



ZEN

FOR
THE **AMSTRAD**
CPC464

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Kuma

ZEN

Z80 Assembly Language Programming System

for

the

AMSTRAD CPC 464 MICROCOMPUTER

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ISBN 07457-0000-4

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Introduction

Thank you for buying this copy of ZEN for the Amstrad CPC64. If you have any questions about ZEN then please feel free to write to Avalon Software. All high level languages have performance limitations, when you need the maximum in speed and flexibility the answer lies in Assembly Language programming. ZEN provides you with the tools to generate or analyse Z80 Assembly Language programs.

Starting up

Unlike BASIC, which is permanently available in ROM, you need to load ZEN from cassette. It is stored on the cassette as a binary file designed to run at address 4000H (16384 decimal). BASIC usually assumes that it has the whole of memory to itself. To ensure that BASIC and ZEN coexist peacefully it is necessary to change the top of memory before loading from cassette. The loading procedure is therefore as follows:

(1) Type MEMORY 16383(ENTER)

(2) Type LOAD"ZEN"(ENTER)

BASIC will then load ZEN into memory, displaying various prompts and messages as it does so. When loading is finished you are returned to BASIC's command level, any existing BASIC programs are unaffected. To transfer control to ZEN type CALL 16384(ENTER).

Command level

Whenever the prompt ZEN> is displayed you are at command level, you may execute any of the following commands:

A Assemble	O Out
B Bye	P Print
C Copy	Q Query
D Down	R Read
E Enter	S Sort
F Fill	T Target
G Goto	U Up
H Howbig	W Write
I In	X Xamine
K Kill	Z Zap
L Locate	c catalog
M Modify	d disassemble
N New	u unscramble

To select a given command type in the first letter of it's name, followed by a parameter if relevant, and then press the (ENTER) key. The DEL key can be used to backspace. The usage of command loop parameters is explained in greater detail in the next section, which examines each command in depth. If ZEN doesn't understand anything you've typed in it will display the error message HUH? The default command, just pressing (ENTER) on it's own will clear the screen.

Assemble The function of the assembler is to read a series of assembly language statements and to produce the corresponding Z80 machine code and listing. The ZEN editing commands are used to create a text file in memory which is the input to the assembler. Output of the machine code file, usually called the object file, is controlled by the LOAD operator (see under PSEUDO-OPS). The listing output is specified by you in response to the OPTION> prompt from the assembler. You may specify V(ENTER), E(ENTER) or (ENTER) for video, external or null list output. The null output option is much the fastest mode (the assembler is peripheral-bound) and should be used until all syntax errors are corrected. The text file is read beginning at the start-of-file and stopping when the END operator is found.

Bye This command gives a warm return to BASIC, any BASIC programs in memory are unaffected. You can do a warm return to ZEN by issuing the CALL 16384 statement as described previously. You can shuttle between ZEN and BASIC whenever you like without affecting any files or data in memory.

Copy This command moves a block of memory. You will be prompted for START>, STOP> and DESTINATION> parameters. Within ZEN's command structure a numeric parameter may be a decimal, hexadecimal or octal number. Hex numbers are 'H' postfixed and octal are 'O' postfixed. So if you wanted to move the block of memory from 200H to 2FFH up to 8000H you would type 200H(ENTER), 2FFH(ENTER) and 8000H(ENTER).

Down This command moves the editor current line down by the number of lines specified in the command parameter. For example D37(ENTER) moves down thirty-seven lines. The default command parameter is one so D(ENTER) moves down one line. The editor in ZEN is line orientated as in BASIC but does not use explicit line numbers, instead you use various commands to move around the text file until you reach the required position. You then use the ENTER or ZAP commands to insert or delete lines of text. If the DOWN command bumps into the end-of-file then the message EOF will be displayed.

Enter This command enters lines of text into the text file. ZEN will display the current line number, type in your line of text then press (ENTER). This process will repeat until you type a full stop as the first character on the line, this returns you to command level. Your text is placed in the file at the current line, the old current and following lines are moved downwards towards EOF. Note that although line numbers are often displayed by ZEN these are dynamically computed and not stored in the text file.

Fill This command fills a block of memory, from START> to STOP> inclusive with a DATA> value. You will be prompted for all three parameters.

Goto This command loads the Z80 registers with the User Image and transfers control to the address specified in the command parameter. For example G0(ENTER) would perform a complete system cold start. If no command parameter is supplied then control is transferred to the address in the User Program Counter. You will then be prompted for a breakpoint address. If you respond with a valid address parameter then a breakpoint is set at that address. If you default, by just pressing (ENTER), then no breakpoint is set. A breakpoint is a way of stopping a running program. A RST 30H instruction (0F7H) is inserted into the program and a vector back to the ZEN trap handler is placed at 0030H. The trap handler will save all the Z80 registers in the User Image area and restore the code under the breakpoint before returning to the ZEN command loop. You can thus examine the state of the Z80 at the time of the breakpoint. You cannot set a breakpoint in ROM, ZEN will generate a MEMORY error message if the breakpoint has failed to set for this reason. You can continue execution by using the G(ENTER) command as the Program Counter is saved as part of the trap process.

Howbig This command displays, in hexadecimal, the start and end addresses of the text file and the top of memory. ZEN will allow the text file to grow up to this top limit but no further. You can change this limit if required (see ZEN listing, the LIMIT constant). It is presently set at AB7FH, the area from AB80H to BFFFH is used by the BASIC operating system. The area from C000H to FFFFH is the video memory.

In This command will display, in hexadecimal and binary, the data read from the I/O port specified by the command parameter. For example I83H(ENTER). The particular hardware configuration of the Amstrad CPC64 means that addresses up to FFFFH are valid.

Kill This command erases the text file, as with the NEW statement in BASIC. It is possible to recover an accidentally KILLED file as ZEN just makes the EOF pointer equal to the SDF pointer, the actual text will still be in memory. Find the address of the last text character, this will be an ASCII Carriage Return code (0DH). Increase this by one and use the MODIFY command to restore the EOF pointer (see ZEN listing, EOFP).

Locate This command is used to search the text file for a particular string of characters. The character string forms the command parameter. For example LBIT 7,A(ENTER) would find the first occurrence of the string BIT 7,A in the text file. The text file is searched from the line after the current line. If the string is found then that line is made the current line. If the search fails you are at end-of-file. There are no restrictions on the contents of the parameter string.

Modify This command allows you to examine and alter memory contents. The start address is specified by the command parameter. For example M7000H(ENTER) would cause the command to start at 7000H. If you supply no address parameter then the command continues from where it last finished. The byte at the address is displayed in hex and ZEN prompts for a data parameter from you. If you supply a parameter then it is stored at that address, if you default ZEN just steps onto the next address. To return to command level type a full stop.

New This command lets you modify the current line of the text file. The line is displayed with the cursor at the rightmost position. Change the line and press (ENTER) to restore the new line to the text file.

Out This command will output a data value to the I/O port specified by the command parameter. You will be prompted for the data parameter.

Print This command displays a number of lines from the text file on the screen. The number of lines is specified by the command parameter, for example P9(ENTER) would display nine lines. The default command parameter is one. The display commences with the current line and the last line displayed becomes the new current line.

Query This command displays sixty-four bytes of memory in hex and ASCII. The command parameter specifies the start address, for example Q4000H(ENTER) would display the start of ZEN. If you supply no address parameter then the display begins from where it last finished.

Read This command reads a file from cassette into memory, you will be prompted for a filename. There are two types of file which concern ZEN, text files and binary files. If the file is a text file then it is added to the end of any text already existing in memory. If the file becomes too large then the error message MEMORY is issued and reading terminates. If it is a binary file then it will be placed at it's load address unless you have specified a load address as a command parameter. For example R7900H would load the file commencing at 7900H irrespective of it's actual load address. The execution address of the binary file is placed in the User Program Counter. These two types of files are the same as the standard BASIC text and binary files. The type of a file is determined by a single byte in the file header. The following seem to be the normal types: BASIC = 00H, BASIC PROTECTED = 01H, BINARY = 02H, TEXT = 16H.

Sort This command will sort and display the symbol table produced during the last assembly. You will be prompted for an output option. Your possible responses are the same as for the Assembler list output. The output of this command is generated a page at a time as with list output. You can restrict the sort process to symbols beginning with a particular letter by entering that letter as a command parameter. For example SB(ENTER) would only produce the symbols beginning with the letter 'B'. Note that symbols are only sorted on the first letter and not the whole name.

Target This command will move you to any line in the text file and make it the current line. The command parameter specifies the line number, for example T1435(ENTER) would move you to line one thousand four hundred and thirty-five. The default command parameter, T(ENTER), moves you to the start-of-file.

Up This command moves you up the text file by the number of lines specified in the command parameter. The default parameter is one.

Write This command writes a text or binary file to cassette, you will be prompted for a file name. The command W(ENTER) writes the text file while the command WB(ENTER) writes an area of memory as a binary file. In this case you will be further prompted for START>, STOP> and EXEC> addresses. The area written is from start to stop inclusive, the execution address is merely placed in the file header for use in later reading.

Xamine This command displays the Z80 registers saved in the User Image. The top line shows the main registers and the lower line the Z80 alternate register set.

Zap This command removes a number of lines from the text file as specified by the command parameter. For example Z108(ENTER) would remove one hundred and eight lines, commencing with the current line. The default command parameter is one.

catalog This command is identical to the BASIC cat command, it will verify and display all the files found on the cassette. File type indicators are: BASIC = \$, BASIC PROTECTED = %, BINARY = &, TEXT = *.

disassemble This command performs a symbolic disassembly on an area of memory and generates a text file or listing as output. You will be prompted for the START> and STOP> addresses of the area you wish to disassemble. You will then be asked the address which the program RUNS AT>. Sometimes you may have a program in memory at a different location to it's usual run-time location, the disassembler can relocate any addresses and labels in it's output to reflect this. If you default to the request for the run-time start address then ZEN assumes that the program is at it's normal run-time location. If you supply an actual address parameter then the output file will reflect this run-time address. You will then be asked, repeatedly, for the START> and STOP> addresses of any data areas within the disassembly region. These are areas which will not be decoded as instructions but as data bytes. To terminate this process type in a stop address of zero. There is a maximum of sixty-four separate data areas, if you exceed this number ZEN will generate the error message FULL. You will now be asked for an output OPTION>. You may specify V(ENTER) or E(ENTER) for listings to the video or external devices. If you default then ZEN will generate a text file and add it to the end of any text already in memory. If the text file grows up to the top of memory limit during disassembly then the error message MEMORY is issued and disassembly terminates. The only other error condition possible during disassembly is for the symbol table to fill up in which case the error message FULL is issued. Note that the disassembler uses the same symbol table as the assembler and so destroys any symbols there. This is only of relevance if you wish to perform a later SORT operation. Any illegal opcodes encountered during disassembly are treated as data statements. Labels of the form Lnnnn (where nnnn is an address) will be generated at the appropriate positions.

unscramble This command is a simplified version of the disassembler. It will disassemble eight Z80 instructions beginning at the address specified by the command parameter. For example u41E0H will disassemble the start of ZEN's mainloop. If you default on the address parameter then the command continues from where it last finished. Any illegal opcodes encountered are displayed as data bytes. ZEN will try to make an intelligent guess about how to display eight bit numeric operands. Numbers less than ten are displayed as single digit decimals. Numbers from 41H to 5AH and 61H to 7AH are displayed as ASCII literal characters. Other numbers are displayed as hex values with a leading zero if necessary.

Further Information

List Output

The commands Assemble, Sort and disassemble can all generate large quantities of output to the video or external devices. With these commands the output will be generated a page at a time with a short pause between each page. Pressing any key will stop output at the end of the page, to restart press any key except 'Q'. This key will force the command to QUIT and return to the command loop.

The external device is assumed to be eighty characters wide by sixty-six lines long i.e a typical printer. You can change the page length by modifying the PAGE procedure (see ZEN listing). You can change the various field widths by modifying the group of constants COMWIDTH/SYMWIDTH (see ZEN listing). The external device is presumed to respond to the ASCII control characters Formfeed (0CH), Carriage Return (0DH) and Linefeed (0AH). ZEN issues a Formfeed followed by sixty-two lines of text for each page, each line being terminated by Carriage Return, Linefeed. The external device driver (see ZEN listing) will drive EPSON FX-80 type printers as it stands. If you have something unusual there is space in the driver to insert patches, to filter Linefeeds for example.

The video device is assumed to be forty characters wide. Note that line numbers are not generated on the video device for Assembler/disassembler listings because of this reduced width. The symbol, operand and comment fields of a Z80 statement may be of indefinite length. If necessary ZEN will truncate these fields to fit into the required format.

The Symbol Table

The symbol table is the area of memory used by ZEN to store symbols during Assembly/disassembly. It is situated between ZEN and the text file. If you wish to increase it's size it is only necessary to change the start-of-file pointer to the required new value, here's how: (1) KILL the text file (2) Use MODIFY to change SOFP (3) KILL the text file again to copy SOFP into EOPF and CURRENT (4) Perform an ASSEMBLE to shut down the symbol table (5) Use WB to write the new version to cassette.

The External Environment

The Amstrad CPC64 has a complex memory map. When you first enter ZEN you will find that the Operating System and BASIC ROMs have been switched out and that RAM is contiguous from 0 to BFFFH, with the video RAM occupying the remaining space. To switch the ROMs back in is fairly easy. Enter the following keystrokes:

```
K(ENTER)
E(ENTER)
ORG 7000H(ENTER)
LOAD 7000H(ENTER)
CALL 0B900H(ENTER)
CALL 0B906H(ENTER)
JP 4000H(ENTER)
END(ENTER)
.(ENTER)
A(ENTER)
V(ENTER)
G7000H(ENTER)
(ENTER)
```

This short program calls two procedures in the Operating System interface to switch in the upper and lower ROMs. They can now be examined with the Query and unscramble/disassemble commands. For example if you Query around 660H you can see the export market names for the machine. Examination of the region around CC50H will reveal all the BASIC error messages.

ZEN will operate whatever condition the memory map is in. BASIC text files occupy low RAM just after the RESTART block and grow up towards HIMEM. The BASIC cassette operating system requires the use of two 2K buffers for read and write. When you first enter ZEN they are set to 3000H to 37FFH (Read) and 3800H to 3FFFH (Write). You can move these around by modifying the CRBUFF, CWBUFF pointer constants (see ZEN listing). They can occupy the same space if required as ZEN only uses one at a time.

Something you should be aware of when designing a program is the Amstrad's use of background interrupts. The interrupt handler is running constantly in order to scan the keyboard, etc. This interrupt handler expects to find certain information in the 280 alternate registers. You should therefore never do an EXX instruction in your programs with interrupts enabled. If you have to look at the alternate registers for any reason then disable interrupts first. You should also be aware that any call to the Operating System jump block will turn interrupts back on and will consequently crash if you have the register sets exchanged.

Assembler Syntax

ZEN expects assembly language statements to be constructed according to the syntax defined in the ZILOG Z80 Assembly Language Programming Manual. ZEN deviates from the standard in one instance in that it expects EX AF,AF rather than EX AF,AF'. The section following this one contains an alphabetically sorted listing of the entire Z80 instruction set. Each assembly language statement may be divided into a maximum of four logical fields, they are:

- (1) Label
- (2) Operator
- (3) Operands
- (4) Comment

Label A label is a way of marking a statement so that other statements can refer to it. Line numbers serve the same purpose in BASIC, you would use GOTO 240 for example. Assembly Language allows you to use a symbolic name for a label. When you declare the label it must be postfixed with a colon ':' so that the assembler knows that it's a label. A label must begin with a letter but may contain letters or digits after that. ZEN allows labels of any length with all characters being significant. The register and condition-code names may not be used as symbols as these are reserved identifiers. Any attempt to do so will result in an error message.

Operator There are sixty-seven operators in the Z80 Assembly Language. In addition ZEN supports seven PSEUDO-OPS, they are:

END This pseudo-op terminates assembly, it MUST be used.

DS or DEFS Define Storage skips over the number of object locations specified by the operand.

DW or DEFW Define Word places the operand in the object file in reverse order as required by the Z80 word instructions.

DB or DEFB Define Byte(s) places the operand(s) in the object file at successive locations. Operands are delimited by commas, each operand may be an expression with value less than 256 or may be a literal string. Literal strings may be of any length but cannot form part of an expression.

EQU Equate assigns the value of the operand to a symbolic identifier. Any symbolic identifiers used in the operand expression must already be known to the assembler. This 'no forward reference' rule is designed to prevent circular referencing.

ORG Origin defines the start address of the object file. This pseudo-op can be used as often as needed to produce sections of code at different addresses. The 'no forward reference' rule applies to the operand.

LOAD Commences loading code into memory at the operand address. Use of a subsequent ORG pseudo-op will turn this process off, you are explicitly required to re-establish the loading process.

Operands The number of operands in a statement depends upon the operator. There are niladic, monadic and dyadic operators in the Z80 instruction set. These take zero, one and two operands respectively. There are three classes of operand:

- (1) Registers (A,B,C,D,E,H,L,I,R,HL,DE,BC,AF,IX,IY,SP)
- (2) Condition-codes (NZ,Z,NC,C,PO,PE,P,M)
- (3) Numeric expressions

A numeric expression is composed of one or more of the following elements delimited by the infix math operators:

- (1) A decimal, hex or octal number. Decimal is the default base with hex numbers being 'H' postfixed and octal 'O' postfixed. Numbers must begin with a digit, a leading zero will be needed with some hex numbers.
- (2) A literal character enclosed in single or double quotes.
- (3) The \$ character. This variable mimics the program counter of the run-time program.
- (4) A symbolic name. The assembler will use the associated value in evaluating the expression.

The infix math operators are:

- + addition
- subtraction
- * multiplication
- / division
- & logical AND
- . logical OR

Expressions are evaluated STRICTLY LEFT TO RIGHT with no precedence ordering. Arithmetic is sixteen bit unsigned integer and overflow will be ignored.

Comments Comments are ignored by the assembler. They begin with a semi-colon ';' and are terminated by the end-of-line.

Assembler Error Handling

If the assembler finds a syntax error the following will happen:

- (1) Assembly terminates.
- (2) An error message is displayed.
- (3) The offending line is displayed and is made the editor current line.
- (4) The command loop is re-entered.

You can now correct the error and re-assemble. It is impossible to make a syntax error which will damage ZEN or anything in memory. The error messages are:

UNDEFINED You have used an undeclared symbol.

SYMBOL You have declared a zero length symbol or have forgotten the symbol needed with an EQU pseudo-op.

RESERVED You have tried to use a reserved word for a symbol.

FULL The symbol table is full.

DOUBLE SYMBOL You have declared the same symbol more than once.

EOF You have forgotten END and have hit end-of-file.

ORG! You have forgotten ORG.

HUH? The assembler is completely baffled.

OPERAND You have done something wrong with an operand, this covers a multitude of sins! Most types of syntax error will come under this heading as well as errors of magnitude. These occur when you try to offset too far with a relative jump or indexing instruction.

```

1      ; *****
2      ; *      Z80 Instruction      *
3      ; *      Set                  *
4      ; *****
5
6      ORG 0
7
8      INDEX: EQU 5 ; IX,IY Index
9      NUMBER: EQU 0584H ; 16 BIT Operand
10     NUM: EQU 20H ; 8 BIT Operand
11
12     0000 8E ADC A,(HL)
13     0001 DD8E05 ADC A,(IX+INDEX)
14     0004 FD8E05 ADC A,(IY+INDEX)
15     0007 8F ADC A,A
16     0008 88 ADC A,B
17     0009 89 ADC A,C
18     000A 8A ADC A,D
19     000B 8B ADC A,E
20     000C 8C ADC A,H
21     000D 8D ADC A,L
22     000E CE20 ADC A,NUM
23     0010 ED4A ADC HL,BC
24     0012 ED5A ADC HL,DE
25     0014 ED6A ADC HL,HL
26     0016 ED7A ADC HL,SP
27     0018 86 ADD A,(HL)
28     0019 DD8605 ADD A,(IX+INDEX)
29     001C FD8605 ADD A,(IY+INDEX)
30     001F 87 ADD A,A
31     0020 80 ADD A,B
32     0021 81 ADD A,C
33     0022 82 ADD A,D
34     0023 83 ADD A,E
35     0024 84 ADD A,H
36     0025 85 ADD A,L
37     0026 C620 ADD A,NUM
38     0028 09 ADD HL,BC
39     0029 19 ADD HL,DE
40     002A 29 ADD HL,HL
41     002B 39 ADD HL,SP
42     002C DD09 ADD IX,BC
43     002E DD19 ADD IX,DE
44     0030 DD29 ADD IX,IX
45     0032 DD39 ADD IX,SP
46     0034 FD09 ADD IY,BC
47     0036 FD19 ADD IY,DE
48     0038 FD29 ADD IY,IY
49     003A FD39 ADD IY,SP
50     003C A6 AND (HL)
51     003D DDA605 AND (IX+INDEX)
52     0040 FDA605 AND (IY+INDEX)
53     0043 A7 AND A
54     0044 A0 AND B
55     0045 A1 AND C
56     0046 A2 AND D
57     0047 A3 AND E
58     0048 A4 AND H
59     0049 A5 AND L
60     004A E620 AND NUM

