

KNIGHTS EXPERT MACHINE CODE

FOR THE MZ-700

The SHARP MZ-700 micro already allows machine code programming both from the switch on ROM monitor and from the RAM monitor which is loaded with the BASIC.

KNIGHTS EXPERT MACHINE CODE has been made available in response to requests from programmers who want extra facilities over and above those already available.

The program has two modes 1) A Prompt mode and 2) An Edit mode.

PROMPT MODE

- L Loads a program from tape. The title of the first program found is displayed, to load it press Y. Press N to search for another program.
- S Saves a program to tape. You are prompted for filename and the start, end & execute addresses of the program.
- G Goto an address. Enter the address in hex.
- C Call an address. When a RET (9C9) is executed in your program, control is transferred back to EXPERT MACHINE CODE.
- X Transfers a block of memory to a new location. The computer prompts for the start and end addresses of the current location of the block and the new start address.
- M Display 128 byte checksums. Enter the start and end addresses.
- P Dump to the printer. Enter the start and end addresses of the area of memory to dump. The format is shown on page 2.
- ! Jumps to monitor.
- E Enter edit mode. e.g. E 1000 shows a page of memory from 1000 to 1067. The full facilities of this mode are described on page 2.
- T Outputs the TEST code to the plotter.
- N Changes the plotter pen to the next colour.
- 8 Puts the plotter into 40 characters per line mode.
- 9 Puts the plotter into 80 characters per line mode and the external Sharp P5 or P6 printers into 132 characters per line mode.

EDIT MODE

On entering this mode, the screen shows the following information from left to right:

START ADDRESS	CONTENTS OF LOCATIONS	ASCII EQUIVALENTS	CHECKSUMS
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e.g. entering E 9D50 displays:

9D50	9A 47 3D 96 4C A0 95 53	t8-tLqMS	71
9D58	E4 95 50 CB 98 4D 53 96	-WP hMSt	5A
9D60	58 38 95 38 35 9F 34 47	XB88Sc48	A9
9D68	9F 4E 4F 9F 21 00 00 54	cN0cI T	55
9D70	57 9F 00 00 00 00 00 00	Wc	03
9D78	00 00 00 00 00 00 00 00		15
9D80	00 16 20 20 20 20 20 20		F3
9D88	20 20 20 4B 4E 49 47 48	KNIGH	FA
9D90	54 27 53 20 4D 2F 43 20	T'S M/C	FA
9D98	5A 53 4E 20 37 30 30 0D	VSN 700	F0
9DA0	4C 4F 41 44 3F 20 0D 46	LOAD? F	0F
9DA8	52 4F 4D 3F 20 0D 54 4F	ROM? TO	42
9DB0	3F 20 0D 54 4F 50 3F 20	? TOP?	0B

In this mode, the contents of memory may be altered simply by placing the cursor on the byte you want to change and overtyping with the new hex value. The checksums and ASCII representations are updated automatically.

Other commands available are in this mode are:

- J Moves the cursor to the top left position allowing you to change the area of memory being displayed.
- N Displays the next page of memory.
- U Moves the cursor to ASCII representation section allowing direct entry of ASCII characters. CLR (Shift & INST) returns you to normal editing.
- CR Pressing CR in U mode places an 0D (end of data) at that location.

The HOME, INST and DEL keys all work in E mode.

To load with BASIC, enter LIMIT \$94FF:LOAD

To return to BASIC from expert machine code, hold down the CTRL key and press the reset button.

To return to PROMPT mode, press Shift & Break together.

SAMPLE PROGRAMS

INPUT #1 This program starts at \$6000. Call it by entering C 6000. This program prompts you to enter your name and the number of times you want to print it (1-9). It is a very simple program and its purpose is to show how easy and useful it is to call the built-in monitor functions.

INPUT #2 This starts at \$6200. It performs the same function as INPUT #1 but the messages are in colour. Instead of calling the monitor's print routine, the program calls its own routine at \$6278 which prints text in colour. The locations which hold the colours used are \$6208, \$6227 and \$6268. Try altering these to change the display.

You can use our coloured print routine in your own programs. Just duplicate the area of memory from \$6278 to \$62A3. When you call it, the routine expects the colour data and text to directly follow your CALL instruction. The first byte should be the colour that the text is printed in (a number from \$00-\$FF.) Next should be the text terminated by a \$00. Any cursor control codes are executed but not coloured (as in BASIC.) Examine the rest of INPUT#2 for examples of how to use the routine.

THE RELAXER Starts at \$6400. This short program fills the screen with random colours. Pressing Shift and break returns you to EXPERT MACHINE code. Try altering the number in location \$6416. This holds the value for the delay between colouring the blocks. There is also a relaxer program in our Forth and Pascal language packs, study the different programming techniques used to achieve the same result.

WEE BEN Starts at \$4600. This is a highly efficient real time clock program. When you start the program (using C 4600), the present time should be entered as a four digit number (hours then minutes) followed by CR. To change the display, alter the number in location \$46AA. To make the code as short as possible (it only takes 256 bytes) there is no facility for exiting the program. Press the reset button at the back of the computer and type 39500 to return to the EXPERT MACHINE CODE.

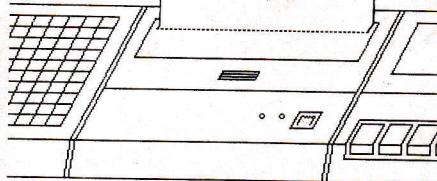
MASTERMIND This is a machine code version of the classic game. Full instructions are in the game itself.

REMEMBER All these programs must be CALLED using the C command.

ADDRESSES OF ALL THE PROGRAMS

13	EXPERT MACHINE CODE	\$7500-\$9F6F	e \$9500
23	INPUT #1	\$6000-\$606F	e \$6000
33	INPUT #2	\$6200-\$62A3	e \$6200
43	THE RELAXER	\$6400-\$642F	e \$6400
53	WEE BEN	\$4600-\$46FF	e \$4600
63	MASTERMIND	\$6600-\$6A03	e \$6600

KNIGHTS EXPERT MACHINE CODE



SHARP

MZ-700

INCLUDES: MACHINE CODE LANGUAGE AND 5 SAMPLE PROGRAMS

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