLE+2 TO ABLEEND-1
130 B= PEEK (X)
140 IF B>132 THEN 150: GOSUB 1000
    : GOTO 210
150 IF B#150 THEN 160: GOSUB 2000
    : GOTO 210
160 IF B#160 THEN 170: GOSUB 3000
    : GOTO 210
170 IF B<170 OR B>230 THEN 180:
     GOSUB 4000: GOTO 210
180 IF B#240 THEN 190: GOSUB 6000
    : GOTO 210
190 IF B#250 THEN 200: GOSUB 8000
    : GOTO 210
200 PRINT "ERROR IN DATA": END

210 NEXT X
220 PRINT
250 PRINT "HIT ANY KEY TO CONTINUE"

252 IF PEEK (-16384)<128 THEN 252
    : POKE -16368,0: GOTO 2
1000 REM  ******************
1001 REM      CHAR PRINT
1002 REM  ******************
1010 GOSUB 5000
1020 PRINT S$(P,P);
1025 LP=LP+1
1030 RETURN
2000 REM  ******************
2001 REM      PRINT WORDS
2002 REM  ******************
2005 X=X+1:B= PEEK (X)
2010 GOSUB 5000
2020 X=X+1:B= PEEK (X): IF B=255
     THEN 2030:LP=LP+1: PRINT S$
    (B,B);: GOTO 2020
2030 RETURN
3000 REM  ****************
3001 REM      REPEAT
3002 REM  ******************
3005 X=X+1:B= PEEK (X): GOSUB 5000

3010 X=X+1:B= PEEK (X)+1: FOR LP=
     LP TO B-1: PRINT S$(P,P);: NEXT
     LP
3020 RETURN
4000 REM  ******************
4001 REM  CHANGE CHARACTER
4002 REM  ******************
4010 P=B-169: RETURN
5000 REM  ******************
5001 REM   POSITION & PRINT
5002 REM  ******************
5010 IF B>=LP THEN 5015: FOR LP=
     LP TO LEN: PRINT S$(P(LP),P(
     LP));: NEXT LP: PRINT :LP=1

5015 IF LP=B THEN RETURN
5020 FOR LP=LP TO B-1: PRINT S$(
     P(LP),P(LP));: NEXT LP
5030 RETURN
6000 REM
6001 REM  *****************
6002 REM    SET COLUMN ON
6003 REM  *****************
6010 X=X+1:B= PEEK (X):X=X+1:C= PEEK
     (X):P(B)=C-169
6100 RETURN
7000 REM  *****************
7001 REM  CASSETTE LOAD
7002 REM  *****************
7003 INPUT "1 - DISK; 2 - TAPE "
     ,A: IF A=1 THEN 7100
7004 CALL -936: VTAB 10: PRINT "TURN
     TAPE ON AND HIT RETURN"
7005 IF PEEK (-16384)<128 THEN 7005
     : POKE -16368,0
7007 VTAB 20: TAB 10: PRINT "LOADING
     PATTERN"
7010 POKE 60,0: POKE 61,16: POKE
     62,1: POKE 63,16: CALL -259

7020 POKE 60,2: POKE 61,16: POKE
     62, PEEK (4096): POKE 63, PEEK
     (4097): CALL -259
7030 GOTO 2
7100 INPUT "FILE NAME ",A$
7110 PRINT "BLOAD ";A$: GOTO 2
8000 REM
8001 REM  ***********************
8002 REM    PRINT LINES
8003 REM  ***********************
8010 X=X+1:T1= PEEK (X):B=1: GOSUB
     5000
8020 FOR T=1 TO T1-1: FOR LP=1 TO
     LEN: PRINT S$(P(LP),P(LP));
     : NEXT LP
8030 PRINT : NEXT T
8040 RETURN
9000 REM
9001 REM  ***************
9002 REM  INSTRUCTIONS
9003 REM  ***************:
```

PROGRAM 2 (Continued)

```
9010 CALL -936: PRINT "MCCALLS CAREFR
     EE PATTERNS #6066"
9020 VTAB 3: PRINT "   THIS PATTERN I
     S MADE TO FIT BODY     MEASUREME
     NTS, WITH EXTRA EASE FOR COM-  F
     ORT AND STYLE.": PRINT
9030 PRINT "   ADJUST PIECES BEFORE P
     LACING ON      FABRIC.": PRINT