```

61 0040 CB46	BIT 0, (HL)
62 004E DDCB0546	BIT 0, (IX+INDEX)
63 0052 FDCB0546	BIT 0, (IY+INDEX)
64 0056 CB47	BIT 0,A
65 0058 CB40	BIT 0,B
66 005A CB41	BIT 0,C
67 005C CB42	BIT 0,D
68 005E CB43	BIT 0,E
69 0060 CB44	BIT 0,H
70 0062 CB45	BIT 0,L
71 0064 CB4E	BIT 1, (HL)
72 0066 DDCB054E	BIT 1, (IX+INDEX)
73 006A FDCB054E	BIT 1, (IY+INDEX)
74 006E CB4F	BIT 1,A
75 0070 CB48	BIT 1,B
76 0072 CB49	BIT 1,C
77 0074 CB4A	BIT 1,D
78 0076 CB4B	BIT 1,E
79 0078 CB4C	BIT 1,H
80 007A CB4D	BIT 1,L
81 007C CB56	BIT 2, (HL)
82 007E DDCB0556	BIT 2, (IX+INDEX)
83 0082 FDCB0556	BIT 2, (IY+INDEX)
84 0086 CB57	BIT 2,A
85 0088 CB50	BIT 2,B
86 008A CB51	BIT 2,C
87 008C CB52	BIT 2,D
88 008E CB53	BIT 2,E
89 0090 CB54	BIT 2,H
90 0092 CB55	BIT 2,L
91 0094 CB5E	BIT 3, (HL)
92 0096 DDCB055E	BIT 3, (IX+INDEX)
93 009A FDCB055E	BIT 3, (IY+INDEX)
94 009E CB5F	BIT 3,A
95 00A0 CB58	BIT 3,B
96 00A2 CB59	BIT 3,C
97 00A4 CB5A	BIT 3,D
98 00A6 CB5B	BIT 3,E
99 00A8 CB5C	BIT 3,H
100 00AA CB5D	BIT 3,L
101 00AC CB66	BIT 4, (HL)
102 00AE DDCB0566	BIT 4, (IX+INDEX)
103 00B2 FDCB0566	BIT 4, (IY+INDEX)
104 00B6 CB67	BIT 4,A
105 00B8 CB60	BIT 4,B
106 00BA CB61	BIT 4,C
107 00BC CB62	BIT 4,D
108 00BE CB63	BIT 4,E
109 00C0 CB64	BIT 4,H
110 00C2 CB65	BIT 4,L
111 00C4 CB6E	BIT 5, (HL)
112 00C6 DDCB056E	BIT 5, (IX+INDEX)
113 00CA FDCB056E	BIT 5, (IY+INDEX)
114 00CE CB6F	BIT 5,A
115 00D0 CB68	BIT 5,B
116 00D2 CB69	BIT 5,C
117 00D4 CB6A	BIT 5,D
118 00D6 CB6B	BIT 5,E
119 00D8 CB6C	BIT 5,H
120 00DA CB6D	BIT 5,L

121 00DC CB76	BIT 6, (HL)
122 00DE DDCB0576	BIT 6, (IX+INDEX)
123 00E2 FDCB0576	BIT 6, (IY+INDEX)
124 00E6 CB77	BIT 6,A
125 00E8 CB70	BIT 6,B
126 00EA CB71	BIT 6,C
127 00EC CB72	BIT 6,D
128 00EE CB73	BIT 6,E
129 00F0 CB74	BIT 6,H
130 00F2 CB75	BIT 6,L
131 00F4 CB7E	BIT 7, (HL)
132 00F6 DDCB057E	BIT 7, (IX+INDEX)
133 00FA FDCB057E	BIT 7, (IY+INDEX)
134 00FE CB7F	BIT 7,A
135 0100 CB78	BIT 7,B
136 0102 CB79	BIT 7,C
137 0104 CB7A	BIT 7,D
138 0106 CB7B	BIT 7,E
139 0108 CB7C	BIT 7,H
140 010A CB7D	BIT 7,L
141 010C DC8405	CALL C,NUMBER
142 010F FC8405	CALL M,NUMBER
143 0112 D48405	CALL NC,NUMBER
144 0115 CD8405	CALL NUMBER
145 0118 C48405	CALL NZ,NUMBER
146 011B F48405	CALL P,NUMBER
147 011E EC8405	CALL PE,NUMBER
148 0121 E48405	CALL PQ,NUMBER
149 0124 CC8405	CALL Z,NUMBER
150 0127 3F	CCF
151 0128 BE	CP (HL)
152 0129 DD8E05	CP (IX+INDEX)
153 012C FD8E05	CP (IY+INDEX)
154 012F BF	CP A
155 0130 B8	CP B
156 0131 B9	CP C
157 0132 BA	CP D
158 0133 BB	CP E
159 0134 BC	CP H
160 0135 BD	CP L
161 0136 FE20	CP NUM
162 0138 EDA9	CPD
163 013A EDB9	CPDR
164 013C EDA1	CPI
165 013E EDB1	CPIR
166 0140 2F	CPL
167 0141 27	DAA
168 0142 35	DEC (HL)
169 0143 DD3505	DEC (IX+INDEX)
170 0146 FD3505	DEC (IY+INDEX)
171 0149 3D	DEC A
172 014A 05	DEC B
173 014B 0B	DEC BC
174 014C 0D	DEC C
175 014D 15	DEC D
176 014E 1B	DEC DE
177 014F 1D	DEC E
178 0150 25	DEC H
179 0151 2B	DEC HL
180 0152 DD2B	DEC IX

181 0154 FD2B	DEC IY
182 0156 2D	DEC L
183 0157 3B	DEC SP
184 0158 F3	DI
185 0159 10FE	DJNZ \$
186 015B FB	EI
187 015C E3	EX (SP),HL
188 015D DDE3	EX (SP),IX
189 015F FDE3	EX (SP),IY
190 0161 08	EX AF,AF
191 0162 EB	EX DE,HL
192 0163 D9	EXX
193 0164 76	HALT
194 0165 ED46	IM 0
195 0167 ED56	IM 1
196 0169 ED5E	IM 2
197 016B ED78	IN A,(C)
198 016D DB20	IN A,(NUM)
199 016F ED40	IN B,(C)
200 0171 ED48	IN C,(C)
201 0173 ED50	IN D,(C)
202 0175 ED58	IN E,(C)
203 0177 ED60	IN H,(C)
204 0179 ED68	IN L,(C)
205 017B 34	INC (HL)
206 017C DD3405	INC (IX+INDEX)
207 017F FD3405	INC (IY+INDEX)
208 0182 3C	INC A
209 0183 04	INC B
210 0184 03	INC BC
211 0185 0C	INC C
212 0186 14	INC D
213 0187 13	INC DE
214 0188 1C	INC E
215 0189 24	INC H
216 018A 23	INC HL
217 018B DD23	INC IX
218 018D FD23	INC IY
219 018F 2C	INC L
220 0190 33	INC SP
221 0191 EDAA	IND
222 0193 ED8A	INDR
223 0195 EDA2	INI
224 0197 ED82	INIR
225 0199 E9	JP (HL)
226 019A DDE9	JP (IX)
227 019C FDE9	JP (IY)
228 019E DA8405	JP C,NUMBER
229 01A1 FA8405	JP M,NUMBER
230 01A4 D28405	JP NC,NUMBER
231 01A7 C38405	JP NUMBER
232 01AA C28405	JP NZ,NUMBER
233 01AD F28405	JP P,NUMBER
234 01B0 EA8405	JP PE,NUMBER
235 01B3 E28405	JP PO,NUMBER
236 01B6 CA8405	JP Z,NUMBER
237 01B9 38FE	JR C,\$
238 01BB 18FE	JR \$
239 01BD 30FE	JR NC,\$
240 01BF 20FE	JR NZ,\$

241	01C1	28FE	JR	Z, #
242	01C3	02	LD	(BC), A
243	01C4	12	LD	(DE), A
244	01C5	77	LD	(HL), A
245	01C6	70	LD	(HL), B
246	01C7	71	LD	(HL), C
247	01C8	72	LD	(HL), D
248	01C9	73	LD	(HL), E
249	01CA	74	LD	(HL), H
250	01CB	75	LD	(HL), L
251	01CC	3620	LD	(HL), NUM
252	01CE	DD7705	LD	(IX+INDEX), A
253	01D1	DD7005	LD	(IX+INDEX), B
254	01D4	DD7105	LD	(IX+INDEX), C
255	01D7	DD7205	LD	(IX+INDEX), D
256	01DA	DD7305	LD	(IX+INDEX), E
257	01DD	DD7405	LD	(IX+INDEX), H
258	01E0	DD7505	LD	(IX+INDEX), L
259	01E3	DD360520	LD	(IX+INDEX), NUM
260	01E7	FD7705	LD	(IY+INDEX), A
261	01EA	FD7005	LD	(IY+INDEX), B
262	01ED	FD7105	LD	(IY+INDEX), C
263	01F0	FD7205	LD	(IY+INDEX), D
264	01F3	FD7305	LD	(IY+INDEX), E
265	01F6	FD7405	LD	(IY+INDEX), H
266	01F9	FD7505	LD	(IY+INDEX), L
267	01FC	FD360520	LD	(IY+INDEX), NUM
268	0200	328405	LD	(NUMBER), A
269	0203	ED438405	LD	(NUMBER), BC
270	0207	ED538405	LD	(NUMBER), DE
271	020B	228405	LD	(NUMBER), HL
272	020E	DD228405	LD	(NUMBER), IX
273	0212	FD228405	LD	(NUMBER), IY
274	0216	ED738405	LD	(NUMBER), SP
275	021A	0A	LD	A, (BC)
276	021B	1A	LD	A, (DE)
277	021C	7E	LD	A, (HL)
278	021D	DD7E05	LD	A, (IX+INDEX)
279	0220	FD7E05	LD	A, (IY+INDEX)
280	0223	3A8405	LD	A, (NUMBER)
281	0226	7F	LD	A, A
282	0227	7B	LD	A, B
283	0228	79	LD	A, C
284	0229	7A	LD	A, D
285	022A	7B	LD	A, E
286	022B	7C	LD	A, H
287	022C	ED57	LD	A, I
288	022E	7D	LD	A, L
289	022F	3E20	LD	A, NUM
290	0231	ED5F	LD	A, R
291	0233	46	LD	B, (HL)
292	0234	DD4605	LD	B, (IX+INDEX)
293	0237	FD4605	LD	B, (IY+INDEX)
294	023A	47	LD	B, A
295	023B	40	LD	B, B
296	023C	41	LD	B, C
297	023D	42	LD	B, D
298	023E	43	LD	B, E
299	023F	44	LD	B, H
300	0240	45	LD	B, L

301 0241 0620	LD B,NUM
302 0243 ED4B8405	LD BC,(NUMBER)
303 0247 018405	LD BC,NUMBER
304 024A 4E	LD C,(HL)
305 024B DD4E05	LD C,(IX+INDEX)
306 024E FD4E05	LD C,(IY+INDEX)
307 0251 4F	LD C,A
308 0252 48	LD C,B
309 0253 49	LD C,C
310 0254 4A	LD C,D
311 0255 4B	LD C,E
312 0256 4C	LD C,H
313 0257 4D	LD C,L
314 0258 0E20	LD C,NUM
315 025A 56	LD D,(HL)
316 0258 DD5605	LD D,(IX+INDEX)
317 025E FD5605	LD D,(IY+INDEX)
318 0261 57	LD D,A
319 0262 50	LD D,B
320 0263 51	LD D,C
321 0264 52	LD D,D
322 0265 53	LD D,E
323 0266 54	LD D,H
324 0267 55	LD D,L
325 0260 1620	LD D,NUM
326 026A ED5B8405	LD DE,(NUMBER)
327 026E 118405	LD DE,NUMBER
328 0271 5E	LD E,(HL)
329 0272 DD5E05	LD E,(IX+INDEX)
330 0275 FD5E05	LD E,(IY+INDEX)
331 0278 5F	LD E,A
332 0279 58	LD E,B
333 027A 59	LD E,C
334 027B 5A	LD E,D
335 027C 5B	LD E,E
336 027D 5C	LD E,H
337 027E 5D	LD E,L
338 027F 1E20	LD E,NUM
339 0281 66	LD H,(HL)
340 0282 DD6605	LD H,(IX+INDEX)
341 0285 FD6605	LD H,(IY+INDEX)
342 0288 67	LD H,A
343 0289 60	LD H,B
344 028A 61	LD H,C
345 028B 62	LD H,D
346 028C 63	LD H,E
347 028D 64	LD H,H
348 028E 65	LD H,L
349 028F 2620	LD H,NUM
350 0291 2A8405	LD HL,(NUMBER)
351 0294 218405	LD HL,NUMBER
352 0297 ED47	LD I,A
353 0299 DD2A8405	LD IX,(NUMBER)
354 029D DD218405	LD IX,NUMBER
355 02A1 FD2A8405	LD IY,(NUMBER)
356 02A5 FD218405	LD IY,NUMBER
357 02A9 6E	LD L,(HL)
358 02AA DD6E05	LD L,(IX+INDEX)
359 02AD FD6E05	LD L,(IY+INDEX)
360 02B0 6F	LD L,A

361 02B1 68	LD L,B
362 02B2 69	LD L,C
363 02B3 6A	LD L,D
364 02B4 6B	LD L,E
365 02B5 6C	LD L,H
366 02B6 6D	LD L,L
367 02B7 2E20	LD L,NUM
368 02B9 ED4F	LD R,A
369 02BB ED7B8405	LD SP,(NUMBER)
370 02BF F9	LD SP,HL
371 02C0 DDF9	LD SP,IX
372 02C2 FDF9	LD SP,IY
373 02C4 318405	LD SP,NUMBER
374 02C7 EDA8	LDD
375 02C9 EDB8	LDDR
376 02CB EDA0	LDI
377 02CD EDB0	LDIR
378 02CF ED44	NEG
379 02D1 00	NOF
380 02D2 B6	OR (HL)
381 02D3 DDB605	OR (IX+INDEX)
382 02D6 FDB605	OR (IY+INDEX)
383 02D9 B7	OR A
384 02DA B0	OR B
385 02DB B1	OR C
386 02DC B2	OR D
387 02DD B3	OR E
388 02DE B4	OR H
389 02DF B5	OR L
390 02E0 F620	OR NUM
391 02E2 EDB8	OTDR
392 02E4 EDB3	OTIR
393 02E6 ED79	OUT (C),A
394 02E8 ED41	OUT (C),B
395 02EA ED49	OUT (C),C
396 02EC ED51	OUT (C),D
397 02EE ED59	OUT (C),E
398 02F0 ED61	OUT (C),H
399 02F2 ED69	OUT (C),L
400 02F4 D320	OUT (NUM),A
401 02F6 EDAB	OUTD
402 02F8 EDA3	OUTI
403 02FA F1	POP AF
404 02FB C1	POP BC
405 02FC D1	POP DE
406 02FD E1	POP HL
407 02FE DDE1	POP IX
408 0300 FDE1	POP IY
409 0302 F5	PUSH AF
410 0303 C5	PUSH BC
411 0304 D5	PUSH DE
412 0305 E5	PUSH HL
413 0306 DDE5	PUSH IX
414 0308 FDE5	PUSH IY
415 030A CB86	RES 0,(HL)
416 030C DDCB0586	RES 0,(IX+INDEX)
417 0310 FDCB0586	RES 0,(IY+INDEX)
418 0314 CB87	RES 0,A
419 0316 CB80	RES 0,B
420 0318 CB81	RES 0,C

421 031A CB82	RES 0,D
422 031C CB83	RES 0,E
423 031E CB84	RES 0,H
424 0320 CB85	RES 0,L
425 0322 CB8E	RES 1,(HL)
426 0324 DDCB058E	RES 1,(IX+INDEX)
427 0328 FDCB058E	RES 1,(IY+INDEX)
428 032C CB8F	RES 1,A
429 032E CB88	RES 1,B
430 0330 CB89	RES 1,C
431 0332 CB8A	RES 1,D
432 0334 CB8B	RES 1,E
433 0336 CB8C	RES 1,H
434 0338 CB8D	RES 1,L
435 033A CB96	RES 2,(HL)
436 033C DDCB0596	RES 2,(IX+INDEX)
437 0340 FDCB0596	RES 2,(IY+INDEX)
438 0344 CB97	RES 2,A
439 0346 CB98	RES 2,B
440 0348 CB91	RES 2,C
441 034A CB92	RES 2,D
442 034C CB93	RES 2,E
443 034E CB94	RES 2,H
444 0350 CB95	RES 2,L
445 0352 CB9E	RES 3,(HL)
446 0354 DDCB059E	RES 3,(IX+INDEX)
447 0358 FDCB059E	RES 3,(IY+INDEX)
448 035C CB9F	RES 3,A
449 035E CB98	RES 3,B
450 0360 CB99	RES 3,C
451 0362 CB9A	RES 3,D
452 0364 CB9B	RES 3,E
453 0366 CB9C	RES 3,H
454 0368 CB9D	RES 3,L
455 036A CBA6	RES 4,(HL)
456 036C DDCB05A6	RES 4,(IX+INDEX)
457 0370 FDCB05A6	RES 4,(IY+INDEX)
458 0374 CBA7	RES 4,A
459 0376 CBA8	RES 4,B
460 0378 CBA1	RES 4,C
461 037A CBA2	RES 4,D
462 037C CBA3	RES 4,E
463 037E CBA4	RES 4,H
464 0380 CBA5	RES 4,L
465 0382 CBAE	RES 5,(HL)
466 0384 DDCB05AE	RES 5,(IX+INDEX)
467 0388 FDCB05AE	RES 5,(IY+INDEX)
468 038C CBAF	RES 5,A
469 038E CBA8	RES 5,B
470 0390 CBA9	RES 5,C
471 0392 CBAA	RES 5,D
472 0394 CBAB	RES 5,E
473 0396 CBAC	RES 5,H
474 0398 CBAD	RES 5,L
475 039A CBB6	RES 6,(HL)
476 039C DDCB05B6	RES 6,(IX+INDEX)
477 03A0 FDCB05B6	RES 6,(IY+INDEX)
478 03A4 CBB7	RES 6,A
479 03A6 CBB8	RES 6,B
480 03A8 CBB1	RES 6,C

481 03AA CBB2	RES 6,D
482 03AC CBB3	RES 6,E
483 03AE CBB4	RES 6,H
484 03B0 CBB5	RES 6,L
485 03B2 CBBE	RES 7,(HL)
486 03B4 DDCB05BE	RES 7,(IX+INDEX)
487 03B8 FDCB05BE	RES 7,(IY+INDEX)
488 03BC CBBF	RES 7,A
489 03BE CBB8	RES 7,B
490 03C0 CBB9	RES 7,C
491 03C2 CBBA	RES 7,D
492 03C4 CBBB	RES 7,E
493 03C6 CBBC	RES 7,H
494 03C8 CBBD	RES 7,L
495 03CA C9	RET
496 03CB D8	RET C
497 03CC F8	RET M
498 03CD D0	RET NC
499 03CE C0	RET NZ
500 03CF F0	RET P
501 03D0 E8	RET PE
502 03D1 E0	RET PO
503 03D2 C8	RET Z
504 03D3 ED4D	RETI
505 03D5 ED45	RETN
506 03D7 CB16	RL (HL)
507 03D9 DDCB0516	RL (IX+INDEX)
508 03DD FDCB0516	RL (IY+INDEX)
509 03E1 CB17	RL A
510 03E3 CB10	RL B
511 03E5 CB11	RL C
512 03E7 CB12	RL D
513 03E9 CB13	RL E
514 03EB CB14	RL H
515 03ED CB15	RL L
516 03EF 17	RLA
517 03F0 CB06	RLC (HL)
518 03F2 DDCB0506	RLC (IX+INDEX)
519 03F6 FDCB0506	RLC (IY+INDEX)
520 03FA CB07	RLC A
521 03FC CB00	RLC B
522 03FE CB01	RLC C
523 0400 CB02	RLC D
524 0402 CB03	RLC E
525 0404 CB04	RLC H
526 0406 CB05	RLC L
527 0408 07	RLCA
528 0409 ED6F	RLD
529 040B CB1E	RR (HL)
530 040D DDCB051E	RR (IX+INDEX)
531 0411 FDCB051E	RR (IY+INDEX)
532 0415 CB1F	RR A
533 0417 CB18	RR B
534 0419 CB19	RR C
535 041B CB1A	RR D
536 041D CB1B	RR E
537 041F CB1C	RR H
538 0421 CB1D	RR L
539 0423 1F	RRA
540 0424 CB0E	RRC (HL)

541 0426 DDCB050E	RRC (IX+INDEX)
542 042A FDCB050E	RRC (IY+INDEX)
543 042E CB0F	RRC A
544 0430 CB0B	RRC B
545 0432 CB09	RRC C
546 0434 CB0A	RRC D
547 0436 CB0B	RRC E
548 0438 CB0C	RRC H
549 043A CB0D	RRC L
550 043C 0F	RRCA
551 043D ED67	RKD
552 043F C7	RST 0
553 0440 D7	RST 10H
554 0441 DF	RST 18H
555 0442 E7	RST 20H
556 0443 EF	RST 28H
557 0444 F7	RST 30H
558 0445 FF	RST 38H
559 0446 CF	RST 8
560 0447 9E	SBC A, (HL)
561 0448 DD9E05	SBC A, (IX+INDEX)
562 044B FD9E05	SBC A, (IY+INDEX)
563 044E 9F	SBC A, A
564 044F 98	SBC A, B
565 0450 99	SBC A, C
566 0451 9A	SBC A, D
567 0452 9B	SBC A, E
568 0453 9C	SBC A, H
569 0454 9D	SBC A, L
570 0455 DE20	SBC A, NUM
571 0457 ED42	SBC HL, BC
572 0459 ED52	SBC HL, DE
573 045B ED62	SBC HL, HL
574 045D ED72	SBC HL, SP
575 045F 37	SCF
576 0460 CBC6	SET 0, (HL)
577 0462 DDCB05C6	SET 0, (IX+INDEX)
578 0466 FDCB05C6	SET 0, (IY+INDEX)
579 046A CBC7	SET 0, A
580 046C CBC0	SET 0, B
581 046E CBC1	SET 0, C
582 0470 CBC2	SET 0, D
583 0472 CBC3	SET 0, E
584 0474 CBC4	SET 0, H
585 0476 CBC5	SET 0, L
586 0478 CBCE	SET 1, (HL)
587 047A DDCB05CE	SET 1, (IX+INDEX)
588 047E FDCB05CE	SET 1, (IY+INDEX)
589 0482 CBCF	SET 1, A
590 0484 CBC8	SET 1, B
591 0486 CBC9	SET 1, C
592 0488 CBCA	SET 1, D
593 048A CBCB	SET 1, E
594 048C CBCC	SET 1, H
595 048E CBCE	SET 1, L
596 0490 CBD6	SET 2, (HL)
597 0492 DDCB05D6	SET 2, (IX+INDEX)
598 0496 FDCB05D6	SET 2, (IY+INDEX)
599 049A CBD7	SET 2, A
600 049C CBD0	SET 2, B