9040 PRINT "   TO LENGTHEN : SEE MCCA
     LL'S HOW TO FITBOOK."

9050 PRINT : PRINT "   BEFORE CUTTING
      PLACE ALL PIECES ON   FABRIC.
     SEE CUTTING LAYOUT.": PRINT
     "PATTERN #1, 3 AND 5 ARE PLACED
     ALONG  "
9060 PRINT "FOLDED SIDE OF THE FABRIC
      SO THE PATTERNPIECES WILL BE TW
     ICE THE SIZE OF THE": PRINT
     "PAPER PATTERN"
9070 VTAB 20: PRINT " TYPE Y TO CONTI
     NUE";: INPUT D$
9100 CALL -936: PRINT "MCCALL'S CAREF
     REE PATTERNS #6066"
9110 VTAB 3: PRINT "   PATTERN 1 AND
     5 ARE CREATED USING    THE SAME
     CASSETTE DATA."
9120 PRINT : PRINT "   PATTERNS 2 AND
      3 ARE THE FRONT YOKES.PATTERN 3
      IS USED FOR FINER FABRICS"

9130 PRINT : PRINT "   ALL PIECES HAV
     E A 1/4 TO 1/2 INCH    FOLD OVER
      MATERAL.  DOTTED LINES SIGNAL P
     OSITION FOR THE FOLD"
9140 PRINT : PRINT "FRONT YOKE - FINI
     SH UPPER EDGE OF YOKE  #3 WITH S
     TITCHING, TURN UNDER 1/4 INCH  O
     F FRONT YOKE TO THE INSIDE"

9150 PRINT "ATTACH EATHER YOKE TO THE
      FRONT OF      DRESS (PATTERN #1
     )"
9160 VTAB 20: PRINT "SEE DIAGRAMS IN
     INTERFACE AGE FOR ANY   PROBLEMS
     "
9170 INPUT "HIT RETURN",D$: CALL
     -936: GOTO 10
 9999 END
10000 REM  AUTOMATED DRESS PATTERN
10001 REM  CREATED FOR INTERFACE AGE
10002 REM  BY WM. V. SMITH:SOFTAPE
     WM. DEPEW : SOFTAPE
```

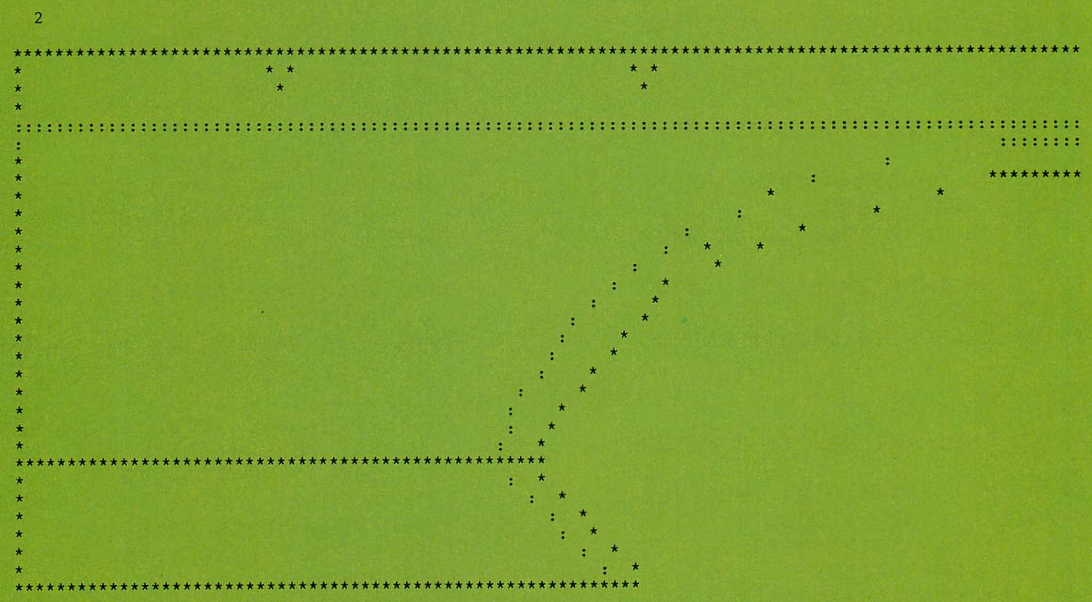

Figure 1.