601 049E CBD1	SET 2,C
602 04A0 CBD2	SET 2,D
603 04A2 CBD3	SET 2,E
604 04A4 CBD4	SET 2,H
605 04A6 CBD5	SET 2,L
606 04A8 CBDE	SET 3,(HL)
607 04AA DDCB05DE	SET 3,(IX+INDEX)
608 04AE FDCB05DE	SET 3,(IY+INDEX)
609 04B2 CBDF	SET 3,A
610 04B4 CBD8	SET 3,B
611 04B6 CBD9	SET 3,C
612 04B8 CBDA	SET 3,D
613 04BA CBDB	SET 3,E
614 04BC CBDC	SET 3,H
615 04BE CBDD	SET 3,L
616 04C0 CBE6	SET 4,(HL)
617 04C2 DDCB05E6	SET 4,(IX+INDEX)
618 04C6 FDCB05E6	SET 4,(IY+INDEX)
619 04CA CBE7	SET 4,A
620 04CC CBE0	SET 4,B
621 04CE CBE1	SET 4,C
622 04D0 CBE2	SET 4,D
623 04D2 CBE3	SET 4,E
624 04D4 CBE4	SET 4,H
625 04D6 CBE5	SET 4,L
626 04D8 CBEE	SET 5,(HL)
627 04DA DDCB05EE	SET 5,(IX+INDEX)
628 04DE FDCB05EE	SET 5,(IY+INDEX)
629 04E2 CBEF	SET 5,A
630 04E4 CBE8	SET 5,B
631 04E6 CBE9	SET 5,C
632 04E8 CBEA	SET 5,D
633 04EA CBEB	SET 5,E
634 04EC CBEC	SET 5,H
635 04EE CBED	SET 5,L
636 04F0 CBF6	SET 6,(HL)
637 04F2 DDCB05F6	SET 6,(IX+INDEX)
638 04F6 FDCB05F6	SET 6,(IY+INDEX)
639 04FA CBF7	SET 6,A
640 04FC CBF0	SET 6,B
641 04FE CBF1	SET 6,C
642 0500 CBF2	SET 6,D
643 0502 CBF3	SET 6,E
644 0504 CBF4	SET 6,H
645 0506 CBF5	SET 6,L
646 0508 CBFE	SET 7,(HL)
647 050A DDCB05FE	SET 7,(IX+INDEX)
648 050E FDCB05FE	SET 7,(IY+INDEX)
649 0512 CBFF	SET 7,A
650 0514 CBF8	SET 7,B
651 0516 CBF9	SET 7,C
652 0518 CBFA	SET 7,D
653 051A CBF8	SET 7,E
654 051C CBFC	SET 7,H
655 051E CBFD	SET 7,L
656 0520 CB26	SLA (HL)
657 0522 DDCB0526	SLA (IX+INDEX)
658 0526 FDCB0526	SLA (IY+INDEX)
659 052A CB27	SLA A
660 052C CB20	SLA B

661 052E CB21	SLA C
662 0530 CB22	SLA D
663 0532 CB23	SLA E
664 0534 CB24	SLA H
665 0536 CB25	SLA L
666 0538 CB2E	SRA (HL)
667 053A DDCB052E	SRA (IX+INDEX)
668 053E FDCB052E	SRA (IY+INDEX)
669 0542 CB2F	SRA A
670 0544 CB28	SRA B
671 0546 CB29	SRA C
672 0548 CB2A	SRA D
673 054A CB2B	SRA E
674 054C CB2C	SRA H
675 054E CB2D	SRA L
676 0550 CB3E	SRL (HL)
677 0552 DDCB053E	SRL (IX+INDEX)
678 0556 FDCB053E	SRL (IY+INDEX)
679 055A CB3F	SRL A
680 055C CB38	SRL B
681 055E CB39	SRL C
682 0560 CB3A	SRL D
683 0562 CB3B	SRL E
684 0564 CB3C	SRL H
685 0566 CB3D	SRL L
686 0568 96	SUB (HL)
687 0569 DD9605	SUB (IX+INDEX)
688 056C FD9605	SUB (IY+INDEX)
689 056F 97	SUB A
690 0570 90	SUB B
691 0571 91	SUB C
692 0572 92	SUB D
693 0573 93	SUB E
694 0574 94	SUB H
695 0575 95	SUB L
696 0576 D620	SUB NUM
697 0578 AE	XOR (HL)
698 0579 DDAE05	XOR (IX+INDEX)
699 057C FDAE05	XOR (IY+INDEX)
700 057F AF	XOR A
701 0580 AB	XOR B
702 0581 A9	XOR C
703 0582 AA	XOR D
704 0583 AB	XOR E
705 0584 AC	XOR H
706 0585 AD	XOR L
707 0586 EE20	XOR NUM
708	
709	END

```

1      ; *****
2      ; **      AMSTRAD ZEN 1.2      **
3      ; **                                     **
4      ; ** Written by John Hawthorne **
5      ; **                                     **
6      ; **      Copyright 1984      **
7      ; **      AVALON  SOFTWARE      **
8      ; **      Cowley , Middlesex    **
9      ; *****
10
11      ORG 4000H
12
13      ; Control characters
14
15      BS:      EQU 8
16      LF:      EQU 10
17      CR:      EQU 13
18      FF:      EQU 12
19      BLANK:   EQU 32
20      DEL:     EQU 7FH
21      S:       EQU 80H
22
23      ; Externals
24
25      WAITCHAR: EQU 0BB06H
26      READCHAR: EQU 0BB09H
27      TYTOUT:   EQU 0BB5AH
28      CURON:    EQU 0BBS1H
29      CUROFF:   EQU 0BB84H
30      CINIT:    EQU 0BC68H
31      COAT:     EQU 0BC9BH
32      CIDIR:    EQU 0BC83H
33      CODIR:    EQU 0BC98H
34      CIABAN:   EQU 0BC7DH
35      COABAN:   EQU 0BC92H
36      CICHAR:   EQU 0BC80H
37      COCHAR:   EQU 0BC95H
38      CIOPEN:   EQU 0BC77H
39      COOPEN:   EQU 0BC8CH
40      CICLOSE:  EQU 0BC7AH
41      COCLOSE:  EQU 0BC8FH
42      BMIR:     EQU 0B91BH
43      PBUSY:    EQU 0BD2EH
44      PSEND:    EQU 0BD31H
45
46      ; Flag displacements
47
48      F1:      EQU 0
49      F2:      EQU 1
50      F3:      EQU 2
51      F4:      EQU 3
52      F5:      EQU 4
53      F6:      EQU 5
54      F7:      EQU 6
55
56      ; Code starts here, skip text etc.
57
58 4000 C3E041 ENTRY:      JP  ZEN
59 4003 C34E47 REENTRY:   JP  TRAP
60 4006 5A454E3E M1:      DB  'ZEN> ',CR

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60 400A 0D		
61 400B 4855483F M2:	DB	"HUB?",CR
61 400F 0D		
62 4010 50414745 M4:	DB	"PAGE",CR
62 4014 0D		
63 4015 454F662D M5:	DB	"EOP",CR
64 4019 4F505449 M7:	DB	"OPTIONS",CR
64 401D 4F4E3E0D		
65 4021 44415441 M9:	DB	"DATA AREA:",CR
65 4025 20415245		
65 4029 41533A0D		
66 402D 52554E53 M11:	DB	"TRUNC AT>",CR
66 4031 2041543E		
66 4035 0D		
67 4036 52455345 M12:	DB	"RESERVED",CR
67 403A 52564544		
67 403E 0D		
68 403F 46554D4D M14:	DB	"FULL",CR
68 4043 0D		
69 4044 444F5542 M13:	DB	"DOUBLE",CR
69 4048 4C452D		
70 404B 53574D42 M15:	DB	"SYMBOL",CR
70 404F 4F4C0D		
71 4052 4F504552 M16:	DB	"OPERAND",CR
71 4056 414E440D		
72 405A 554E4445 M17:	DB	"UNDEFINED",CR
72 405E 46494E45		
72 4062 4A0D		
73 406A 4F524721 M18:	DB	"OR",CR
73 406E 0D		
74 4069 4D454D4F M20:	DB	"MEMORY",CR
74 406D 52590D		
75 4070 4E414D45 M21:	DB	"NAME",CR
75 4074 3E0D		
76 4076 53544152 M22:	DB	"START",CR
76 407A 543E0D		
77 407D 53544F50 M23:	DB	"STOP",CR
77 4081 3E0D		
78 4083 424E5054 M24:	DB	"WRT",CR
78 4087 3E0D		
79 4089 45584543 M25:	DB	"EXEC",CR
79 408D 3E0D		
80 408F 44455354 M27:	DB	"DEST",CR
80 4093 3E0D		
81 4095 44415441 M28:	DB	"DATA",CR
81 4099 3E0D		
82 409B 20484C2D M29:	DB	"HL",CR
82 409F 20204445		
82 40A3 20202D		
83 40A6 4243202D	DB	"BC",CR
83 40AA 2041462D		
83 40AE 20205249		
83 40B2 0D		
84 40B3 2049582D M30:	DB	"IX",CR
84 40B7 20204959		
84 40BB 20202D		
85 40BE 5350202D	DB	"SP",CR
85 40C2 2050430D		
86		
87 40C6 56000D	DB	"V",CR
87 40C6 56000D	DB	FLAGS

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08 40C9 00000000      DB      0,0,0,0
09
10      ; List field widths
11
12 40CD 3C19      COMWIDTH:      DB      60,25
13 40CF 0C07      SYMWIDTH:      DB      12,7
14 40D1 0505      DB      5,5
15 40D3 120C      DB      18,12
16 40D5 1901      DB      25,1
17
18 40D7 2000      PAGEEND:      DW      0      ; Page number
19 40D9 0000      LCT:          DW      0      ; Line count
20 40DE 7FAB      LIMIT:         DW      0AB7FH
21 40DD 0000      CURRENT:       DW      0      ; Current line
22 40DF 0060      SOFP:          DW      AEND+1733
23 40E1 0060      EOFP:          DW      AEND+1733
24 40E3 0000      NDEF:          DW      0      ; MODIFY default
25 40E5 0000      UDEF:          DW      0      ; QUERY default
26 40E7 0000      TEMP:         DW      0
27 40E9 0000      FEF:           DW      0      ; Free entry
28 40EB 0000      STK:           DW      0
29 40ED 0000      LBLP:          DW      0      ; Label pointer
30 40EF 0000      PC:            DW      0
31 40F1 0000      OBJ:           DW      0      ; Object file pointer
32 40F3 0000      BKPTADDR:      DW      0
33 40F5 00      BKPTCODE:       DB      0
34 40F6 C3      VECTOR:         DB      0C3H
35 40F7 0340      DW      REENTRY
36 40F9 0000      DSSTART:       DW      0
37 40FB 0000      DSTOP:         DW      0
38 40FD 0000      DIP:           DW      0
39 40FF 0000      DRSTART:       DW      0
40 4101 0000      DRSTOP:        DW      0
41 4103 0000      DRIP:          DW      0
42 4105 0000      DEOAP:         DW      0
43 4107 3D5A      DSOSP:         DW      AEND+259
44 4109 0000      DEOSP:         DW      0
45 410B 0030      CRBUFF:        DW      3000H      ; Cassette read
46 410D 0038      CWBUFF:        DW      3800H      ; Cassette write
47
48      USTK:           DS      40
49 4137 0000      IMAGE:         DW      0      ; HL
50 4139 0000      DW      0      ; DE
51 413B 0000      DW      0      ; BC
52 413D 0000      DW      0      ; AF
53 413F 0000      DW      0      ; IR
54 4141 0000      DW      0      ; HL
55 4143 0000      DW      0      ; DE
56 4145 857F      DW      7F85H
57 4147 8C8D      DW      8D8CH      ; AF
58 4149 0000      DW      0      ; IX
59 414B 0000      DW      0      ; IY
60 414D 31      EXIT:           DB      31H
61 414E 3741      USP:           DW      IMAGE
62 4150 FB      EI
63 4151 C3      DB      0C3H
64 4152 0000      UPC:           DW      0
65
66      TBUFF:         DS      140
67      STACK:         DS      0

```

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148
149           ; ZEN Mainloop
150
151 41E0 31E041  ZEN:      LD  SP,STACK
152 41E3 FB          EI
153 41E4 DD21C640      LD  IX,FLAGS
154 41E8 CD7042        CALL TOP
155 41EB 21EB41        LD  HL,#
156 41EE E5            PUSH HL
157 41EF ED73EB40      LD  (STK),SP
158 41F3 DD360056      LD  (IX+F1),-V
159 41F7 2E06          LD  L,M1&255
160 41F9 CDAC46        CALL CUE
161 41FC 0D            DEC  C
162 41FD CA2D48        JP  Z,CLEAR
163 4200 FE53          CP  'S'
164 4202 CA1B44        JP  Z,SORT
165 4205 FE57          CP  'W'
166 4207 CA4643        JP  Z,WRITE
167 420A FE4C          CP  'L'
168 420C 2824          JR  Z,LOCATE
169 420E E5            PUSH HL
170 420F C5            PUSH BC
171 4210 0E01          LD  C,1
172 4212 115441        LD  DE,TBUFF
173 4215 21C045        LD  HL,COMTAB
174 4218 CD1A4B        CALL SEARCH
175 421B D4CD47        JP  C,E10
176 421E C1            POP  BC
177 421F E3            EX  (SP),HL
178 4220 41            LD  B,C
179 4221 05            DEC  B
180 4222 37            SCF
181 4223 2809          JR  Z,ZEN2
182 4225 13            INC  DE
183 4226 CDD247        CALL CONVERT
184 4229 D4CD47        JP  C,E10
185 422C 44            LD  B,H
186 422D 4D            LD  C,L
187 422E 2ADD40        ZEN2: LD  HL,(CURRENT)
188 4231 C9            RET
189
190 4232 0D            LOCATE: DEC  C
191 4233 CACD47        JP  Z,E10
192 4236 2ADD40        LD  HL,(CURRENT)
193 4239 C5            PUSH BC
194 423A CD5248        CALL NEXT
195 423D C1            POP  BC
196 423E 2B            DEC  HL
197 423F E5            PUSH HL
198 4240 E1            LC1:  POP  HL
199 4241 7E            LD  A,(HL)
200 4242 23            INC  HL
201 4243 FE0D          CP  CR
202 4245 CCAB48        CALL Z,UPDATE
203 4248 CD0646        CALL EOF
204 424B 41            LD  B,C
205 424C 115541        LD  DE,TBUFF+1
206 424F E5            PUSH HL
207 4250 1A            LC2:  LD  A,(DE)

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208	4251	BE		CF	(HL)
209	4252	20EC		JR	NZ,LC1
210	4254	13		INC	DE
211	4255	23		INC	HL
212	4256	10F8		DJNZ	LC2
213	4258	E1		POP	HL
214	4259	CDCE42		CALL	THIS
215	425C	1832		JR	LINE
216					
217	425E	78	UP:	LD	A,B
218	425F	B1		OR	C
219	4260	282E		JR	Z,LINE
220	4262	CD442		CALL	LAST
221	4265	3029		JR	NC,LINE
222	4267	0B		DEC	BC
223	4268	18F4		JR	UP
224					
225	426A	2ADF40	KILL:	LD	HL,(SOFP)
226	426D	22E140		LD	(EOFP),HL
227					
228	4270	210100	TOP:	LD	HL,1
229	4273	22D940		LD	(LCT),HL
230	4276	2ADF40		LD	HL,(SOFP)
231	4279	22DD40		LD	(CURRENT),HL
232	427C	C9		RET	
233					
234	427D	CD7042	TARGET:	CALL	TOP
235	4280	0B		DEC	BC
236					
237	4281	78	DOWN:	LD	A,B
238	4282	B1		OR	C
239	4283	280B		JR	Z,LINE
240	4285	C5		PUSH	BC
241	4286	CD5248		CALL	NEXT
242	4289	C1		POP	BC
243	428A	CDAB48		CALL	UPDATE
244	428D	0B		DEC	BC
245	428E	18F1		JR	DOWN
246	4290	CD0646	LINE:	CALL	EOF
247	4293	CD6048		CALL	POSITION
248	4296	C31E46		JP	PR3
249					
250	4299	78	ZAP:	LD	A,B
251	429A	B1		OR	C
252	429B	28F3		JR	Z,LINE
253	429D	E5		PUSH	HL
254	429E	C5		PUSH	BC
255	429F	CD8C47		CALL	REMOVE
256	42A2	C1		POP	BC
257	42A3	E1		POP	HL
258	42A4	0B		DEC	BC
259	42A5	18F2		JR	ZAP
260					
261	42A7	2E4B	E0:	LD	L,M15%255
262	42A9	ED7BEB40	ER:	LD	SP,(STK)
263	42AD	CD1846		CALL	ERR2
264	42B0	2AE740		LD	HL,(TEMP)
265	42B3	010100		LD	BC,1
266					
267	42B6	78	PRINT:	LD	A,B

268	42B7	B1		OR	C
269	42B8	280A		JR	Z, LAST
270	42BA	CD9042		CALL	LINE
271	42BD	23		INC	HL
272	42BE	CDAB48		CALL	UPDATE
273	42C1	0B		DEC	BC
274	42C2	18F2		JR	PRINT
275					
276	42C4	E5	LAST:	PUSH	HL
277	42C5	2AD940		LD	HL, (LCT)
278	42C8	2B		DEC	HL
279	42C9	22D940		LD	(LCT), HL
280	42CC	E1		POP	HL
281	42CD	2B		DEC	HL
282	42CE	CD3248	THIS:	CALL	SOF
283	42D1	309D		JR	NC, TOP
284	42D3	2B		DEC	HL
285	42D4	7E		LD	A, (HL)
286	42D5	FE0D		CP	CR
287	42D7	20F5		JR	NZ, THIS
288	42D9	23		INC	HL
289	42DA	22DD40		LD	(CURRENT), HL
290	42DD	37		SCF	
291	42DE	C9		RET	
292					
293	42DF	CD6048	ENTER:	CALL	POSITION
294	42E2	EB		EX	DE, HL
295	42E3	CDAF46		CALL	USER
296	42E6	FE2E		CP	' '
297	42E8	C8		RET	Z
298	42E9	2AE140		LD	HL, (EOFP)
299	42EC	CD3D48		CALL	MEMCHECK
300	42EF	CD2643		CALL	INSERT
301	42F2	EB		EX	DE, HL
302	42F3	CDAB46		CALL	UPDATE
303	42F6	18E7		JR	ENTER
304					
305	42F8	E5	NEW:	PUSH	HL
306	42F9	CD5248		CALL	NEXT
307	42FC	2AE140		LD	HL, (EOFP)
308	42FF	ED42		SBC	HL, BC
309	4301	E3		EX	(SP), HL
310	4302	E5		PUSH	HL
311	4303	C5		PUSH	BC
312	4304	115441		LD	DE, TBUFF
313	4307	D5		PUSH	DE
314	4308	EDB0		LDIR	
315	430A	E1		POP	HL
316	430B	C1		POP	BC
317	430C	0B		DEC	BC
318	430D	CD6048		CALL	POSITION
319	4310	CDA246		CALL	STR1
320	4313	CDB946		CALL	US1
321	4316	CD2146		CALL	CRLF
322	4319	E1		POP	HL
323	431A	E3		EX	(SP), HL
324	431B	CD3D48		CALL	MEMCHECK
325	431E	E1		POP	HL
326	431F	E5		PUSH	HL
327	4320	C5		PUSH	BC

328	4321	CD8C47		CALL	REMOVE
329	4324	C1		POP	BC
330	4325	D1		POP	DE
331					
332	4326	D5	INSERT:	PUSH	DE
333	4327	C5		PUSH	BC
334	4328	2AE140		LD	HL, (EOFF)
335	432B	E5		PUSH	HL
336	432C	09		ADD	HL, BC
337	432D	22E140		LD	(EOFF), HL
338	4330	E3		EX	(SP), HL
339	4331	E5		PUSH	HL
340	4332	ED52		SBC	HL, DE
341	4334	E3		EX	(SP), HL
342	4335	C1		POP	BC
343	4336	D1		POP	DE
344	4337	03		INC	BC
345	4338	EDB8		LDDR	
346	433A	C1		POP	BC
347	433B	D1		POP	DE
348	433C	215441		LD	HL, TBUFF
349	433F	EDB0		LDIR	
350	4341	C9		RET	
351					
352	4342	31F8BF	EYE:	LD	SP, 0BFF8H
353	4345	C9		RET	
354					
355	4346	0D	WRITE:	DEC	C
356	4347	2827		JR	Z, WSOURCE
357	4349	CD8D47	WBIN:	CALL	STARTSTOP
358	434C	E5		PUSH	HL
359	434D	D5		PUSH	DE
360	434E	2E89		LD	L, M25&255
361	4350	CDAB47		CALL	PARAMETER
362	4353	E5		PUSH	HL
363	4354	CDFB46		CALL	WOPEN
364	4357	C1		POP	BC
365	4358	E1		POP	HL
366	4359	D1		POP	DE
367	435A	3E02		LD	A, 2
368	435C	DDE5		PUSH	IX
369	435E	CD98BC		CALL	CODIR
370	4361	DDE1		POP	IX
371	4363	3008		JR	NC, WB4
372	4365	DDE5	WB3:	PUSH	IX
373	4367	CD8FBC		CALL	COCLOSE
374	436A	DDE1		POP	IX
375	436C	D8		RET	C
376	436D	C392BC	WB4:	JP	COABAN
377					
378	4370	2AE140	WSOURCE:	LD	HL, (EOFF)
379	4373	ED5BDF40		LD	DE, (SOFF)
380	4377	B7		OR	A
381	4378	ED52		SBC	HL, DE
382	437A	CACD47		JP	Z, E10
383	437D	E5		PUSH	HL
384	437E	D5		PUSH	DE
385	437F	CDFB46		CALL	WOPEN
386	4382	E1		POP	HL
387	4383	C1		POP	BC

388 4384 7C	WS2:	LD	A, (HL)
389 4385 FE0D		CP	OR
390 4387 2007		JR	NZ, WS3
391 4389 CDEB46		CALL	WCHAR
392 438C 30DF		JR	NC, WB4
393 438E 3E0A		LD	A, LF
394 4390 CDEB46	WS3:	CALL	WCHAR
395 4393 30D8		JR	NC, WB4
396 4395 23		INC	HL
397 4396 0B		DEC	BC
398 4397 78		LD	A, B
399 4398 B1		OR	C
400 4399 20E9		JR	NZ, WS2
401 439B 18C8		JR	WB3
402			
403 439D F5	READ:	PUSH	AF
404 439E C5		PUSH	BC
405 439F CD0A47		CALL	ROPEN
406 43A2 E1		POP	HL
407 43A3 C1		POP	BC
408 43A4 F5		PUSH	AF
409 43A5 C5		PUSH	BC
410 43A6 F1		POP	AF
411 43A7 3001		JR	NC, RD2
412 43A9 EB		EX	DE, HL
413 43AA F1	RD2:	POP	AF
414 43AB 3017		JR	NC, RB4
415 43AD FE16		CP	16H
416 43AF 2B16		JR	Z, RSOURCE
417 43B1 FE02		CP	2
418 43B3 200F		JR	NZ, RB4
419 43B5 DDE5		PUSH	IX
420 43B7 CD83BC		CALL	CIDIR
421 43BA DDE1		POP	IX
422 43BC 3006		JR	NC, RB4
423 43BE 225241		LD	(UPC), HL
424 43C1 C37ABC		JP	CICLOSE
425 43C4 C37DBC	RB4:	JP	CIABAN
426			
427 43C7 2AE140	RSOURCE:	LD	HL, (EOFF)
428 43CA CDF346	RS2:	CALL	RCHAR
429 43CD 301F		JR	NC, RS4
430 43CF FE0A		CP	LF
431 43D1 2BF7		JR	Z, RS2
432 43D3 EB		EX	DE, HL
433 43D4 CD4E48		CALL	MEMTOP
434 43D7 B7		OR	A
435 43D8 ED52		SBC	HL, DE
436 43DA EB		EX	DE, HL
437 43DB 300D		JR	NC, RS3
438 43DD 2B		DEC	HL
439 43DE 22E140		LD	(EOFF), HL
440 43E1 2B		DEC	HL
441 43E2 360D		LD	(HL), CR
442 43E4 CDC443		CALL	RB4
443 43E7 C34948		JP	E20
444 43EA 77	RS3:	LD	(HL), A
445 43EB 23		INC	HL
446 43EC 1BDC		JR	RS2
447 43EE 28D4	RS4:	JR	Z, RB4

448	43F0	22E140		LD	(EOFF),HL
449	43F3	C37ABC		JP	CICLOSE
450					
451	43F6	CD65BC	CATALOG:	CALL	CINIT
452	43F9	ED5B0B41		LD	DE,(CRBUFF)
453	43FD	DDE5		PUSH	IX
454	43FF	CD9BBC		CALL	CCAT
455	4402	DDE1		POP	IX
456	4404	18BE		JR	RB4
457					
458	4406	2ADF40	HOWBIG:	LD	HL,(SOFF)
459	4409	CD8D40		CALL	WORDSP
460	440C	2AE140		LD	HL,(EOFF)
461	440F	CD8D48		CALL	WORDSP
462	4412	CD4E48		CALL	MENTOP
463	4415	CD9D48		CALL	WORDSP
464	4418	C32146		JP	CRLF
465					
466	441B	212146	SORT:	LD	HL,CRLF
467	441E	E5		PUSH	HL
468	441F	3A5541		LD	A,(TBUFF+1)
469	4422	F5		PUSH	AF
470	4423	CD1C49		CALL	GETOPTION
471	4426	DD360201		LD	(IX+F3),1
472	442A	F1		POP	AF
473	442D	4F		LD	C,A
474	442C	FE0D		CP	CR
475	442E	200B		JR	NZ,SCAN
476	4430	0E41		LD	C,'A'
477	4432	CD3B44	SRT2:	CALL	SCAN
478	4435	0C		INC	C
479	4436	79		LD	A,C
480	4437	FE5A		CP	'Z'
481	4439	20F7		JR	NZ,SRT2
482	443B	213A59	SCAN:	LD	HL,AEND-1
483	443E	23	SCN1:	INC	HL
484	443F	23	SCN2:	INC	HL
485	4440	7E		LD	A,(HL)
486	4441	3C		INC	A
487	4442	C8		RET	Z
488	4443	CD3149		CALL	HOLD
489	4446	0600		LD	B,0
490	4448	54		LD	D,H
491	4449	5D		LD	E,L
492	444A	04	SCN3:	INC	B
493	444B	CB7E		BIT	7,(HL)
494	444D	23		INC	HL
495	444E	28FA		JR	Z,SCN3
496	4450	1A		LD	A,(DE)
497	4451	CDBF		RES	7,A
498	4453	B9		CP	C
499	4454	20E8		JR	NZ,SCN1
500	4456	DD3502		DEC	(IX+F3)
501	4459	2015		JR	NZ,SCN4
502	445B	CD2146		CALL	CRLF
503	445E	DD360204		LD	(IX+F3),4
504	4462	DDCB004E		BIT	1,(IX+F1)
505	4466	2803		JR	Z,SCN31
506	4468	DD3502		DEC	(IX+F3)
507	446B	D5	SCN31:	PUSH	DE

508	446C	CD1847		CALL	PAGE
509	446F	D1		POP	DE
510	4470	EB	SCN4:	EX	DE,HL
511	4471	C5		PUSH	BC
512	4472	D5		PUSH	DE
513	4473	S0		LD	D,B
514	4474	0E7F		LD	C,7FH
515	4476	CDA44A		CALL	SYMFIELD
516	4479	E1		POP	HL
517	447A	C1		POP	BC
518	447B	5E		LD	E,(HL)
519	447C	23		INC	HL
520	447D	56		LD	D,(HL)
521	447E	EB		EX	DE,HL
522	447F	CD8D48		CALL	WORDSP
523	4482	EB		EX	DE,HL
524	4483	18BA		JR	SCN2
525					
526	4485	3804	GOTO:	JR	C,GOT2
527	4487	ED435241		LD	(UPC),BC
528	448B	2E83	GOT2:	LD	L,M24 &255
529	448D	CDA847		CALL	PARAMETER
530	4490	381A		JR	C,GOT3
531	4492	22F340		LD	(BKPTADDR),HL
532	4495	7E		LD	A,(HL)
533	4496	32F540		LD	(BKPTCODE),A
534	4499	3EF7		LD	A,0F7H
535	449B	77		LD	(HL),A
536	449C	BE		CP	(HL)
537	449D	C24948		JP	NZ,E20
538	44A0	21F640		LD	HL,VECTOR
539	44A3	113000		LD	DE,30H
540	44A6	010300		LD	BC,3
541	44A9	CD1BB9		CALL	BMIR
542	44AC	F3	GOT3:	DI	
543	44AD	313741		LD	SP,IMAGE
544	44B0	E1		POP	HL
545	44B1	D1		POP	DE
546	44B2	C1		POP	BC
547	44B3	F1		POP	AF
548	44B4	08		EX	AF,AF
549	44B5	D9		EXX	
550	44B6	C1		POP	BC
551	44B7	79		LD	A,C
552	44B8	ED47		LD	I,A
553	44BA	78		LD	A,B
554	44BB	ED4F		LD	R,A
555	44BD	E1		POP	HL
556	44BE	D1		POP	DE
557	44BF	C1		POP	BC
558	44C0	F1		POP	AF
559	44C1	D9		EXX	
560	44C2	08		EX	AF,AF
561	44C3	DDE1		POP	IX
562	44C5	FDE1		POP	IY
563	44C7	C34D41		JP	EXIT
564					
565	44CA	CDBD47	COPY:	CALL	STARTSTOP
566	44CD	E5		PUSH	HL
567	44CE	2EBF		LD	L,M27 &255

568 44D0 CDA847		CALL	PARAMETER
569 44D3 EB		EX	DE,HL
570 44D4 C1		POP	BC
571 44D5 EDB0		LDIR	
572 44D7 C9		RET	
573			
574 44D8 CDBD47	FILL:	CALL	STARTSTOP
575 44DB E5		PUSH	HL
576 44DC 2E95		LD	L,M28 &255
577 44DE CDA847		CALL	PARAMETER
578 44E1 EB		EX	DE,HL
579 44E2 C1		POP	BC
580 44E3 73	FIL2:	LD	(HL),E
581 44E4 23		INC	HL
582 44E5 0B		DEC	BC
583 44E6 78		LD	A,B
584 44E7 B1		OR	C
585 44E8 20F9		JR	NZ,FIL2
586 44EA C9		RET	
587			
588 44EB 3804	MODIFY:	JR	C,MOD1
589 44ED ED43E340		LD	(MDEF),BC
590 44F1 2AE340	MOD1:	LD	HL,(MDEF)
591 44F4 CD2146	MOD2:	CALL	CRLF
592 44F7 CDBD48		CALL	WORDSP
593 44FA 22E340	MOD3:	LD	(MDEF),HL
594 44FD 7E		LD	A,(HL)
595 44FE CD9248		CALL	BYTESP
596 4501 EB		EX	DE,HL
597 4502 CDB346		CALL	US0
598 4505 FE2E		CP	
599 4507 CA2146		JP	Z,CRLF
600 450A C5		PUSH	BC
601 450B CDA847		CALL	PARAM1
602 450E C1		POP	BC
603 450F EB		EX	DE,HL
604 4510 3810		JR	C,MOD5
605 4512 73		LD	(HL),E
606 4513 79		LD	A,C
607 4514 C602		ADD	A,2
608 4516 47		LD	B,A
609 4517 3E08	MOD4:	LD	A,BS
610 4519 CD3046		CALL	OUTPUT
611 451C 10F9		DJNZ	MOD4
612 451E 7E		LD	A,(HL)
613 451F CD9248		CALL	BYTESP
614 4522 23	MOD5:	INC	HL
615 4523 7D		LD	A,L
616 4524 E607		AND	7
617 4526 28CC		JR	Z,MOD2
618 4528 18D0		JR	MOD3
619			
620 452A 3804	QUERY:	JR	C,QU2
621 452C ED43E540		LD	(QDEF),BC
622 4530 2AE540	QU2:	LD	HL,(QDEF)
623 4533 7D		LD	A,L
624 4534 E6F8		AND	0F8H
625 4536 6F		LD	L,A
626 4537 0E08		LD	C,8
627 4539 0608	QU3:	LD	B,8

628	453B	E5		PUSH	HL
629	453C	CD8D48		CALL	WORDSP
630	453F	7E	QU4:	LD	A, (HL)
631	4540	CD9248		CALL	BYTESP
632	4543	23		INC	HL
633	4544	10F9		DJNZ	QU4
634	4546	E1		POP	HL
635	4547	CD2E46		CALL	SPACE
636	454A	0608		LD	B, 8
637	454C	7E	QU5:	LD	A, (HL)
638	454D	FE20		CP	BLANK
639	454F	3002		JR	NC, QU7
640	4551	3E2E		LD	A, .
641	4553	CD3046	QU7:	CALL	OUTPUT
642	4556	23		INC	HL
643	4557	10F3		DJNZ	QU5
644	4559	CD2146		CALL	CRLF
645	455C	0D		DEC	C
646	455D	20DA		JR	NZ, QU3
647	455F	22E540		LD	(QDEF), HL
648	4562	C9		RET	
649					
650	4563	212146	XAMINE:	LD	HL, CRLF
651	4566	E5		PUSH	HL
652	4567	2E9B		LD	L, M29&255
653	4569	CD1C46		CALL	PR2
654	456C	213741		LD	HL, IMAGE
655	456F	0605		LD	B, 5
656	4571	CD9245		CALL	PAIR
657	4574	CD2146		CALL	CRLF
658	4577	0604		LD	B, 4
659	4579	CD9245		CALL	PAIR
660	457C	CD2146		CALL	CRLF
661	457F	E5		PUSH	HL
662	4580	2EB3		LD	L, M30&255
663	4582	CD1C46		CALL	PR2
664	4585	E1		POP	HL
665	4586	0602		LD	B, 2
666	4588	CD9245		CALL	PAIR
667	458B	23		INC	HL
668	458C	CD9145		CALL	ONEPAIR
669	458F	23		INC	HL
670	4590	23		INC	HL
671	4591	04	ONEPAIR:	INC	B
672	4592	5E	PAIR:	LD	E, (HL)
673	4593	23		INC	HL
674	4594	56		LD	D, (HL)
675	4595	23		INC	HL
676	4596	EB		EX	DE, HL
677	4597	CD8D48		CALL	WORDSP
678	459A	EB		EX	DE, HL
679	459B	10F5		DJNZ	PAIR
680	459D	C9		RET	
681					
682	459E	C5	OUTPORT:	PUSH	BC
683	459F	2E95		LD	L, M28&255
684	45A1	CDA847		CALL	PARAMETER
685	45A4	C1		POP	BC
686	45A5	ED69		OUT	(C), L
687	45A7	C9		RET	

688			
689	45A8 ED78	INPORT:	IN A,(C)
690	45AA F5		PUSH AF
691	45AB CD9248		CALL BYTESP
692	45AE F1		POP AF
693	45AF 0608		LD B,B
694	45B1 07	IN2:	RLCA
695	45B2 F5		PUSH AF
696	45B3 E601		AND 1
697	45B5 C630		ADD A,10
698	45B7 CD3046		CALL OUTPUT
699	45BA F1		POP AF
700	45BB 10F4		DJNZ IN2
701	45BD C32146		JP CRLF
702			
703	45C0 D5	COMTAB:	DB 'O'.S
704	45C1 5E42		DW UP
705	45C3 C9		DB 'I'.S
706	45C4 A845		DW INPORT
707	45C6 CF		DB 'O'.S
708	45C7 9E45		DW OUTPORT
709	45C9 D1		DB 'O'.S
710	45CA 2A45		DW QUERY
711	45CC D2		DB 'R'.S
712	45CD 9D43		DW READ
713	45CF C2		DB 'B'.S
714	45D0 4243		DW BYC
715	45D2 CD		DB 'M'.S
716	45D3 EB44		DW MODIFY
717	45D5 C4		DB 'F'.S
718	45D6 D844		DW FILL
719	45D8 C3		DB 'C'.S
720	45D9 CA44		DW COPY
721	45DB C7		DB 'G'.S
722	45DC 8544		DW GOTO
723	45DE D8		DB 'X'.S
724	45DF 6345		DW XAMINE
725	45E1 C1		DB 'A'.S
726	45E2 B848		DW ASMB
727	45E4 CB		DB 'K'.S
728	45E5 6A42		DW KILL
729	45E7 C8		DB 'H'.S
730	45E8 0644		DW POWBIB
731	45EA C5		DB 'E'.S
732	45EB DF42		DW ENTER
733	45ED D4		DB 'T'.S
734	45EE 7D42		DW TARGET
735	45F0 CE		DB 'N'.S
736	45F1 F842		DW NEW
737	45F3 C4		DB 'D'.S
738	45F4 8142		DW DOWN
739	45F6 DA		DB 'Z'.S
740	45F7 9942		DW ZAP
741	45F9 D0		DB 'P'.S
742	45FA B642		DW PRINT
743	45FC E3		DB 'C'.S
744	45FD F643		DW CATALOG
745	45FF E4		DB 'd'.S
746	4600 0E52		DW DASM
747	4602 F5		DB 'u'.S

748	4603	AF52		DW	UNSCRAMBLE
749	4605	FF		DB	0FFH
750					
751	4606	D5	EOF:	PUSH	DE
752	4607	EB		EX	DE,HL
753	4608	2AE140		LD	HL,(EOFP)
754	4608	2B		DEC	HL
755	460C	B7		OR	A
756	460D	ED52		SBC	HL,DE
757	460F	EB		EX	DE,HL
758	4610	D1		POP	DE
759	4611	D0		RET	NC
760	4612	2E15		LD	L,M5&255
761					
762	4614	ED7BEB40	ERR:	LD	SP,(STK)
763	4618	DD360056	ERR2:	LD	(IX+F1),'V'
764					
765	461C	2640	PR2:	LD	H,M1/256
766	461E	CDA245	PR3:	CALL	STR1
767	4621	F5	CRLF:	PUSH	AF
768	4622	3E0D		LD	A,CR
769	4624	CD3046		CALL	OUTPUT
770	4627	3E0A		LD	A,LF
771	4629	CD3046		CALL	OUTPUT
772	462C	F1		POP	AF
773	462D	C9		RET	
774					
775	462E	3E20	SPACE:	LD	A,BLANK
776					
777	4630	DDCB004E	OUTPUT:	BIT	1,(IX+F1)
778	4634	2811		JR	Z,EXTERN
779					
780	4636	FE08	VIDEO:	CP	BS
781	4638	200A		JR	NZ,VID2
782	463A	CD4446		CALL	VID2
783	463D	3E20		LD	A,BLANK
784	463F	CD4446		CALL	VID2
785	4642	3E08		LD	A,BS
786	4644	C35ABB	VID2:	JP	TXTOUT
787					
788	4647	00000000	EXTERN:	DB	0,0,0,0
789	4648	00000000		DB	0,0,0,0
790	464F	00000000		DB	0,0,0,0
791	4653	00000000		DB	0,0,0,0
792	4657	00000000		DB	0,0,0,0
793	465B	00000000		DB	0,0,0,0
794	465F	00000000		DB	0,0,0,0
795	4663	00000000		DB	0,0,0,0
796	4667	00000000		DB	0,0,0,0
797	466B	00000000		DB	0,0,0,0
798	466F	00000000		DB	0,0,0,0
799	4673	F5		PUSH	AF
800	4674	CD2EBD	EXT2:	CALL	PBUSY
801	4677	38FB		JR	C,EXT2
802	4679	F1		POP	AF
803	467A	C331BD		JP	PSEND
804					
805	467D	CD81BB	KEYBOARD:	CALL	CURON
806	4680	CD06BB	KB2:	CALL	WAITCHAR
807	4683	FE7F		CP	DEL

808	4685	2002		JR	NZ,KB22
809	4687	3E08		LD	A,BS
810	4689	FE0D	KB22:	CP	CR
811	468B	2810		JR	Z,KB3
812	468D	FE08		CP	BS
813	468F	280C		JR	Z,KB3
814	4691	FE20		CP	BLANK
815	4693	38EB		JR	C,KB2
816	4695	FEFC		CP	0FCH
817	4697	28E7		JR	Z,KB2
818	4699	FEFF		CP	0EFH
819	469B	28E3		JR	Z,KB2
820	469D	C384BB	KB3:	JP	CURDFF
821					
822	46A0	2640	STRING:	LD	H,M1/256
823	46A2	7E	STR1:	LD	A,(HL)
824	46A3	FE0D		CP	CR
825	46A5	C8		RET	Z
826	46A6	CD3046		CALL	OUTPUT
827	46A9	23		INC	HL
828	46AA	18F6		JR	STR1
829					
830	46AC	CDA046	CUE:	CALL	STRING
831	46AF	212146	USER:	LD	HL,CRLF
832	46B2	E5		PUSH	HL
833	46B3	215441	US0:	LD	HL,TBUFF
834	46B6	010000		LD	BC,0
835	46B9	CD7D46	US1:	CALL	KEYBOARD
836	46BC	77		LD	(HL),A
837	46BD	FE08		CP	BS
838	46BF	2007		JR	NZ,US2
839	46C1	0D		DEC	C
840	46C2	FAB346		JP	M,US0
841	46C5	2B		DEC	HL
842	46C6	1810		JR	US4
843	46C8	0C	US2:	INC	C
844	46C9	FE0D		CP	CR
845	46CB	3A5441		LD	A,(TBUFF)
846	46CE	C8		RET	Z
847	46CF	0D		DEC	C
848	46D0	79		LD	A,C
849	46D1	FE22		CP	34
850	46D3	28E4		JR	Z,US1
851	46D5	7E		LD	A,(HL)
852	46D6	0C		INC	C
853	46D7	23		INC	HL
854	46D8	CD3046	US4:	CALL	OUTPUT
855	46DB	18DC		JR	US1
856					
857	46DD	CD65BC	GETNAME:	CALL	CINIT
858	46E0	2E70		LD	L,M21&255
859	46E2	CDAC46		CALL	CUE
860	46E5	215441		LD	HL,TBUFF
861	46E8	0D		DEC	C
862	46E9	41		LD	B,C
863	46EA	C9		RET	
864					
865	46EB	DDE5	WCHAR:	PUSH	IX
866	46ED	CD95BC		CALL	COCHAR
867	46F0	DDE1		POP	IX

008 46E2 C9		RET
009		
070 46F3 D9E5	ROCHAR:	PUSH IX
071 46F5 D9B0E0		CALL CIOCHAR
072 46F8 D9E1		POP IX
073 46F9 C9		RET
074		
075 46FB C0D046	WOPEN:	CALL GETNAME
076 46FL D5580D41		LD DE, (DWBUFF)
077 4702 D1E5		PUSH IX
078 4704 CDB0C0		CALL COPEN
079 4707 D9E1	WFE2:	POP IX
080 4709 C9		RET
081		
082 4713 C0D046	ROFEN:	CALL GETNAME
083 4715 D5580D41		LD DE, (DRBUFF)
084 4717 D9E5		PUSH IX
085 4719 CDB0C0		CALL COPEN
086 471B D9E1		JR WFE2
087		
088 471F C0C044	PAGE:	DEC (IX+FS)
089 471B C0		RET NZ
090 471C 317C		LD A,60
091 471E DDC0004E		BIT 1, (IX+F1)
092 4722 2B02		JR Z,P62
093 4724 3E16		LD A,22
094 4726 D07704	P62:	LD (IX+FS,A)
095 4729 C01249		CALL DELAY
096 472C E5		PUSH HL
097 472D 2E10		LD L,M4&255
098 472F DDA046		CALL STRING
099 4732 24D940		LD HL, (LCT)
100 4735 E5		PUSH HL
101 4736 24D740		LD HL, (PAGE0)
102 4739 23		INC HL
103 473A 22D740		LD (PAGE0),HL
104 473D 22D940		LD (LCT),HL
105 4740 C06042		CALL POSITION
106 4743 E1		POP HL
107 4744 22D940		LD (LCT),HL
108 4747 61		POP HL
109 4749 C02146		CALL CRLF
110 474B C32146		JP CRLF
111		
112 474E F3	TRAP:	DI
113 474F E3		EX (SP),HL
114 4750 2B		DEC HL
115 4751 225241		LD (UPC),HL
116 4754 E1		POP HL
117 4755 E0734E41		LD (USP),SP
118 4759 314041		LD SP,EXIT
119 475C D9E5		PUSH IY
120 475E D9E5		PUSH IX
121 4760 00		EX AF,AF
122 4761 D9		EXX
123 4762 F3		PUSH AF
124 4763 C5		PUSH BC
125 4764 D5		PUSH DE
126 4765 E5		PUSH HL
127 4766 805F		LD A,R