```
>RUN
MCCALLS DRESS PATTERN #6066
FOR USE ON ANY 132 COLUMN PRINTER
1 - LOAD A PATTERN FROM CASSETTE
2 - PRINT PATTERN ON PRINTER
3 - INSTRUCTIONS FOR DRESS
YOUR SELECTION # ?
```

Figure 2.

PROGRAM LISTING 3

```
1000- C9 10 A0 35 7A F0 35 AB
1008- F0 76 AC F0 7A AB A0 06
1010- 17 F0 06 AB F0 17 AB A0
1018- 1D 2F AC A0 09 14 F0 21
1020- AC F0 26 AC F0 2B AC A0
1028- 35 7A F0 09 AC F0 14 AC
1030- F0 3F AC F0 44 AC F0 46
1038- AC F0 76 AC FA 01 A0 1D
1040- 2F FA 3C 96 0A 1D 0F 20
1048- 0F 18 FF 96 22 10 19 1F
1050- 1C FF 96 50 02 02 02 01
1058- 0F 13 11 12 1E 01 02 02
1060- 02 FF FA 3C 96 0A 1D 0F
1068- 20 0F 18 FF 96 22 10 19
1070- 1F 1C FF 96 50 02 02 02
1078- 01 0F 13 11 12 1E 01 02
1080- 02 02 FF FA 30 F0 21 AA
1088- F0 26 AA F0 2B AA A0 21
1090- 2B FA 02 F0 1D AA F0 2F
1098- AA A0 1D 2F FA 03 F0 06
10A0- AA F0 09 AA F0 14 AA F0
10A8- 17 AA A0 06 17 FA 04 F0
10B0- 3F AA F0 44 AA F0 46 AA
10B8- A0 35 7A FA 03 F0 35 AA
10C0- F0 76 AA F0 7A AA A0 35
10C8- 7A 76
*
```

PROGRAM LISTING 4

```
1000- 65 10 A0 11 76 F0 11 AB
1008- F0 76 AB 29 2B 4C 4E 2A
1010- 4D 11 AC A0 11 76 11 A0
1018- 6F 76 64 5D AB A0 6E 76
1020- F0 76 AA 59 AB 69 AC 56
1028- AB 63 AC 51 AB 5C AC 4F
1030- AB 53 58 AC 4C AB 54 AC
1038- 4A AB 4F AC 48 AB 4E AC
1040- 46 AB 4D AC 45 AB 4B AC
1048- 44 AB 4A AC 43 AB 48 AC
1050- 41 AB 47 AC 40 AB 45 AC
1058- 40 AB 44 AC 3F AB 43 A0
1060- 11 43 F0 11 AA 0A
*
```

PROGRAM LISTING 5

```
1000- D0 10 A0 06 17 A0 1D 2F
1008- A0 35 7A F0 06 AB F0 09
1010- AC F0 14 AC F0 17 AB F0
1018- 1D AB F0 21 AC F0 26 AC
1020- F0 2B AC F0 2F AB F0 35
1028- AB F0 3F AC F0 44 AC F0
1030- 46 AC F0 76 AC F0 7A AB
1038- FA 03 AC A0 09 14 A0 1D
1040- 2F A0 35 7A FA 78 96 0A
1048- 1D 0F 20 0F 18 FF 96 22
1050- 10 19 1F 1C FF 96 50 0F
1058- 13 11 12 1E 02 02 FF 96
1060- 50 01 FF 96 50 17 0D 0D
1068- 0B 16 16 1D 01 0E 1C 0F
1070- 1D 1D 01 1A 0B 1E 1E 0F
1078- 1C 18 1D FF 06 96 50 13
1080- 18 1E 0F 1C 10 0B 0D 0F
1088- 01 0B 11 0F FF FA 2D F0
1090- 21 AA F0 26 AA F0 2B AA
1098- FA 03 F0 1D AA F0 2F AA
10A0- A0 1D 2F FA 03 F0 06 AA
10A8- F0 09 AA F0 14 AA F0 17
10B0- AA AB A0 06 17 FA 0C A0
10B8- 35 7A FA 03 F0 35 AA F0
10C0- 3F AA F0 44 AA F0 46 AA
10C8- F0 76 AA F0 7A AA FA 03
10D0- 77
*
```

PROGRAM LISTING 6