928 4768 67		LD H,A
929 4769 ED57		LD A,I
930 476B 6F		LD L,A
931 476C E5		PUSH HL
932 476D D9		EXX
933 476E 08		EX AF,AF
934 476F F5		PUSH AF
935 4770 C5		PUSH BC
936 4771 D5		PUSH DE
937 4772 E5		PUSH HL
938 4773 2AF340		LD HL,(BKPTADDR)
939 4776 ED5B5241		LD DE,(UPC)
940 477A B7		OR A
941 477B ED52		SBC HL,DE
942 477D 2005		JR NZ,TRAP2
943 477F 3AF540		LD A,(BKPTCODE)
944 4782 12		LD (DE),A
945 4783 1B		DEC DE
946 4784 13	TRAP2:	INC DE
947 4785 ED535241		LD (UPC),DE
948 4789 C3E041		JP ZEN
949		
950 478C E5	REMOVE:	PUSH HL
951 478D CD5248		CALL NEXT
952 4790 E5		PUSH HL
953 4791 2AE140		LD HL,(EOFF)
954 4794 E5		PUSH HL
955 4795 B7		OR A
956 4796 ED42		SBC HL,BC
957 4798 22E140		LD (EOFF),HL
958 479B E1		POP HL
959 479C D1		POP DE
960 479D D5		PUSH DE
961 479E B7		OR A
962 479F ED52		SBC HL,DE
963 47A1 E3		EX (SP),HL
964 47A2 C1		POP BC
965 47A3 D1		POP DE
966 47A4 C8		RET Z
967 47A5 EDB0		LDIR
968 47A7 C9		RET
969		
970 47AB CDAC46	PARAMETER:	CALL CUE
971 47AB 41	PARAM1:	LD B,C
972 47AC 05		DEC B
973 47AD 37		SCF
974 47AE C8		RET Z
975 47AF D5		PUSH DE
976 47B0 115441		LD DE,TBUFF
977 47B3 CDD247		CALL CONVERT
978 47B6 D1		POP DE
979 47B7 D0		RET NC
980 47B8 CD2146		CALL CRLF
981 47BB 1810		JR E10
982		
983 47BD 2E76	STARTSTOP:	LD L,M22&255
984 47BF CDA847		CALL PARAMETER
985 47C2 EB		EX DE,HL
986 47C3 2E7D		LD L,M23&255
987 47C5 CDA847		CALL PARAMETER

988 47C8 B7		OR	A
989 47C9 ED52		SBC	HL,DE
990 47CB 23		INC	HL
991 47CC D0		RET	NC
992			
993 47CD 2E0B	E10:	LD	L,M2&255
994 47CF C31446		JP	ERR
995			
996 47D2 2B	CONVERT:	DEC	HL
997 47D3 7E		LD	A,(HL)
998 47D4 0E10		LD	C,16
999 47D6 FE48		CP	'H'
1000 47D8 2809		JR	Z,CV0
1001 47DA 0E08		LD	C,8
1002 47DC FE4F		CP	'0'
1003 47DE 2803		JR	Z,CV0
1004 47E0 0E0A		LD	C,10
1005 47E2 04		INC	B
1006 47E3 05	CV0:	DEC	B
1007 47E4 210000		LD	HL,0
1008 47E7 1A	CV1:	LD	A,(DE)
1009 47E8 D630		SUB	48
1010 47EA FE0A		CP	10
1011 47EC 3805		JR	C,CV2
1012 47EE D607		SUB	7
1013 47F0 FE0A		CP	10
1014 47F2 D8		RET	C
1015 47F3 B9	CV2:	CP	C
1016 47F4 3F		CCF	
1017 47F5 D8		RET	C
1018 47F6 D5		PUSH	DE
1019 47F7 5D		LD	E,L
1020 47F8 54		LD	D,H
1021 47F9 CB49		BIT	1,C
1022 47FB 2008		JR	NZ,CV3
1023 47FD 110000		LD	DE,0
1024 4800 CB59		BIT	3,C
1025 4802 2001		JR	NZ,CV3
1026 4804 29		ADD	HL,HL
1027 4805 29	CV3:	ADD	HL,HL
1028 4806 29		ADD	HL,HL
1029 4807 19		ADD	HL,DE
1030 4808 29		ADD	HL,HL
1031 4809 5F		LD	E,A
1032 480A 1600		LD	D,0
1033 480C 19		ADD	HL,DE
1034 480D D1		POP	DE
1035 480E 13		INC	DE
1036 480F 10D6		DJNZ	CV1
1037 4811 C9		RET	
1038			
1039 4812 11C832	DELAY:	LD	DE,13000
1040 4815 CD3149	DEL1:	CALL	HOLD
1041 4818 1B		DEC	DE
1042 4819 7A		LD	A,D
1043 481A B3		OR	E
1044 481B 20F8		JR	NZ,DEL1
1045 481D DDCE005E		BIT	3,(IX+F1)
1046 4821 CC7D46		CALL	Z,KEYBOARD
1047 4824 FE51		CP	'Q'

1048	4826	CAEQ41		JP	Z,ZEN
1049	4829	DDCB00DE		SET	3,(IX+F1)
1050	482D	3E0C	CLEAR:	LD	A,FF
1051	482F	C33046		JP	OUTPUT
1052					
1053	4832	D5	SOF:	PUSH	DE
1054	4833	EB		EX	DE,HL
1055	4834	2ADF40		LD	HL,(SOF)
1056	4837	B7		OR	A
1057	4838	ED52		SBC	HL,DE
1058	483A	EB		EX	DE,HL
1059	483B	D1		POP	DE
1060	483C	C9		RET	
1061					
1062	483D	D5	MEMCHECK:	PUSH	DE
1063	483E	09		ADD	HL,BC
1064	483F	EB		EX	DE,HL
1065	4840	CD4E48		CALL	MEMTOP
1066	4843	B7		OR	A
1067	4844	ED52		SBC	HL,DE
1068	4846	EB		EX	DE,HL
1069	4847	D1		POP	DE
1070	4848	D0		RET	NC
1071	4849	2E69	E20:	LD	L,M20&255
1072	484B	C31446		JP	ERR
1073					
1074	484E	2ADB40	MEMTOP:	LD	HL,(LIMIT)
1075	4851	C9		RET	
1076					
1077	4852	CD0646	NEXT:	CALL	EOF
1078	4855	010000	NX0:	LD	BC,0
1079	4858	7E	NX1:	LD	A,(HL)
1080	4859	23		INC	HL
1081	485A	03		INC	BC
1082	485B	FE0D		CP	CR
1083	485D	20F9		JR	NZ,NX1
1084	485F	C9		RET	
1085					
1086	4860	E5	POSITION:	PUSH	HL
1087	4861	C5		PUSH	BC
1088	4862	217841		LD	HL,TBUFF+36
1089	4865	E5		PUSH	HL
1090	4866	0605		LD	B,5
1091	4868	3620	POS1:	LD	(HL),BLANK
1092	486A	23		INC	HL
1093	486B	10FB		DJNZ	POS1
1094	486D	360D		LD	(HL),CR
1095	486F	EB		EX	DE,HL
1096	4870	1B		DEC	DE
1097	4871	010A00		LD	BC,10
1098	4874	2AD940		LD	HL,(LCT)
1099	4877	1B	POS2:	DEC	DE
1100	4878	D5		PUSH	DE
1101	4879	EB		EX	DE,HL
1102	487A	CD464C		CALL	MA50
1103	487D	7B		LD	A,E
1104	487E	D1		POP	DE
1105	487F	C630		ADD	A,'0'
1106	4881	12		LD	(DE),A
1107	4882	7D		LD	A,L

1108 4883 B4		OR	H
1109 4884 20F1		JR	NZ,POS2
1110 4886 E1		POP	HL
1111 4887 CDA246		CALL	STR1
1112 488A C1		POP	BC
1113 488B E1		POP	HL
1114 488C C9		RET	
1115			
1116 488D 7C	WORDSP:	LD	A,H
1117 488E CD9748		CALL	BYTE
1118 4891 7D		LD	A,L
1119 4892 E5	BYTESP:	PUSH	HL
1120 4893 212E46		LD	HL,SPACE
1121 4896 E3		EX	(SP),HL
1122 4897 F5	BYTE:	PUSH	AF
1123 4898 0F		RRCA	
1124 4899 0F		RRCA	
1125 489A 0F		RRCA	
1126 489B 0F		RRCA	
1127 489C CDA048		CALL	NYB
1128 489F F1		POP	AF
1129 48A0 E60F	NYB:	AND	0FH
1130 48A2 C690		ADD	A,90H
1131 48A4 27		DAA	
1132 48A5 CE40		ADC	A,40H
1133 48A7 27		DAA	
1134 48A8 C33046		JP	OUTPUT
1135			
1136 48AB 22DD40	UPDATE:	LD	(CURRENT),HL
1137 48AE E5	LINC:	PUSH	HL
1138 48AF 2AD940		LD	HL,(LCT)
1139 48B2 23		INC	HL
1140 48B3 22D940		LD	(LCT),HL
1141 48B6 E1		POP	HL
1142 48B7 C9		RET	
1143			
1144			
1145			
1146	JL:	EQU	3
1147	CL:	EQU	1
1148	TL:	EQU	16
1149	LL:	EQU	21
1150	AL:	EQU	2
1151	SBL:	EQU	2
1152	ADL:	EQU	4
1153	INL:	EQU	3
1154	OL:	EQU	3
1155	XL:	EQU	4
1156			
1157			
1158			
1159	IBC:	EQU	0
1160	IDE:	EQU	2
1161	IHL:	EQU	4
1162	IAF:	EQU	0EH
1163	ISP:	EQU	6
1164			
1165			
1166			
1167	IB:	EQU	0

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1168      IC:          EQU    1
1169      ID:          EQU    2
1170      IE:          EQU    3
1171      IH:          EQU    4
1172      IL:          EQU    5
1173      IA:          EQU    7
1174
1175      IIX:         EQU    0DDH
1176      IIY:         EQU    0FDH
1177
1178      IREF:        EQU    8
1179      IINT:        EQU    0
1180
1181      ; Condition code IDs
1182
1183      ICY:          EQU    18H
1184      INCY:         EQU    10H
1185      IZ:           EQU    8
1186      INZ:          EQU    0
1187      IPO:          EQU    20H
1188      IPE:          EQU    28H
1189      IMIN:         EQU    38H
1190      IPOS:         EQU    30H
1191
1192      ; Parser primary IDs
1193
1194      TR:           EQU    0
1195      TRI:          EQU    4
1196      RP:           EQU    1
1197      RPI:          EQU    5
1198      XY:           EQU    2
1199      XYI:          EQU    6
1200      NO:           EQU    3
1201      NOI:          EQU    7
1202      RE:           EQU    8
1203      CC:           EQU    9
1204      XYD:          EQU    10
1205      EDL:          EQU    11
1206      TNO:          EQU    12
1207      TNOI:         EQU    13
1208
1209      ; Parser intermediate IDs
1210
1211      TALPHA:       EQU    30H
1212      TLAB:         EQU    31H
1213      TOPD:         EQU    32H
1214      TCOM:         EQU    33H
1215      TIND:         EQU    34H
1216      TADD:         EQU    40H
1217      TSUB:         EQU    0C0H
1218      TMUL:         EQU    80H
1219      TDIV:         EQU    81H
1220      TAND:         EQU    82H
1221      TOR:          EQU    83H
1222      TDEF:         EQU    35H
1223      TLIT:         EQU    36H
1224
1225      ; Assembler
1226
1227      48B8 CD1C49   ASMB:          CALL GETOPTION

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1228	48BB	213C59		LD	HL, AEND+1
1229	48BE	36FF		LD	(HL), 0FFH
1230	48C0	22E940		LD	(FEP), HL
1231	48C3	CDCA48		CALL	PASS
1232	48C6	DDCB00AE		RES	5, (IX+F1)
1233	48CA	CD7042	PASS:	CALL	TOP
1234	48CD	CD3149	PS1:	CALL	HOLD
1235	48D0	2ADD40		LD	HL, (CURRENT)
1236	48D3	22E740		LD	(TEMP), HL
1237	48D6	2AEF40		LD	HL, (PC)
1238	48D9	E5		PUSH	HL
1239	48DA	210000		LD	HL, 0
1240	48DD	22C740		LD	(FLAGS+F2), HL
1241	48E0	22CB40		LD	(FLAGS+F6), HL
1242	48E3	CD0A4D		CALL	CLASS
1243	48E6	FE31		CP	TLAB
1244	48E8	CC4149		CALL	Z, SYMBOL
1245	48EB	FE0B		CP	EOL
1246	48ED	2819		JR	Z, PS2
1247	48EF	FE30		CP	TALPHA
1248	48F1	2024		JR	NZ, E1
1249	48F3	CDFB4A		CALL	OPTSCH
1250	48F6	381F		JR	C, E1
1251	48F8	DD7105		LD	(IX+F6), C
1252	48FB	CD9549		CALL	JUMP
1253	48FE	C2504B		JP	NZ, E6
1254	4901	CD9B4B		CALL	PARSER
1255	4904	FE0B		CP	EOL
1256	4906	200F		JR	NZ, E1
1257	4908	E1	PS2:	POP	HL
1258	4909	DDCB006E		BIT	5, (IX+F1)
1259	490D	CC0F4A		CALL	Z, LIST
1260	4910	CDAE4B		CALL	LINC
1261	4913	04		INC	B
1262	4914	20B7		JR	NZ, PS1
1263	4916	C9		RET	
1264					
1265	4917	2E0B	E1:	LD	L, M2%255
1266	4919	C3A942		JP	ER
1267					
1268	491C	2E19	GETOPTION:	LD	L, M7%255
1269	491E	CDAC46		CALL	CUE
1270	4921	F6BB		OR	0B8H
1271	4923	DD7700		LD	(IX+F1), A
1272	4926	DD360401		LD	(IX+F5), 1
1273	492A	210000		LD	HL, 0
1274	492D	22D740		LD	(PAGEEND), HL
1275	4930	C9		RET	
1276					
1277	4931	CD09BB	HOLD:	CALL	READCHAR
1278	4934	D0		RET	NC
1279	4935	DDCB0076		BIT	6, (IX+F1)
1280	4939	CAE041		JP	Z, ZEN
1281	493C	DDCB009E		RES	3, (IX+F1)
1282	4940	C9		RET	
1283					
1284	4941	DDCB01CE	SYMBOL:	SET	1, (IX+F2)
1285	4945	0C		INC	C
1286	4946	DD7106		LD	(IX+F7), C
1287	4949	0D		DEC	C

1288	494A	CAA742		JP	Z,E0
1289	494D	CDE84A		CALL	SYMSCH
1290	4950	FD22ED40		LD	(L,BLP),IY
1291	4954	DDCB006E		BIT	5,(IX+FI)
1292	4958	2838		JR	Z,SY2
1293	495A	2E44		LD	L,M13&255
1294	495C	D2A942		JP	NC,ER
1295	495F	CDED4A		CALL	OPDSCH
1296	4962	2E36		LD	L,M12&255
1297	4964	D2A942		JP	NC,ER
1298	4967	2AE940		LD	HL,(FEP)
1299	496A	ES		PUSH	HL
1300	496B	0600		LD	B,0
1301	496D	09		ADD	HL,BC
1302	496E	23		INC	HL
1303	496F	23		INC	HL
1304	4970	23		INC	HL
1305	4971	CD3248		CALL	SDF
1306	4974	2E3F		LD	L,M14&255
1307	4976	DAA942		JP	C,ER
1308	4979	E1		POP	HL
1309	497A	EB		EX	DE,HL
1310	497D	EDB0		LDIR	
1311	497D	EB		EX	DE,HL
1312	497E	2B		DEC	HL
1313	497F	CBFE		SET	7,(HL)
1314	4981	C1		POP	BC
1315	4982	D1		POP	DE
1316	4983	D5		PUSH	DE
1317	4984	C5		PUSH	BC
1318	4985	23		INC	HL
1319	4986	73		LD	(HL),E
1320	4987	23		INC	HL
1321	4989	72		LD	(HL),0
1322	4989	22ED40		LD	(L,BLP),HL
1323	498C	23		INC	HL
1324	498D	36FF		LD	(HL),0FFH
1325	498F	22E940		LD	(FEP),HL
1326	4992	C30A4D	SY2:	JP	CLASS
1327					
1328	4995	44	JUMP:	LD	B,H
1329	4996	CB7D		BIT	7,L
1330	4998	2004		JR	NZ,JP2
1331	499A	DDCB01DE		SET	3,(IX+FI)
1332	499E	CBBD	JP2:	RES	7,L
1333	49A0	5D		LD	E,L
1334	49A1	1600		LD	D,0
1335	49A3	7D		LD	A,L
1336	49A4	21D749		LD	HL,JPTAB
1337	49A7	19		ADD	HL,DE
1338	49A8	5E		LD	E,(HL)
1339	49A9	23		INC	HL
1340	49AA	56		LD	D,(HL)
1341	49AB	D5		PUSH	DE
1342	49AC	FE05		CP	5
1343	49AE	D8		RET	C
1344	49AF	FE25		CP	37
1345	49B1	DA9B4B		JP	C,PARSER
1346	49B4	CD9B4B		CALL	PARSER
1347	49B7	E5		PUSH	HL

1348 49B8 F5		PUSH AF
1349 49B9 CD9B4E		CALL PARSE
1350 49BC 4F		LD C,A
1351 49BD F1		POP AF
1352 49BE EB		EX DE,HL
1353 49BF E1		POP HL
1354 49C0 07		RLCA
1355 49C1 07		RLCA
1356 49C2 07		RLCA
1357 49C3 07		RLCA
1358 49C4 B1		OR C
1359 49C5 4F		LD C,A
1360 49C6 FDE1		POP IY
1361 49C8 CDBB4C		CALL FIND
1362 49CB 47		LD B,A
1363 49CC 2B01		JR Z,JP3
1364 49CE EB		EX DE,HL
1365 49CF 7D	JP3:	LD A,L
1366 49D0 07		RLCA
1367 49D1 07		RLCA
1368 49D2 07		RLCA
1369 49D3 07		RLCA
1370 49D4 B3		OR E
1371 49D5 FDE9		JP (IY)
1372		
1373 49D7 6C4B	JPTAB:	DW MOFB
1374 49D9 624E		DW L30
1375 49DB 0B4E		DW ENDH
1376 49DD CE4E		DW RSTH
1377 49DF DB4E		DW RETH
1378 49E1 104F		DW PPH
1379 49E3 7D4D		DW JRH
1380 49E5 8B4D		DW DJH
1381 49E7 3C4F		DW INCH
1382 49E9 9B4F		DW ML1
1383 49EB D24F		DW SRH
1384 49ED C04F		DW BITH
1385 49EF AA4D		DW DWH
1386 49F1 B04D		DW DBH
1387 49F3 CD4D		DW DSH
1388 49F5 FE4D		DW EQUH
1389 49F7 ED4D		DW ORGH
1390 49F9 2B4F		DW IMH
1391 49FB E14D		DW LOADH
1392 49FD 0D4E		DW LTAB
1393 49FF FA4E		DW CALTAB
1394 4A01 E54E		DW JMPTAB
1395 4A03 1050		DW XTAB
1396 4A05 EB4F		DW INTAB
1397 4A07 644F		DW ADDTAB
1398 4A09 564F		DW ADCTAB
1399 4A0B 5D4F		DW SECTAB
1400 4A0D F54F		DW OUTAB
1401		
1402 4A0F DDCB0076	LIST:	BIT 6,(IX+F1)
1403 4A13 C8		RET Z
1404 4A14 C5		PUSH BC
1405 4A15 DD4E02		LD C,(IX+F3)
1406 4A18 ED5BCB40		LD DE,(FLAGS+F6)
1407 4A1C FD215441		LD IY,TBUFF

1408 4A20 D5	LS1:	PUSH DE
1409 4A21 DDCB0176		BIT 6, (IX+F2)
1410 4A25 CC1847		CALL Z,PAGE
1411 4A28 DDCB004E		BIT 1, (IX+F1)
1412 4A2C 2007		JR NZ,LS12
1413 4A2E DDCB017E		BIT 7, (IX+F2)
1414 4A32 CC6048		CALL Z,POSITION
1415 4A35 D1	LS12:	POP DE
1416 4A36 060E		LD B,14
1417 4A38 0C		INC C
1418 4A39 0D		DEC C
1419 4A3A 2817		JR Z,LS4
1420 4A3C CD8D48		CALL WORDSP
1421 4A3F 0604		LD B,4
1422 4A41 FD7E00	LS2:	LD A, (IX+0)
1423 4A44 CD9748		CALL BYTE
1424 4A47 FD23		INC IY
1425 4A49 23		INC HL
1426 4A4A 0D		DEC C
1427 4A4B 2803		JR Z,LS3
1428 4A4D 10F2		DJNZ LS2
1429 4A4F 04		INC B
1430 4A50 CB20	LS3:	SLA B
1431 4A52 05		DEC B
1432 4A53 CD2E46	LS4:	CALL SPACE
1433 4A56 10FB		DJNZ LS4
1434 4A58 C5		PUSH BC
1435 4A59 E5		PUSH HL
1436 4A5A FDE5		PUSH IY
1437 4A5C FD21CD40		LD IY, COMWIDTH
1438 4A60 2AE740		LD HL, (TEMP)
1439 4A63 0EFF		LD C, 0FFH
1440 4A65 DDCB0146		BIT 0, (IX+F2)
1441 4A69 281A		JR Z,LS7
1442 4A6B CDA44A		CALL SYMFIELD
1443 4A6E 53		LD D,E
1444 4A6F CDA84A		CALL FIELD
1445 4A72 5A		LD E,D
1446 4A73 E5		PUSH HL
1447 4A74 7E	LS5:	LD A, (HL)
1448 4A75 FE0D		CP CR
1449 4A77 2808		JR Z,LS6
1450 4A79 FE3B		CP 3BH
1451 4A7B 2804		JR Z,LS6
1452 4A7D 14		INC D
1453 4A7E 23		INC HL
1454 4A7F 18F3		JR LS5
1455 4A81 E1	LS6:	POP HL
1456 4A82 CDA84A		CALL FIELD
1457 4A85 E5	LS7:	PUSH HL
1458 4A86 7E	LS8:	LD A, (HL)
1459 4A87 FE0D		CP CR
1460 4A89 2804		JR Z,LS9
1461 4A8B 14		INC D
1462 4A8C 23		INC HL
1463 4A8D 18F7		JR LS8
1464 4A8F E1	LS9:	POP HL
1465 4A90 CDA84A		CALL FIELD
1466 4A93 22E740		LD (TEMP), HL
1467 4A96 FDE1		POP IY

1468	4A98	E1		POP	HL
1469	4A99	C1		POP	BC
1470	4A9A	CD2146		CALL	CRLF
1471	4A9D	0C		INC	C
1472	4A9E	0D		DEC	C
1473	4A9F	C2204A		JP	NZ,LS1
1474	4AA2	C1		POP	BC
1475	4AA3	C9		RET	
1476					
1477	4AA4	FD21CF40	SYMFIELD:	LD	IY,SYMWIDTH
1478	4AA8	FD4600	FIELD:	LD	B,(IY+0)
1479	4AAB	DDCB004E		BIT	1,(IX+F1)
1480	4AAF	2803		JR	Z,FD1
1481	4AB1	FD4601		LD	B,(IY+1)
1482	4AB4	FD23	FD1:	INC	IY
1483	4AB6	FD23		INC	IY
1484	4AB8	7A		LD	A,D
1485	4AB9	B8		CP	B
1486	4ABA	3801		JR	C,FD2
1487	4ABC	78		LD	A,B
1488	4ABD	3C	FD2:	INC	A
1489	4ABE	3D	FD3:	DEC	A
1490	4ABF	280A		JR	Z,FD4
1491	4AC1	F5		PUSH	AF
1492	4AC2	7E		LD	A,(HL)
1493	4AC3	A1		AND	C
1494	4AC4	CD3046		CALL	OUTPUT
1495	4AC7	F1		POP	AF
1496	4AC8	23		INC	HL
1497	4AC9	18F3		JR	FD3
1498	4ACB	78	FD4:	LD	A,B
1499	4ACC	92		SUB	D
1500	4ACD	3004		JR	NC,FD6
1501	4ACF	23	FD5:	INC	HL
1502	4AD0	3C		INC	A
1503	4AD1	20FC		JR	NZ,FD5
1504	4AD3	7A	FD6:	LD	A,D
1505	4AD4	90		SUB	B
1506	4AD5	1600		LD	D,0
1507	4AD7	3008		JR	NC,FD8
1508	4AD9	F5	FD7:	PUSH	AF
1509	4ADA	CD2E46		CALL	SPACE
1510	4ADD	F1		POP	AF
1511	4ADE	3C		INC	A
1512	4ADF	20F8		JR	NZ,FD7
1513	4AE1	7E	FD8:	LD	A,(HL)
1514	4AE2	FE20		CP	BLANK
1515	4AE4	C0		RET	NZ
1516	4AE5	23		INC	HL
1517	4AE6	18F9		JR	FDB
1518					
1519	4AE8	213C59	SYMSCH:	LD	HL,AEND+1
1520	4AEB	182D		JR	SEARCH
1521					
1522	4AED	21BA51	OPDSCH:	LD	HL,CCODES
1523	4AF0	DDCB015E		BIT	3,(IX+F2)
1524	4AF4	2824		JR	Z,SEARCH
1525	4AF6	21D651		LD	HL,TREGS
1526	4AF9	181F		JR	SEARCH
1527					

1528 4AFB 79	OPTSCH:	LD	A,C
1529 4AFC 3D		DEC	A
1530 4AFD 37		SCF	
1531 4AFE 08		RET	Z
1532 4AFF 1A		LD	A, (DE)
1533 4B00 D641		SUB	'A'
1534 4B02 D8		RET	C
1535 4B03 FE1A		CP	'Z'-'A'+1
1536 4B05 3F		CCF	
1537 4B06 D8		RET	C
1538 4B07 CDEB54		CALL	KEYADDR.
1539 4B0A 13		INC	DE
1540 4B0B 0B		DEC	BC
1541 4B0C CD1A4B		CALL	SEARCH
1542 4B0F 03		INC	BC
1543 4B10 1B		DEC	DE
1544 4B11 C9		RET	
1545			
1546 4B12 CE7E	BAD:	BIT	Z, (HL)
1547 4B14 23		INC	HL
1548 4B15 2BFB		JR	Z, BAD
1549 4B17 23		INC	HL
1550 4B18 23		INC	HL
1551 4B19 D1		POP	DE
1552 4B1A 7E	SEARCH:	LD	A, (HL)
1553 4B1B 3C		INC	A
1554 4B1C 37		SCF	
1555 4B1D C8		RET	Z
1556 4B1E D5		PUSH	DE
1557 4B1F 41		LD	B,C
1558 4B20 1A	SC2:	LD	A, (DE)
1559 4B21 1002		DJNZ	SC3
1560 4B23 CBFF		SET	Z, A
1561 4B25 04	SC3:	INC	B
1562 4B26 BE		CP	(HL)
1563 4B27 20E9		JR	NZ, BAD
1564 4B29 13		INC	DE
1565 4B2A 23		INC	HL
1566 4B2B 10F3		DJNZ	SC2
1567 4B2D 5E		LD	E, (HL)
1568 4B2E 23		INC	HL
1569 4B2F 56		LD	D, (HL)
1570 4B30 E3		EX	(SP), HL
1571 4B31 EB		EX	DE, HL
1572 4B32 FDE1		POP	XY
1573 4B34 C9		RET	
1574			
1575 4B35 FE03	RESOLV:	CP	NO
1576 4B37 2017		JR	NZ, E6
1577 4B39 DD7E01		LD	A, (IX+F2)
1578 4B3C CB67		BIT	4, A
1579 4B3E C2A64C		JP	NZ, E7
1580 4B41 CB4F		BIT	1, A
1581 4B43 C9		RET	
1582			
1583 4B44 FE03	LITTLE:	CP	NO
1584 4B46 200B		JR	NZ, E6
1585 4B4B DDCB006E	LITTLE2:	BIT	5, (IX+F1)
1586 4B4C C0		RET	NZ
1587 4B4D 7C		LD	A, H

1588 4B4E B7		OR	A
1589 4B4F C8		RET	Z
1590 4B50 2E52	E6:	LD	L,M16&255
1591 4B52 C3A942		JP	ER
1592			
1593 4B55 5D	MOFMIX:	LD	E,L
1594 4B56 C85B	MOFMX2:	BIT	3,E
1595 4B58 20F6		JR	NZ,E6
1596 4B5A 7B		LD	A,E
1597 4B5B 07		RLCA	
1598 4B5C 07		RLCA	
1599 4B5D 07		RLCA	
1600 4B5E B0		OR	B
1601 4B5F 180C		JR	MOF
1602 4B61 3EED	MOFPRE:	LD	A,0EDH
1603 4B63 180B		JR	MOF
1604 4B65 7D	MOFLH:	LD	A,L
1605 4B66 CD6D4B		CALL	MOF
1606 4B69 7C	MOFH:	LD	A,H
1607 4B6A 1801		JR	MOF
1608 4B6C 78	MOFB:	LD	A,B
1609			
1610 4B6D E5	MOF:	PUSH	HL
1611 4B6E C5		PUSH	BC
1612 4B6F CD1A4D		CALL	CL2
1613 4B72 23		INC	HL
1614 4B73 22EF40		LD	(PC),HL
1615 4B76 DDCB006E		BIT	5,(IX+F1)
1616 4B7A 201B		JR	NZ,MOF5
1617 4B7C DDCB0066		BIT	4,(IX+F1)
1618 4B80 200B		JR	NZ,MOF2
1619 4B82 2AF140		LD	HL,(OBJ)
1620 4B85 77		LD	(HL),A
1621 4B86 23		INC	HL
1622 4B87 22F140		LD	(OBJ),HL
1623 4B8A 0600	MOF2:	LD	B,0
1624 4B8C DD4E02		LD	C,(IX+F3)
1625 4B8F 215441		LD	HL,TBUFF
1626 4B92 09		ADD	HL,BC
1627 4B93 77		LD	(HL),A
1628 4B94 DD3402	MOF5:	INC	(IX+F3)
1629 4B97 C1		POP	BC
1630 4B98 E1		POP	HL
1631 4B99 AF		XOR	A
1632 4B9A C9		RET	
1633			
1634 4B9B DDCB0146	PARSER:	BIT	0,(IX+F2)
1635 4B9F 3E0B		LD	A,EOL
1636 4BA1 C0		RET	NZ
1637 4BA2 C5		PUSH	BC
1638 4BA3 CDA84B		CALL	PA1
1639 4BA6 C1		POP	BC
1640 4BA7 C9		RET	
1641			
1642 4BAB CD754C	PA1:	CALL	TERM
1643 4BAB D8		RET	C
1644 4BAC FE34		CP	TIND
1645 4BAE 0600		LD	B,0
1646 4BB0 2005		JR	NZ,PA2
1647 4BB2 CD754C		CALL	TERM

1648 4BB5 0604		LD B,4
1649 4BB7 FE32	PA2:	CP TOPD
1650 4BB9 2031		JR NZ,PA7
1651 4BBB 7C		LD A,H
1652 4BBC B0		OR B
1653 4BBD S7		LD D,A
1654 4BEE E5		PUSH HL
1655 4BBF CD754C		CALL TERM
1656 4BC2 E1		POP HL
1657 4BC3 4F		LD C,A
1658 4BC4 7A		LD A,D
1659 4BC5 D8		RET C
1660 4BC6 FE06		CP XYI
1661 4BC8 202F		JR NZ,PER
1662 4BCA CB71		BIT 6,C
1663 4BCC 282B		JR Z,PER
1664 4BCE 45		LD B,L
1665 4BCF C5		PUSH BC
1666 4BD0 CD754C		CALL TERM
1667 4BD3 CDFC4B		CALL PA4
1668 4BD6 C1		POP BC
1669 4BD7 CD484B		CALL LITTLE2
1670 4BDA 200C		JR NZ,PA3
1671 4BDC 7D		LD A,L
1672 4BDD CB79		BIT 7,C
1673 4BDF 2803		JR Z,PA31
1674 4BE1 ED44		NEG
1675 4BE3 6F		LD L,A
1676 4BE4 A9	PA31:	XOR C
1677 4BE5 FA504B		JP M,E6
1678 4BE8 60	PA3:	LD H,B
1679 4BE9 3E0A		LD A,XYD
1680 4BEB C9		RET
1681		
1682 4BED FE36	PA7:	CP TLIT
1683 4BEE 200C		JR NZ,PA4
1684 4BF0 B0		OR B
1685 4BF1 6F		LD L,A
1686 4BF2 E5		PUSH HL
1687 4BF3 CD754C		CALL TERM
1688 4BF6 E1		POP HL
1689 4BF7 7D		LD A,L
1690 4BF8 D8		RET C
1691 4BF9 C3504B	PER:	JP E6
1692		
1693 4BFC FE03	PA4:	CP NO
1694 4BFE 20F9		JR NZ,PER
1695 4C00 B0		OR B
1696 4C01 F5		PUSH AF
1697 4C02 E5	PA5:	PUSH HL
1698 4C03 CD754C		CALL TERM
1699 4C06 E1		POP HL
1700 4C07 3811		JR C,PA6
1701 4C09 F5		PUSH AF
1702 4C0A E5		PUSH HL
1703 4C0B CD754C		CALL TERM
1704 4C0E EB		EX DE,HL
1705 4C0F E1		POP HL
1706 4C10 FE03		CP NO
1707 4C12 20E5		JR NZ,PER

1708 4C14 F1		POP	AF
1709 4C15 CD1C4C		CALL	MATH
1710 4C18 18E8		JR	PA5
1711 4C1A F1	PA6:	POP	AF
1712 4C1B C9		RET	
1713			
1714 4C1C FE40	MATH:	CP	TADD
1715 4C1E 2002		JR	NZ,MA2
1716 4C20 19		ADD	HL,DE
1717 4C21 C9		RET	
1718 4C22 FEC0	MA2:	CP	TSUB
1719 4C24 2003		JR	NZ,MA3
1720 4C26 ED52		SBC	HL,DE
1721 4C28 C9		RET	
1722 4C29 FE82	MA3:	CP	TAND
1723 4C2B 2007		JR	NZ,MA4
1724 4C2D 7B		LD	A,E
1725 4C2E A5		AND	L
1726 4C2F 6F		LD	L,A
1727 4C30 7A		LD	A,D
1728 4C31 A4		AND	H
1729 4C32 67		LD	H,A
1730 4C33 C9		RET	
1731			
1732 4C34 FE83	MA4:	CP	TOR
1733 4C36 2007		JR	NZ,MA5
1734 4C38 7B		LD	A,E
1735 4C39 B5		OR	L
1736 4C3A 6F		LD	L,A
1737 4C3B 7A		LD	A,D
1738 4C3C B4		OR	H
1739 4C3D 67		LD	H,A
1740 4C3E C9		RET	
1741			
1742 4C3F 4B	MA5:	LD	C,E
1743 4C40 42		LD	B,D
1744 4C41 EB		EX	DE,HL
1745 4C42 FE81		CP	TDIV
1746 4C44 2018		JR	NZ,MA6
1747 4C46 210000	MA50:	LD	HL,0
1748 4C49 3E11		LD	A,17
1749 4C4B B7		OR	A
1750 4C4C ED6A	MA51:	ADD	HL,HL
1751 4C4E ED42		SBC	HL,BC
1752 4C50 3002		JR	NC,MA52
1753 4C52 09		ADD	HL,BC
1754 4C53 37		SCF	
1755 4C54 3F	MA52:	CCF	
1756 4C55 CB13		RL	E
1757 4C57 CB12		RL	D
1758 4C59 3D		DEC	A
1759 4C5A 20F0		JR	NZ,MA51
1760 4C5C EB		EX	DE,HL
1761 4C5D C9		RET	
1762			
1763 4C5E FE80	MA6:	CP	TMUL
1764 4C60 2097		JR	NZ,PER
1765 4C62 210000		LD	HL,0
1766 4C65 3E10		LD	A,16
1767 4C67 CB38	MA61:	SRL	B

1768	4C69	CB19		RR	C
1769	4C6B	3001		JR	NC,MA62
1770	4C6D	19		ADD	HL,DE
1771	4C6E	EB	MA62:	EX	DE,HL
1772	4C6F	29		ADD	HL,HL
1773	4C70	EB		EX	DE,HL
1774	4C71	3D		DEC	A
1775	4C72	20F3		JR	NZ,MA61
1776	4C74	C9		RET	
1777					
1778	4C75	CD0A4D	TERM:	CALL	CLASS
1779	4C78	FE31		CP	TLAB
1780	4C7A	CA504B		JP	Z,E6
1781	4C7D	FE0B	TE2:	CP	EOL
1782	4C7F	2006		JR	NZ,TE3
1783	4C81	DDCB01C6		SET	0,(IX+F2)
1784	4C85	37		SCF	
1785	4C86	C9		RET	
1786	4C87	FE33	TE3:	CP	TCOM
1787	4C89	37		SCF	
1788	4C8A	C8		RET	Z
1789	4C8B	FE30		CP	TALPHA
1790	4C8D	37		SCF	
1791	4C8E	3F		CCF	
1792	4C8F	C0		RET	NZ
1793	4C90	CDED4A		CALL	OPDSCH
1794	4C93	3E32		LD	A,TOPD
1795	4C95	D0		RET	NC
1796	4C96	CDE84A		CALL	SYMSCH
1797	4C99	3E03		LD	A,ND
1798	4C9B	D0		RET	NC
1799	4C9C	3F		CCF	
1800	4C9D	DDCB01E6		SET	4,(IX+F2)
1801	4CA1	DDCB006E		DIT	5,(IX+F1)
1802	4CA3	C0		RET	NZ
1803	4CA6	2E5A	E7:	LD	L,M17&255
1804	4CA8	C3A942		JP	ER
1805					
1806	4CAB	2ADD40	TYPE:	LD	HL,(CURRENT)
1807	4CAE	CD0646		CALL	EOF
1808	4CB1	23		INC	HL
1809	4CE2	22DD40		LD	(CURRENT),HL
1810	4CB5	2B		DEC	HL
1811	4CB6	7E		LD	A,(HL)
1812	4CB7	FD21D94C		LD	IV,TYPTAB
1813					
1814	4CBB	D5	FIND:	PUSH	DE
1815	4CBC	FDE5		PUSH	IX
1816	4CBE	E3		EX	(SP),HL
1817	4CBF	5E		LD	E,(HL)
1818	4CC0	53		LD	D,E
1819	4CC1	23	FIN1:	INC	HL
1820	4CC2	BE		CP	(HL)
1821	4CC3	2803		JR	Z,FIN2
1822	4CC5	15		DEC	D
1823	4CC6	20F9		JR	NZ,FIN1
1824	4CC8	1600	FIN2:	LD	D,0
1825	4CCA	19		ADD	HL,DE
1826	4CCB	7E		LD	A,(HL)
1827	4CCC	19		ADD	HL,DE

1828 4CCD 5F		LD	E,A
1829 4CCE 7E		LD	A,(HL)
1830 4CCF CB7B		BIT	7,E
1831 4CD1 CBBB		RES	7,E
1832 4CD3 19		ADD	HL,DE
1833 4CD4 E3		EX	(SP),HL
1834 4CD5 FDE1		POP	IY
1835 4CD7 D1		POP	DE
1836 4CD8 C9		RET	
1837			
1838 4CD9 100D27	TYPTAB:	DB	TL,CR,""
1839 4CDC 242A2F2B		DB	'**/+&.()'
1839 4CE0 2D262E28			
1839 4CE4 29			
1840 4CE5 3B3A222C		DB	3BH,':",'
1841 4CE9 00		DB	0
1842			
1843 4CEA 1F		DB	CL3-\$-TL
1844 4CEB 2C		DB	CL4-\$-TL
1845 4CEC 1E		DB	CL2-\$-TL
1846 4CED 1C		DB	CL3-\$-TL
1847 4CEE 1B		DB	CL3-\$-TL
1848 4CEF 1A		DB	CL3-\$-TL
1849 4CF0 19		DB	CL3-\$-TL
1850 4CF1 18		DB	CL3-\$-TL
1851 4CF2 17		DB	CL3-\$-TL
1852 4CF3 16		DB	CL3-\$-TL
1853 4CF4 06		DB	CLASS-\$-TL
1854 4CF5 0D		DB	CL1-\$-TL
1855 4CF6 13		DB	CL3-\$-TL
1856 4CF7 20		DB	CL4-\$-TL
1857 4CF8 11		DB	CL3-\$-TL
1858 4CF9 3B		DB	CL5-\$-TL
1859			
1860 4CFA 0B000380		DB	EOL,0,NO,TMUL,TDIV
1860 4CFE 81			
1861 4CFF 40C08283		DB	TADD,TSUB,TAND,TOR
1862 4D03 34000031		DB	TIND,0,0,TLAB
1863 4D07 003335		DB	0,TCOM,TDEF
1864			
1865 4D0A CDAB4C	CLASS:	CALL	TYPE
1866 4D0D 010021		LD	BC,2100H
1867 4D10 FDE9		JP	(IY)
1868			
1869 4D12 CDAB4C	CL1:	CALL	TYPE
1870 4D15 FE0B		CP	EOL
1871 4D17 20F9		JR	NZ,CL1
1872 4D19 C9	CL3:	RET	
1873 4D1A 2AEF40	CL2:	LD	HL,(PC)
1874 4D1D DDCEB007E		BIT	7,(IX+FI)
1875 4D21 C8		RET	Z
1876 4D22 2E64	E11:	LD	L,M18&255
1877 4D24 C3A942		JP	ER
1878 4D27 E5	CL4:	PUSH	HL
1879 4D28 46		LD	B,(HL)
1880 4D29 5E	CL41:	LD	E,(HL)
1881 4D2A 0C		INC	C
1882 4D2B CDAB4C		CALL	TYPE
1883 4D2E FE0B		CP	EOL
1884 4D30 282C		JR	Z,CLER

1885	4D32	7E		LD	A, (HL)
1886	4D33	B8		CP	B
1887	4D34	20F3		JR	NZ, CL41
1888	4D36	EB		EX	DE, HL
1889	4D37	D1		POP	DE
1890	4D38	0D		DEC	C
1891	4D39	2823		JR	Z, CLER
1892	4D3B	61		LD	H, C
1893	4D3C	3E03		LD	A, NO
1894	4D3E	25		DEC	H
1895	4D3F	C8		RET	Z
1896	4D40	24		INC	H
1897	4D41	3E36		LD	A, TLIT
1898	4D43	C9		RET	
1899					
1900	4D44	7E	CL5:	LD	A, (HL)
1901	4D45	B8		CP	B
1902	4D46	38C2		JR	C, CLASS
1903	4D48	FE30		CP	30H
1904	4D4A	3815		JR	C, CL7
1905	4D4D	FE3A		CP	3AH
1906	4D4E	3011		JR	NC, CL7
1907	4D50	CD614D	CL6:	CALL	CL7
1908	4D53	FE31		CP	TLAB
1909	4D55	2807		JR	Z, CLER
1910	4D57	41		LD	B, C
1911	4D58	CDD247		CALL	CONVERT
1912	4D5B	3E03		LD	A, NO
1913	4D5D	D0		RET	NC
1914	4D5E	C3504B	CLER:	JP	E6
1915					
1916	4D61	E5	CL7:	PUSH	HL
1917	4D62	D1		POP	DE
1918	4D63	CB7E	CL71:	BIT	7, (HL)
1919	4D65	C21749		JP	NZ, E1
1920	4D68	0C		INC	C
1921	4D69	CDAB4C		CALL	TYPE
1922	4D6C	FE31		CP	TLAB
1923	4D6E	C8		RET	Z
1924	4D6F	FE35		CP	TDEF
1925	4D71	2004		JR	NZ, CL72
1926	4D73	7E		LD	A, (HL)
1927	4D74	B8		CP	B
1928	4D75	30EC		JR	NC, CL71
1929	4D77	22DD40	CL72:	LD	(CURRENT), HL
1930	4D7A	3E30		LD	A, TALPHA
1931	4D7C	C9		RET	
1932					
1933	4D7D	FE09	JRH:	CP	CC
1934	4D7F	200A		JR	NZ, DJH
1935	4D81	7D		LD	A, L
1936	4D82	E6E7		AND	0E7H
1937	4D84	C0		RET	NZ
1938	4D85	45		LD	B, L
1939	4D86	CBEB		SET	5, B
1940	4D88	CD9B4B		CALL	PARSER
1941					
1942	4D8B	FE03	DJH:	CP	NO
1943	4D8D	C0		RET	NZ
1944	4D8E	CD6C4B		CALL	MOFB