```
1000- B6 12 F0 01 AB F0 82 AB
1008- F0 33 AE A0 01 82 19 1B
1010- 50 52 1A 51 01 AC A0 01
1018- 82 F0 7D AC FA 05 F0 7D
1020- AA F0 82 AA F0 7C AC F0
1028- 81 AB F0 81 AB 96 35 0D
1030- 1F 1E 01 0B 18 0E 01 0B
1038- 0E 0E 01 1E 12 1C 0F 0F
1040- 01 13 18 0D 12 0F 1D 02
1048- FF FA 05 F0 81 AA F0 7C
1050- AA F0 7B AC F0 80 AB FA
1058- 05 F0 7B AA F0 80 AA F0
1060- 7A AC F0 7F AB FA 05 F0
1068- 7A AA F0 7F AA F0 79 AC
1070- F0 7E AB 96 41 17 0D 0D
1078- 0B 16 16 1D 01 0E 1C 0F
1080- 1D 1D 01 1A 0B 1E 1E 0F
1088- 1C 18 1D FF 01 01 96 41
1090- 10 19 1C 01 13 18 1E 0F
1098- 1C 10 0B 0D 0F 01 0B 11
10A0- 0F 28 FF FA 02 F0 79 AA
10A8- F0 7E AA F0 79 AC F0 7E
10B0- AB FA 05 F0 79 AA F0 7E
10B8- AA F0 78 AC F0 7D AB FA
10C0- 05 F0 78 AA F0 7D AA F0
10C8- 77 AC F0 7C AB FA 05 F0
10D0- 77 AA F0 7C AA F0 76 AC
10D8- F0 7B AB FA 05 F0 76 AA
10E0- F0 7B AA F0 75 AC F0 7A
10E8- AB FA 05 F0 75 AA F0 7A
10F0- AA F0 74 AC F0 79 AB FA
10F8- 05 F0 74 AA F0 79 AA F0
1100- 73 AC F0 78 AB FA 05 F0
1108- 73 AA F0 78 AA F0 72 AC
1110- F0 77 AB FA 05 F0 72 AA
1118- F0 77 AA F0 71 AC F0 76
1120- AB FA 05 F0 71 AA F0 76
1128- AA F0 70 AC F0 75 AB FA
1130- 05 F0 70 AA F0 75 AA F0
1138- 6F AC F0 74 AB FA 05 F0
1140- 6F AA F0 74 AA F0 6E AC
1148- F0 73 AB FA 05 F0 6E AA
1150- F0 73 AA F0 6D AC F0 72
1158- AB FA 05 F0 6D AA F0 72
1160- AA F0 6C AC F0 71 AB FA
1168- 05 F0 6C AA F0 71 AA F0
1170- 6B AC F0 70 AB FA 05 F0
1178- 6B AA F0 70 AA F0 6A AC
1180- F0 6F AB FA 05 F0 6A AA
1188- F0 6F AA F0 69 AC F0 6E
1190- AB FA 05 F0 69 AA F0 6E
1198- AA F0 68 AC F0 6D AB FA
11A0- 05 F0 68 AA F0 6D AA F0
11A8- 67 AC F0 6C AB FA 05 F0
11B0- 67 AA F0 6C AA F0 66 AC
11B8- F0 6B AB FA 05 F0 66 AA
11C0- F0 6B AA F0 65 AC F0 6A
11C8- AB FA 05 F0 65 AA F0 6A
11D0- AA F0 64 AC F0 69 AB FA
11D8- 05 F0 64 AA F0 69 AA F0
11E0- 63 AC F0 68 AB FA 05 F0
11E8- 63 AA F0 68 AA F0 62 AC
11F0- F0 67 AB FA 05 F0 62 AA
11F8- F0 67 AA F0 61 AC F0 66
1200- AB FA 05 F0 61 AA F0 66
1208- AA F0 60 AC F0 65 AB FA
1210- 05 F0 60 AA F0 65 AA F0
1218- 5F AC F0 64 AB FA 05 F0
1220- 5F AA F0 64 AA F0 5E AC
1228- F0 63 AB FA 05 F0 5E AA
1230- F0 63 AA F0 5D AC F0 62
1238- AB FA 05 F0 5D AA F0 62
1240- AA F0 5C AC F0 61 AB FA
1248- 05 F0 5C AA F0 61 AA F0
1250- 5B AC F0 60 AB FA 05 F0
1258- 5B AA F0 60 AA F0 5A AC
1260- F0 5F AB FA 05 F0 5A AA
1268- F0 5F AA F0 59 AC F0 5E
1270- AB FA 05 F0 59 AA F0 5E
1278- AA F0 58 AC F0 5D AB FA
1280- 05 F0 58 AA F0 5D AA 96
1288- 35 0D 1F 1E 01 0B 18 0E
1290- 01 0B 0E 0E 01 2C 01 13
1298- 18 0D 12 0F 1D FF A0 01
12A0- 5D AB F0 5B AB FA 04 F0
12A8- 5B AA A0 01 5B F0 01 AA
12B0- F0 33 AA F0 5B AA 00
*
```