1945	4D91	DDCB006E		BIT	5, (IX+F1)
1946	4D95	200F		JR	NZ, DJ2
1947	4D97	ED5BEF40		LD	DE, (PC)
1948	4D9B	37		SCF	
1949	4D9C	ED52		SBC	HL, DE
1950	4D9E	7C		LD	A, H
1951	4D9F	24		INC	H
1952	4DA0	2802		JR	Z, DJ1
1953	4DA2	25		DEC	H
1954	4DA3	C0		RET	NZ
1955	4DA4	AD	DJ1:	XOR	L
1956	4DA5	F8		RET	M
1957	4DA6	7D	DJ2:	LD	A, L
1958	4DA7	C36D4B		JP	MOF
1959					
1960	4DAA	FE03	DWH:	CP	NO
1961	4DAC	C0		RET	NZ
1962	4DAD	C3654B		JP	MOFLH
1963					
1964	4DB0	FE36	DBH:	CP	TLIT
1965	4DB2	200A		JR	NZ, DBH3
1966	4DB4	13	DBH1:	INC	DE
1967	4DB5	1A		LD	A, (DE)
1968	4DB6	CD6D4B		CALL	MOF
1969	4DB9	25		DEC	H
1970	4DBA	20F8		JR	NZ, DBH1
1971	4DBC	1807		JR	DBH4
1972					
1973	4DBE	CD444B	DBH3:	CALL	LITL
1974	4DC1	7D		LD	A, L
1975	4DC2	CD6D4B		CALL	MOF
1976	4DC5	CD9B4B	DBH4:	CALL	PARSER
1977	4DCB	FE0B		CP	EOL
1978	4DCA	20E4		JR	NZ, DBH
1979	4DCC	C9		RET	
1980					
1981	4DCD	CD354B	DSH:	CALL	RESOLV
1982	4DD0	EB		EX	DE, HL
1983	4DD1	2AEF40		LD	HL, (PC)
1984	4DD4	19		ADD	HL, DE
1985	4DD5	22EF40		LD	(PC), HL
1986	4DD8	2AF140		LD	HL, (OBJ)
1987	4DDB	19		ADD	HL, DE
1988	4DDC	22F140		LD	(OBJ), HL
1989	4DDF	AF		XOR	A
1990	4DE0	C9		RET	
1991					
1992	4DE1	CD354B	LOADH:	CALL	RESOLV
1993	4DE4	22F140		LD	(OBJ), HL
1994	4DE7	DDCB00A6		RES	4, (IX+F1)
1995	4DEB	AF		XOR	A
1996	4DEC	C9		RET	
1997					
1998	4DED	CD354B	ORGH:	CALL	RESOLV
1999	4DF0	22EF40		LD	(PC), HL
2000	4DF3	DDCB00E6		SET	4, (IX+F1)
2001	4DF7	DDCB00BE		RES	7, (IX+F1)
2002	4DFB	2007		JR	NZ, ED2
2003	4DFD	C9		RET	
2004					

2005	4DFE	CD354B	EQUH:	CALL	RESOLV
2006	4E01	CAA742		JP	Z,E0
2007	4E04	EB	EQ2:	EX	DE,HL
2008	4E05	2AED40		LD	HL,(LBLEP)
2009	4E08	72		LD	(HL),D
2010	4E09	2B		DEC	HL
2011	4E0A	73		LD	(HL),E
2012	4E0B	AF	ENDH:	XOR	A
2013	4E0C	C9		RET	
2014					
2015	4E0D	15	LTAB:	DB	L1
2016	4E0E	53		DB	RP1*16,NO
2017	4E0F	03		DB	TR*16,NO
2018	4E10	80		DB	RE*16,TR
2019	4E11	08		DB	TR*16,RE
2020	4E12	00		DB	TR*16,TR
2021	4E13	11		DB	RP*16,RP
2022	4E14	72		DB	NOI*16,XY
2023	4E15	27		DB	XY*16,NOI
2024	4E16	73		DB	X7*16,NO
2025	4E17	70		DB	NOI*16,TR
2026	4E18	07		DB	TR*16,NOI
2027	4E19	71		DB	NOI*16,RP
2028	4E1A	17		DB	RP*16,NOI
2029	4E1B	12		DB	RP*16,X7
2030	4E1C	A3		DB	XYD*16,NO
2031	4E1D	13		DB	RP*16,NO
2032	4E1E	A0		DB	XYE*16,TR
2033	4E1F	0A		DB	TR*16,XYD
2034	4E20	50		DB	RP1A16,TR
2035	4E21	05		DB	TR*16,RP1
2036	4E22	00		DB	0
2037					
2038	4E23	95		DB	L1-#-LL.S
2039	4E24	78		DB	L2-#-LL.S
2040	4E25	21		DB	L3-#-LL
2041	4E26	A0		DB	L3-#-LL.S
2042	4E27	AC		DB	L4-#-LL.S
2043	4E28	31		DB	L5-#-LL
2044	4E29	35		DB	L6-#-LL
2045	4E2A	B4		DB	L6-#-LL.S
2046	4E2B	B3		DB	L6-#-LL.S
2047	4E2C	3C		DB	L7-#-LL
2048	4E2D	BB		DB	L7-#-LL.S
2049	4E2E	42		DB	L8-#-LL
2050	4E2F	C1		DB	L8-#-LL.S
2051	4E30	D2		DB	L9-#-LL.S
2052	4E31	D8		DB	LA-#-LL.S
2053	4E32	DF		DB	LB-#-LL.S
2054	4E33	63		DB	LC-#-LL
2055	4E34	E2		DB	LC-#-LL.S
2056	4E35	6A		DB	LE-#-LL
2057	4E36	E9		DB	LE-#-LL.S
2058	4E37	36		DB	LER-#-LL
2059					
2060	4E38	16064757		DB	16H,6,47H,57H,10H
2060	4E3C	40			
2061	4E3D	F9222A21		DB	0F9H,22H,2AH,21H
2062	4E41	32		DB	32H
2063	4E42	3A222AF9		DB	3AH,22H,2AH,0F9H

2064	4E46	36		DB	36H
2065	4E47	01020A02		DB	1,2,0AH,2,0AH,0
2065	4E4B	0A00			
2066					
2067	4E4D	7B	L1:	LD	A,E
2068	4E4E	FE04		CP	IHL
2069	4E50	C0		RET	NZ
2070	4E51	CD484B	L2:	CALL	LITTLE2
2071	4E54	CD564B		CALL	MOFMX2
2072	4E57	7D		LD	A,L
2073	4E58	C36D4B	L21:	JP	MOF
2074					
2075	4E5B	7B	L3:	LD	A,E
2076	4E5C	FE07		CP	IA
2077	4E5E	C0		RET	NZ
2078	4E5F	7D		LD	A,L
2079	4E60	B0		OR	B
2080	4E61	47		LD	B,A
2081	4E62	CD614B	L30:	CALL	MOFPRE
2082	4E65	C36C4B	L31:	JP	MOFB
2083					
2084	4E68	7D	L4:	LD	A,L
2085	4E69	B0		OR	B
2086	4E6A	47		LD	B,A
2087	4E6B	C3564B		JP	MOFMX2
2088					
2089	4E6E	FE64	L5:	CP	ISP*16.IHL
2090	4E70	C0		RET	NZ
2091	4E71	18F2		JR	L31
2092					
2093	4E73	7B	L6:	LD	A,E
2094	4E74	CD6D4B	L61:	CALL	MOF
2095	4E77	CD6C4B	L62:	CALL	MOFB
2096	4E7A	C3654B	L63:	JP	MOFLH
2097					
2098	4E7D	7B	L7:	LD	A,E
2099	4E7E	FE07		CP	IA
2100	4E80	28F5		JR	Z,L62
2101	4E82	C3504B	LER:	JP	E6
2102					
2103	4E85	7B	L8:	LD	A,E
2104	4E86	FE04		CP	IHL
2105	4E88	28ED		JR	Z,L62
2106	4E8A	CD614B		CALL	MOFPRE
2107	4E8D	7B		LD	A,B
2108	4E8E	EE61		XOR	61H
2109	4E90	47		LD	B,A
2110	4E91	CD564B		CALL	MOFMX2
2111	4E94	C3654B		JP	MOFLH
2112					
2113	4E97	7B	L9:	LD	A,E
2114	4E98	FE06		CP	ISP
2115	4E9A	C0		RET	NZ
2116	4E9B	60		LD	H,B
2117	4E9C	18DC		JR	L63
2118					
2119	4E9E	CD484B	LA:	CALL	LITTLE2
2120	4EA1	7A		LD	A,D
2121	4EA2	65		LD	H,L
2122	4EA3	6B		LD	L,E

2123 4EA4 18CE		JR	L61
2124			
2125 4EA6 CD564B	LB:	CALL	MOFMX2
2126 4EA9 18CF		JR	L63
2127			
2128 4EAB CD694B	LC:	CALL	MOFH
2129 4EAE CDC24E		CALL	LE1
2130 4EB1 7D		LD	A,L
2131 4EB2 18A4		JR	L21
2132			
2133 4EB4 FE07	LE:	CP	IBC*16.1A
2134 4EB6 28AD		JR	Z,L31
2135 4EB8 CBE0		SET	4,B
2136 4EBA FE27		CP	IDC*16.1A
2137 4EBC 28A7		JR	Z,L31
2138 4EBE 7D		LD	A,L
2139 4EBF FE04		CP	IHL
2140 4EC1 C0		RET	NZ
2141 4EC2 CB58	LE1:	BIT	3,B
2142 4EC4 0646		LD	B,46H
2143 4EC6 C2564B		JP	NZ,MOFMX2
2144 4EC9 7B		LD	A,E
2145 4ECA F670		OR	70H
2146 4ECC 188A		JR	L21
2147			
2148 4ECE CD444B	RSTH:	CALL	LITTLE
2149 4ED1 2003		JR	NZ,RST2
2150 4ED3 7D		LD	A,L
2151 4ED4 A0		AND	B
2152 4ED5 C0		RET	NZ
2153 4ED6 78	RST2:	LD	A,B
2154 4ED7 B5		OR	L
2155 4ED8 C36D4B		JP	MOF
2156			
2157 4EDB FE09	RETH:	CP	CC
2158 4EDD 28F7		JR	Z,RST2
2159 4EDF 06C9		LD	B,0C9H
2160 4EE1 FE0B		CP	EOL
2161 4EE3 1811		JR	JMP21
2162			
2163 4EE5 03	JMFTAB:	DB	JL
2164 4EE6 6B		DB	XYI*16.EOL
2165 4EE7 5B		DB	RPI*16.EOL
2166 4EE8 00		DB	0
2167 4EE9 03		DB	JMP1-#-JL
2168 4EEA 06		DB	JMP2-#-JL
2169 4EEB 10		DB	JMP3-#-JL
2170 4EEC E9E9C3		DB	0E9H,0E9H,0C3H
2171			
2172 4EEF 60	JMP1:	LD	H,B
2173 4EF0 C3654B		JP	MOFLH
2174 4EF3 7D	JMP2:	LD	A,L
2175 4EF4 FE04		CP	IHL
2176 4EF6 C0	JMP21:	RET	NZ
2177 4EF7 C36C4B		JP	MOFB
2178			
2179 4EFA 01	CALTAB:	DB	CL
2180 4EFB 00		DB	0
2181 4EFC 01		DB	JMP3-#-CL
2182 4EFD CD		DB	0CDH

2183			
2184	4EFD 79	JMP3:	LD A,C
2185	4EFF FC3B		CP NO*16,EOL
2186	4F01 CA774E		JP Z,L62
2187	4F04 FE93		CP CC*16,NO
2188	4F06 00		RET NZ
2189	4F07 73		LD A,B
2190	4F08 F6C6		AND 0C6H
2191	4F0A B5		OR L
2192	4F0B 47		LD B,A
2193	4F0C E6		EX DE,HL
2194	4F0D C3774E		JP L62
2195			
2196	4F10 FE01	PPH:	CP RP
2197	4F12 200B		JR NZ,PP2
2198	4F14 7D		LD A,L
2199	4F15 F606		CP ISF
2200	4F17 CAC04B		JP Z,E6
2201	4F1A DB7D		RES 3,L
2202	4F1C C3554B		JP MOFMIX
2203	4F1E FE02	PP2:	CP XY
2204	4F21 00		RET NZ
2205	4F22 CDEB	FP21:	SET S,B
2206	4F24 00		LD H,B
2207	4F25 C3654B		JP MOFLH
2208			
2209	4F28 CD444B	IMH:	CALL LITLE
2210	4F2B 2004		JR NZ,IM2
2211	4F2D 3E02		LD A,2
2212	4F2F 95		SUB L
2213	4F30 09		RET C
2214	4F31 11374F	IM2:	LD DE,IMTAB
2215	4F34 19		ADD HL,DE
2216	4F35 46		LD B,(HL)
2217	4F36 C3624E		JP L30
2218			
2219	4F39 46565E	IMTAB:	DB 46H,56H,5EH
2220			
2221	4F3C FE22	INCH:	CP XY
2222	4F3E 2B62		JR Z,PP21
2223	4F40 FE01		CP RP
2224	4F42 C4554B		JP Z,MOFMIX
2225	4F45 CF50		BIT 3,B
2226	4F47 0634		LD B,34H
2227	4F49 2B01		JR Z,INC2
2228	4F4B 04		INC B
2229	4F4D 57	INC2:	OR A
2230	4F4D 205A		JR NZ,ML2
2231	4F4F 7B		LD A,B
2232	4F50 E6C7		AND 0C7H
2233	4F52 47		LD B,A
2234	4F53 C3554B		JP MOFMIX
2235			
2236	4F56 02	ADCTAB:	DB AL
2237	4F57 11		DB RP*16,RP
2238	4F5B 00		DB 0
2239	4F59 16		DB DL1-\$-AL
2240	4F5A B3		DB DL5-\$-AL.S
2241	4F5B 4ABE		DB 4AH,8EH
2242			

2243 4F5D 02	SECTAB:	DB	SBL
2244 4F5E 11		DB	RP*16.RP
2245 4F5F 00		DB	0
2246 4F60 0F		DB	DL1-#-SBL
2247 4F61 AC		DB	DL5-#-SBL.S
2248 4F62 429E		DB	42H,9EH
2249			
2250 4F64 04	ADDTAB:	DB	ADL
2251 4F65 11		DB	RP*16.RP
2252 4F66 21		DB	XY*16.RP
2253 4F67 22		DB	XY*16.XY
2254 4F68 00		DB	0
2255 4F69 07		DB	DL2-#-ADL
2256 4F6A 0D		DB	DL3-#-ADL
2257 4F6B 19		DB	DL4-#-ADL
2258 4F6C 9F		DB	DL5-#-ADL.S
2259 4F6D 09092986		DB	9,9,29H,36H
2260			
2261 4F71 CD614B	DL1:	CALL	MOFFRE
2262 4F74 7D	DL2:	LD	A,L
2263 4F75 FE04		CP	IHL
2264 4F77 C0		RET	NZ
2265 4F78 C3564B		JP	MOFMX2
2266			
2267 4F7B 7B	DL3:	LD	A,E
2268 4F7C FE04		CP	IHL
2269 4F7E CA504B		JP	Z,E6
2270 4F81 7D		LD	A,L
2271 4F82 CD6D4B		CALL	MOF
2272 4F85 C3564B		JP	MOFMX2
2273			
2274 4F88 7B	DL4:	LD	A,E
2275 4F89 8D		CP	L
2276 4F8A 60		LD	H,B
2277 4F8B C0		RET	NZ
2278 4F8C C3654B		JP	MOFLH
2279			
2280 4F8F 79	DL5:	LD	A,C
2281 4F90 E6F0		AND	0F0H
2282 4F92 C0		RET	NZ
2283 4F93 CB53		BIT	2,E
2284 4F95 CA504B		JP	Z,E6
2285 4F98 79		LD	A,C
2286 4F99 E60F		AND	0FH
2287			
2288 4F9B FE03	ML1:	CP	NO
2289 4F9D 200A		JR	NZ,ML2
2290 4F9F CBF0		SET	A,B
2291 4FA1 CD484B	ML11:	CALL	LITTLE2
2292 4FA4 65	ML12:	LD	H,L
2293 4FA5 68		LD	L,B
2294 4FA6 C3654B		JP	MOFLH
2295			
2296 4FA9 FE0A	ML2:	CP	XYD
2297 4FAB 2005		JR	NZ,ML3
2298 4FAD CD694B		CALL	MOFH
2299 4FB0 18F2		JR	ML12
2300			
2301 4FB2 FE05	ML3:	CP	RPI
2302 4FB4 CAF34E		JP	Z,JMP2

2303	4FB7	B7		OR	A
2304	4FB8	C0		RET	NZ
2305	4FB9	78		LD	A,E
2306	4FBA	E6F8		AND	0F8H
2307	4FBC	B5		OR	L
2308	4FBD	C36D4B		JP	MOF
2309					
2310	4FC0	CD444B	B1TH:	CALL	LITLE
2311	4FC3	2004		JR	NZ,BIT2
2312	4FC5	3E07		LD	A,7
2313	4FC7	95		SUB	L
2314	4FC8	D8		RET	C
2315	4FC9	7D	BIT2:	LD	A,L
2316	4FCA	07		RLCA	
2317	4FCB	07		RLCA	
2318	4FCC	07		RLCA	
2319	4FCD	B0		OR	B
2320	4FCE	47		LD	B,A
2321	4FCF	CD9B4B		CALL	PARSER
2322					
2323	4FD2	FE0A	SRH:	CP	XYD
2324	4FD4	200C		JR	NZ,SR2
2325	4FD6	E5		PUSH	HL
2326	4FD7	6C		LD	L,H
2327	4FDB	26CB		LD	H,0CBH
2328	4FDA	CD654B		CALL	MOFLH
2329	4FDD	E1		POP	HL
2330	4FDE	60		LD	H,B
2331	4FDF	C3654B		JP	MOFLH
2332					
2333	4FE2	F5	SR2:	PUSH	AF
2334	4FE3	3ECB		LD	A,0CBH
2335	4FE5	CD6D4B		CALL	MOF
2336	4FE8	F1		POP	AF
2337	4FE9	18C7		JR	ML3
2338					
2339	4FEB	03	INTAB:	DB	INL
2340	4FEC	07		DB	TR*16,NOI
2341	4FED	04		DB	TR*16,TRI
2342	4FEE	00		DB	0
2343	4FEF	8D		DB	IO1--\$-INL.S
2344	4FF0	93		DB	IO2--\$-INL.S
2345	4FF1	19		DB	IOER--\$-INL
2346	4FF2	DB4000		DB	0DBH,40H,0
2347					
2348	4FF5	03	OUTAB:	DB	OL
2349	4FF6	70		DB	NOI*16,TR
2350	4FF7	40		DB	TRI*16,TR
2351	4FF8	00		DB	0
2352	4FF9	03		DB	IO1--\$-OL
2353	4FFA	09		DB	IO2--\$-OL
2354	4FFB	0F		DB	IOER--\$-OL
2355	4FFC	D34100		DB	0D3H,41H,0
2356					
2357	4FFF	CB53	IO1:	BIT	2,E
2358	5001	280A		JR	Z,IOER
2359	5003	C3A14F		JP	ML11
2360	5006	CD614B	IO2:	CALL	MOFPRE
2361	5009	2D		DEC	L
2362	500A	CA564B		JP	Z,MOFMX2

2363	500D C3504B	IOER:	JP	E6
2364				
2365	5010 04	XTAB:	DB	XL
2366	5011 11		DB	RP*16.RP
2367	5012 51		DB	RPI*16.RP
2368	5013 52		DB	RPI*16.XY
2369	5014 00		DB	0
2370	5015 04		DB	X1- 3 -XL
2371	5016 11		DB	X2- 3 -XL
2372	5017 93		DB	X3- 3 -XL.S
2373	5018 0D		DB	XER- 3 -XL
2374	5019 EBE3E300		DB	0EBH,0E3H,0E3H,0
2375				
2376	501D FE24	X1:	CP	IDF*16.IHL
2377	501F CA6C4B		JP	Z,MOFB
2378	5022 0608		LD	B,8
2379	5024 FEEE		CP	IAF*16.IAF
2380	5026 CA6C4B		JP	Z,MOFE
2381	5029 18E2	XER:	JR	IOER
2382				
2383	502B C36E4E	X2:	JP	L5
2384				
2385	502E C3974E	X3:	JP	L9
2386				
2387	5031 6550	KEYTB:	DW	AOPS
2388	5033 7250		DW	BOPS
2389	5035 7750		DW	COPS
2390	5037 9A50		DW	DOPS
2391	5039 C350		DW	EOPS
2392	503B D650		DW	FOPS
2393	503D D750		DW	GOPS
2394	503F D850		DW	HOPS
2395	5041 DE50		DW	IOPS
2396	5043 FB50		DW	JOPS
2397	5045 0251		DW	KOPS
2398	5047 0351		DW	LOPS
2399	5049 1E51		DW	MOPS
2400	504B 1F51		DW	NOPS
2401	504D 2851		DW	OOPS
2402	504F 4851		DW	POPS
2403	5051 5251		DW	QOPS
2404	5053 5351		DW	ROPS
2405	5055 9251		DW	SOPS
2406	5057 AF51		DW	TOPS
2407	5059 B051		DW	UOPS
2408	505B B151		DW	VOPS
2409	505D B251		DW	WOPS
2410	505F B351		DW	XOPS
2411	5061 B851		DW	YOPS
2412	5063 B951		DW	ZOPS
2413				
2414	5065 44C33200	AOPS:	DB	'D','C'+S,50,0
2415	5069 44C43000		DB	'D','D'+S,48,0
2416	506D 4EC412A6		DB	'N','D'+S,18,0A6H
2417	5071 FF		DB	0FFH
2418				
2419	5072 49D41646	BOPS:	DB	'I','T'+S,22,46H
2420	5076 FF		DB	0FFH
2421				
2422	5077 414CCCB	COPS:	DB	'AL','L'+S,40+S,0

2422	507B	00		
2423	507C	D012BE		DB 'P'+S,18,0BEH
2424	507F	43C6003F		DB 'C','F'+S,0,3FH
2425	5083	50CC002F		DB 'P','L'+S,0,2FH
2426	5087	50C902A1		DB 'P','I'+S,2,0A1H
2427	508B	5049D202		DB 'PI','R'+S,2,0B1H
2427	508F	B1		
2428	5090	50C402A9		DB 'P','D'+S,2,0A9H
2429	5094	5044D202		DB 'PD','R'+S,2,0B9H
2429	5098	B9		
2430	5099	FF		DB 0FFH
2431				
2432	509A	45C3100B	DOPS:	DB 'E','C'+S,16,0BH
2433	509E	4A4EDA0E		DB 'JN','Z'+S,14,10H
2433	50A2	10		
2434	50A3	41C10027		DB 'A','A'+S,0,27H
2435	50A7	C900F3		DB 'I'+S,0,0F3H
2436	50AA	C21A00		DB 'B'+S,26,0
2437	50AD	4546C21A		DB 'EF','B'+S,26,0
2437	50B1	00		
2438	50B2	D71900		DB 'W'+S,24,0
2439	50B5	4546D718		DB 'EF','W'+S,24,0
2439	50B9	00		
2440	50BA	D31C00		DB 'S'+S,28,0
2441	50BD	4546D31C		DB 'EF','S'+S,28,0
2441	50C1	00		
2442	50C2	FF		DB 0FFH
2443				
2444	50C3	D82C00	EDPS:	DB 'X'+S,44,0
2445	50C6	58D800D9		DB 'X','X'+S,0,0D9H
2446	50CA	C900FB		DB 'I'+S,0,0FBH
2447	50CD	51D51E00		DB 'Q','U'+S,30,0
2448	50D1	4EC404FF		DB 'N','D'+S,4,0FFH
2449	50D5	FF		DB 0FFH
2450				
2451	50D6	FF	FOPS:	DB 0FFH
2452	50D7	FF	GOPS:	DB 0FFH
2453				
2454	50D8	414CD400	HOPS:	DB 'AL','T'+S,0,76H
2454	50DC	76		
2455	50DD	FF		DB 0FFH
2456				
2457	50DE	4EC31003	IOPS:	DB 'N','C'+S,16,3
2458	50E2	CD2200		DB 'M'+S,34,0
2459	50E5	CE2E00		DB 'N'+S,46,0
2460	50E8	4EC902A2		DB 'N','I'+S,2,0A2H
2461	50EC	4E49D202		DB 'NI','R'+S,2,0B2H
2461	50F0	B2		
2462	50F1	4EC402AA		DB 'N','D'+S,2,0AAH
2463	50F5	4E44D202		DB 'ND','R'+S,2,0BAH
2463	50F9	BA		
2464	50FA	FF		DB 0FFH
2465				
2466	50FB	D28C18	JOPS:	DB 'R'+S,12+S,18H
2467	50FE	D0AA00		DB 'P'+S,42+S,0
2468	5101	FF		DB 0FFH
2469				
2470	5102	FF	KOPS:	DB 0FFH
2471				
2472	5103	C42600	LOPS:	DB 'D'+S,38,0

2473 5106 44C902A0	DB	'D', 'I'+S,2,0A0H
2474 510A 4449D202	DB	'DI', 'R'+S,2,0B0H
2474 510E B0		
2475 510F 44C402A8	DB	'D', 'D'+S,2,0A8H
2476 5113 4444D202	DB	'DD', 'R'+S,2,0B8H
2476 5117 B8		
2477 5118 4F41C424	DB	'0A', 'D'+S,36,0
2477 511C 00		
2478 511D FF	DB	0FFH
2479		
2480 511E FF	DB	0FFH
2481		
2482 511F 4FD00000	DB	'0', 'P'+S,0,0
2483 5123 45C70244	DB	'E', 'B'+S,2,44H
2484 5127 FF	DB	0FFH
2485		
2486 5128 D212B6	DB	'R'+S,18,0B6H
2487 512B 55D43600	DB	'U', 'T'+S,54,0
2488 512F 5554C902	DB	'UT', 'I'+S,2,0A3H
2488 5133 A3		
2489 5134 5449D202	DB	'TI', 'R'+S,2,0B3H
2489 5138 B3		
2490 5139 5554C402	DB	'UT', 'D'+S,2,0ABH
2490 513D AB		
2491 513E 5444D202	DB	'TD', 'R'+S,2,0BBH
2491 5142 BB		
2492 5143 52C72000	DB	'R', 'B'+S,32,0
2493 5147 FF	DB	0FFH
2494		
2495 5148 5553C80A	DB	'US', 'H'+S,10,0C5H
2495 514C C5		
2496 514D 4FD00AC1	DB	'0', 'P'+S,10,0C1H
2497 5151 FF	DB	0FFH
2498		
2499 5152 FF	DB	0FFH
2500		
2501 5153 45D488C0	DB	'E', 'T'+S,8+S,0C0H
2502 5157 53D406C7	DB	'S', 'T'+S,6,0C7H
2503 515B 45D31686	DB	'E', 'S'+S,22,86H
2504 515F CC1416	DB	'L'+S,20,16H
2505 5162 4CC31406	DB	'L', 'C'+S,20,6
2506 5166 4C43C100	DB	'LC', 'A'+S,0,7
2506 516A 07		
2507 516B 4CC10017	DB	'L', 'A'+S,0,17H
2508 516F D2141E	DB	'R'+S,20,1EH
2509 5172 52C3140E	DB	'R', 'C'+S,20,0EH
2510 5176 5243C100	DB	'RC', 'A'+S,0,0FH
2510 517A 0F		
2511 517B 52C1001F	DB	'R', 'A'+S,0,1FH
2512 517F 4CC4026F	DB	'L', 'D'+S,2,6FH
2513 5183 52C40267	DB	'R', 'D'+S,2,67H
2514 5187 4554C902	DB	'ET', 'I'+S,2,4DH
2514 518B 4D		
2515 518C 4554CE02	DB	'ET', 'N'+S,2,45H
2515 5190 45		
2516 5191 FF	DB	0FFH
2517		
2518 5192 42C33400	DB	'B', 'C'+S,52,0
2519 5196 43C60037	DB	'C', 'F'+S,0,37H
2520 519A 4CC11426	DB	'L', 'A'+S,20,26H

2521	519E	52C1142E		DB	'R','A'+S,20,2EH
2522	51A2	52CC143E		DB	'R','L'+S,20,3EH
2523	51A6	45D416C6		DB	'E','T'+S,22,0C6H
2524	51AA	55C21296		DB	'U','B'+S,18,96H
2525	51AE	FF		DB	0FFH
2526					
2527	51AF	FF	TOPS:	DB	0FFH
2528	51B0	FF	UOPS:	DB	0FFH
2529	51B1	FF	VOPS:	DB	0FFH
2530	51B2	FF	WOPS:	DB	0FFH
2531					
2532	51B3	4FD212AE	XOPS:	DB	'O','R'+S,18,0AEH
2533	51B7	FF		DB	0FFH
2534					
2535	51B8	FF	YOPS:	DB	0FFH
2536	51B9	FF	ZOPS:	DB	0FFH
2537					
2538	51BA	4EDA0009	CCODES:	DB	'N','Z'+S,INZ,CC
2539	51BE	DA0909		DB	'Z'+S,IZ,CC
2540	51C1	4EC31009		DB	'N','C'+S,INCY,CC
2541	51C5	C31809		DB	'C'+S,ICY,CC
2542	51C8	50CF2009		DB	'P','O'+S,IP0,CC
2543	51CC	50C52809		DB	'P','E'+S,IPE,CC
2544	51D0	D03009		DB	'P'+S,IPOS,CC
2545	51D3	CD3809		DB	'M'+S,IMIN,CC
2546	51D6	C20000	TREGS:	DB	'B'+S,IB,TR
2547	51D9	C30100		DB	'C'+S,IC,TR
2548	51DC	C40200		DB	'D'+S,ID,TR
2549	51DF	C50300		DB	'E'+S,IE,TR
2550	51E2	C80400		DB	'H'+S,IH,TR
2551	51E5	CC0500		DB	'L'+S,IL,TR
2552	51E8	C10700		DB	'A'+S,IA,TR
2553	51EB	42C30001	RPAIRS:	DB	'B','C'+S,IBC,RP
2554	51EF	44C50201		DB	'D','E'+S,IDE,RP
2555	51F3	48CC0401		DB	'H','L'+S,IHL,RP
2556	51F7	53D00601		DB	'S','P'+S,ISP,RP
2557	51FB	41C60E01		DB	'A','F'+S,IAF,RP
2558	51FF	49D8DD02	XYPAIRS:	DB	'I','X'+S,IIX,XY
2559	5203	49D9FD02		DB	'I','Y'+S,IYY,XY
2560	5207	C90008	REREGS:	DB	'I'+S,IINT,RE
2561	520A	D20808		DB	'R'+S,IREF,RE
2562	520D	FF		DB	0FFH
2563					
2564					
					; Disassembler
2565					
2566			ADCOP:	EQU	0*16+0
2567			ADDOP:	EQU	0*16+1
2568			ANDOP:	EQU	0*16+2
2569			BITOP:	EQU	1*16+0
2570			CALLOP:	EQU	2*16+0
2571			CPOP:	EQU	2*16+1
2572			CCFOP:	EQU	2*16+2
2573			CPLOP:	EQU	2*16+3
2574			CPIOP:	EQU	2*16+4
2575			CPIROP:	EQU	2*16+5
2576			CPDOP:	EQU	2*16+6
2577			CPDROP:	EQU	2*16+7
2578			DECOP:	EQU	3*16+0
2579			DJNZOP:	EQU	3*16+1
2580			DAAOP:	EQU	3*16+2

2581	DIOP:	EQU	3*16+3
2582	DBOP:	EQU	3*16+4
2583	EXOP:	EQU	4*16+0
2584	EXXOP:	EQU	4*16+1
2585	EIOP:	EQU	4*16+2
2586	HALTOP:	EQU	5*16+0
2587	INCOP:	EQU	6*16+0
2588	IMOP:	EQU	6*16+1
2589	INOP:	EQU	6*16+2
2590	INIOP:	EQU	6*16+3
2591	INIROP:	EQU	6*16+4
2592	INDOP:	EQU	6*16+5
2593	INDROP:	EQU	6*16+6
2594	JROP:	EQU	7*16+0
2595	JPOP:	EQU	7*16+1
2596	LDOP:	EQU	8*16+0
2597	LDIOP:	EQU	8*16+1
2598	LDIROP:	EQU	8*16+2
2599	LDDOP:	EQU	8*16+3
2600	LDDROP:	EQU	8*16+4
2601	NOPOP:	EQU	9*16+0
2602	NEGOP:	EQU	9*16+1
2603	OROP:	EQU	10*16+0
2604	OUTOP:	EQU	10*16+1
2605	OUTIOP:	EQU	10*16+2
2606	OTIROP:	EQU	10*16+3
2607	OUTDOP:	EQU	10*16+4
2608	OTDROP:	EQU	10*16+5
2609	PUSHOP:	EQU	11*16+0
2610	POPOP:	EQU	11*16+1
2611	RETOP:	EQU	12*16+0
2612	RSTOP:	EQU	12*16+1
2613	RESOP:	EQU	12*16+2
2614	RLOP:	EQU	12*16+3
2615	RLCOP:	EQU	12*16+4
2616	RLCAOP:	EQU	12*16+5
2617	RLAOP:	EQU	12*16+6
2618	RROP:	EQU	12*16+7
2619	RRCOP:	EQU	12*16+8
2620	RRCOAOP:	EQU	12*16+9
2621	RRAOP:	EQU	12*16+10
2622	RLDOP:	EQU	12*16+11
2623	RRDOP:	EQU	12*16+12
2624	RETIOP:	EQU	12*16+13
2625	RETNOP:	EQU	12*16+14
2626	SBCOP:	EQU	13*16+0
2627	SCFOP:	EQU	13*16+1
2628	SLAOP:	EQU	13*16+2
2629	SRAOP:	EQU	13*16+3
2630	SRLOP:	EQU	13*16+4
2631	SETOP:	EQU	13*16+5
2632	SUBOP:	EQU	13*16+6
2633	XOROP:	EQU	14*16+0
2634			
2635	520E CDBD47	DASM:	CALL STARTSTOP
2636	5211 2B		DEC HL
2637	5212 E5		PUSH HL
2638	5213 19		ADD HL,DE
2639	5214 ED53F940		LD (DSTART),DE
2640	5218 22FB40		LD (DSTOP),HL

2641	521B	2E2D		LD	L,M11&255
2642	521D	0DA847		CALL	PARAMETER
2643	5220	3001		JR	NC,DSM2
2644	5222	EB		EX	DE,HL
2645	5223	22FF40	DSM2:	LD	(DRSTART),HL
2646	5226	D!		POP	DE
2647	5227	19		ADD	HL,DE
2648	5228	220141		LD	(DRSTOP),HL
2649	522B	213C59		LD	HL,AEND+1
2650	522E	22E940		LD	(FEP),HL
2651	5231	36FF		LD	(HL),0FFH
2652	5233	23		INC	HL
2653	5234	220541		LD	(DEOAP),HL
2654	5237	2A0741		LD	HL,(DSOSP)
2655	523A	220941		LD	(DEOSP),HL
2656	523D	CD8052		CALL	GETAREAS
2657	5240	CD1C49		CALL	GETOPTION
2658	5243	CD4A52		CALL	DPASS
2659	5246	DDCB00AE		RES	5,(IX+F1)
2660	524A	2AF940	DPASS:	LD	HL,(DSTART)
2661	524D	FD2AFF40		LD	IY,(DRSTART)
2662	5251	22FD40	DPS2:	LD	(DIP),HL
2663	5254	FD220341		LD	(DRIP),IY
2664	5258	CD3149		CALL	HOLD
2665	525B	DDCB03E6		SET	4,(IX+F4)
2666	525F	CD1853		CALL	DINSTR
2667	5262	DDCB006E		BIT	5,(IX+F1)
2668	5266	CCD052		CALL	Z,DLIST
2669	5269	ED5BFD40		LD	DE,(DIP)
2670	526D	E5	DPS3:	PUSH	HL
2671	526E	2AFB40		LD	HL,(DSTOP)
2672	5271	B7		OR	A
2673	5272	ED52		SBC	HL,DE
2674	5274	E1		POP	HL
2675	5275	C8		RET	Z
2676	5276	13		INC	DE
2677	5277	E5		PUSH	HL
2678	5278	B7		OR	A
2679	5279	ED52		SBC	HL,DE
2680	527B	E1		POP	HL
2681	527C	20EF		JR	NZ,DPS3
2682	527E	18D1		JR	DPS2
2683					
2684	5280	2E21	GETAREAS:	LD	L,M9&255
2685	5282	CD1C46		CALL	PR2
2686	5285	ED5B0541	GTA2:	LD	DE,(DEOAP)
2687	5289	13		INC	DE
2688	528A	13		INC	DE
2689	528B	13		INC	DE
2690	528C	13		INC	DE
2691	528D	2A0741		LD	HL,(DSOSP)
2692	5290	B7		OR	A
2693	5291	ED52		SBC	HL,DE
2694	5293	DA2754		JP	C,E4
2695	5296	CDBD47		CALL	STARTSTOP
2696	5299	2B		DEC	HL
2697	529A	ED5A		ADC	HL,DE
2698	529C	C8		RET	Z
2699	529D	E5		PUSH	HL
2700	529E	2A0541		LD	HL,(DEOAP)

2701	52A1	73		LD	(HL),E
2702	52A2	23		INC	HL
2703	52A3	72		LD	(HL),D
2704	52A4	23		INC	HL
2705	52A5	D1		POP	DE
2706	52A6	73		LD	(HL),E
2707	52A7	23		INC	HL
2708	52A8	72		LD	(HL),D
2709	52A9	23		INC	HL
2710	52AA	220541		LD	(DEDP),HL
2711	52AD	18D6		JR	GT A2
2712					
2713	52AF	3804	UNSCRAMBLE:	JR	C,UM2
2714	52B1	ED43FD40		LD	(DIP),BC
2715	52B5	2AFD40	UM2:	LD	HL,(DIP)
2716	52B8	0609		LD	B,9
2717	52BA	22FD40	UM3:	LD	(DIP),HL
2718	52BD	220341		LD	(DRIP),HL
2719	52C0	05		DEC	B
2720	52C1	C8		RET	Z
2721	52C2	C5		PUSH	BC
2722	52C3	DDCB03A6		RES	4,(IX+F4)
2723	52C7	CD1853		CALL	DINSTR
2724	52CA	CDD052		CALL	DLIST
2725	52CD	C1		POP	BC
2726	52CE	18EA		JR	UM3
2727					
2728	52D0	DDCB0076	DLIST:	BIT	6,(IX+F1)
2729	52D4	2829		JR	Z,DLS3
2730	52D6	3E81		LD	A,81H
2731	52D8	DDCB0366		BIT	4,(IX+F4)
2732	52DC	2002		JR	NZ,DLS2
2733	52DE	3EC1		LD	A,0C1H
2734	52E0	DD7701	DLS2:	LD	(IX+F2),A
2735	52E3	E5		PUSH	HL
2736	52E4	FDE5		PUSH	IY
2737	52E6	2AFD40		LD	HL,(DIP)
2738	52E9	115441		LD	DE,TBUFF
2739	52EC	010400		LD	BC,4
2740	52EF	EDB0		LDIR	
2741	52F1	ED53E740		LD	(TEMP),DE
2742	52F5	2A0341		LD	HL,(DRIP)
2743	52F8	CD0F4A		CALL	LIST
2744	52FB	FDE1		POP	IY
2745	52FD	E1		POP	HL
2746	52FE	C9		RET	
2747	52FF	E5	DLS3:	PUSH	HL
2748	5300	215841		LD	HL,TBUFF+4
2749	5303	E5		PUSH	HL
2750	5304	CD5548		CALL	NX0
2751	5307	2AE140		LD	HL,(EOFF)
2752	530A	E5		PUSH	HL
2753	530B	CD3D48		CALL	MEMCHECK
2754	530E	D1		POP	DE
2755	530F	E1		POP	HL
2756	5310	EDB0		LDIR	
2757	5312	ED53E140		LD	(EOFF),DE
2758	5316	E1		POP	HL
2759	5317	C9		RET	
2760					

2761 5318 CD2656	DINSTR:	CALL DECODE
2762 5318 CD5D53		CALL CHKHL
2763 531E CD7D53		CALL CHKXY
2764 5321 CDBE53		CALL CHKOPD
2765 5324 23		INC HL
2766 5325 D5		PUSH DE
2767 5326 E5		PUSH HL
2768 5327 ED5BFD40		LD DE, (DIP)
2769 532B B7		OR A
2770 532C ED52		SBC HL, DE
2771 532E DD7502		LD (IX+F3), L
2772 5331 FD2A0341		LD IY, (DRIP)
2773 5335 EB		EX DE, HL
2774 5336 FD19		ADD IY, DE
2775 533B E1		POP HL
2776 5339 D1		POP DE
2777 533A DDCB006E		BIT 5, (IX+F1)
2778 533E C0		RET NZ
2779 533F CD9054		CALL DLABEL
2780 5342 F5		PUSH AF
2781 5343 CDC254		CALL DOUTOPT
2782 5346 3E20		LD A, BLANK
2783 5348 CDDA55		CALL DOUT
2784 534B 78		LD A, B
2785 534C CDFAS4		CALL DOUTOPD
2786 534F CDB554		CALL COMMA
2787 5352 79		LD A, C
2788 5353 CDFAS4		CALL DOUTOPD
2789 5356 3E0D		LD A, CR
2790 5358 CDDA55		CALL DOUT
2791 535B F1		POP AF
2792 535C C9		RET
2793		
2794 535D F5	CHKHL:	PUSH AF
2795 535E 78		LD A, B
2796 535F CD6A53		CALL SWAPHL
2797 5362 47		LD B, A
2798 5363 79		LD A, C
2799 5364 CD6A53		CALL SWAPHL
2800 5367 4F		LD C, A
2801 5368 F1		POP AF
2802 5369 C9		RET
2803		
2804 536A FE06	SWAPHL:	CP TR*16+6
2805 536C C0		RET NZ
2806 536D 3E54		LD A, RPI*16+IHL
2807 536F DDCB034E		BIT 1, (IX+F4)
2808 5373 C8		RET Z
2809 5374 3EA0		LD A, XYD*16
2810 5376 DDCB0356		BIT 2, (IX+F4)
2811 537A C0		RET NZ
2812 537B 23		INC HL
2813 537C C9		RET
2814		
2815 537D DDCB034E	CHKXY:	BIT 1, (IX+F4)
2816 5381 C8		RET Z
2817 5382 F5		PUSH AF
2818 5383 78		LD A, B
2819 5384 CDA053		CALL SWAPXY
2820 5387 47		LD B, A

2821	5388	79		LD	A,C
2822	5389	CDA053		CALL	SWAPXY
2823	538C	4F		LD	C,A
2824	538D	F1		POP	AF
2825	538E	DDCB035E		BIT	3,(IX+F4)
2826	5392	2809		JR	Z,CXY2
2827	5394	FE40		CP	EXOP
2828	5396	C0		RET	NZ
2829	5397	78		LD	A,B
2830	5398	FE12		CP	RP*16+IDE
2831	539A	3E40		LD	A,EXOP
2832	539C	C0		RET	NZ
2833	539D	3E34	CXY2:	LD	A,DBOP
2834	539F	C9		RET	
2835					
2836	53A0	C5	SWAPXY:	PUSH	BC
2837	53A1	47		LD	B,A
2838	53A2	FEA0		CP	XYD*16
2839	53A4	280C		JR	Z,SXY2
2840	53A6	0620		LD	E,XY*16
2841	53A8	FE14		CP	RP*16+IHL
2842	53AA	2806		JR	Z,SXY2
2843	53AC	0660		LD	B,XYI*16
2844	53AE	FE54		CP	RPI*16+IHL
2845	53B0	200A		JR	NZ,SXY3
2846	53B2	DDCB03DE	SXY2:	SET	3,(IX+F4)
2847	53B6	DD7E03		LD	A,(IX+F4)
2848	53B9	E601		AND	1
2849	53BB	B0		OR	B
2850	53BC	C1	SXY3:	POP	BC
2851	53BD	C9		RET	
2852					
2853	53BE	FD2AFD40	CHKOPD:	LD	IY,(DIP)
2854	53C2	FD5602		LD	D,(IY+2)
2855	53C5	FE61		CP	IMOP
2856	53C7	C8		RET	Z
2857	53C8	FEC1		CP	RSTOP
2858	53CA	C8		RET	Z
2859	53CB	FE10		CP	BITOP
2860	53CD	C8		RET	Z
2861	53CE	FED5		CP	SETOP
2862	53D0	C8		RET	Z
2863	53D1	FEC2		CP	RESOP
2864	53D3	C8		RET	Z
2865	53D4	F5		PUSH	AF
2866	53D5	CDDA53		CALL	GETOPD
2867	53D8	F1		POP	AF
2868	53D9	C9		RET	
2869					
2870	53DA	FE34	GETOPD:	CP	DBOP
2871	53DC	2008		JR	NZ,6D2
2872	53DE	01B0C0		LD	BC,TN0*256+EOL*16
2873	53E1	2AFD40		LD	HL,(DIP)
2874	53E4	5E		LD	E,(HL)
2875	53E5	C9		RET	
2876	53E6	FE70	6D2:	CP	JROP
2877	53E8	2804		JR	Z,6D22
2878	53EA	FE31		CP	DJNZOP
2879	53EC	2005		JR	NZ,6D3
2880	53EE	CD2C54	6D22:	CALL	OFFSET

2881 53F1 1810		JR	GD5
2882 53F3 CD4B54	GD3:	CALL	CHKTN0
2883 53F6 2003		JR	NZ, GD4
2884 53F8 23		INC	HL
2885 53F9 5E		LD	E, (HL)
2886 53FA C9		RET	
2887 53FB CD3F54	GD4:	CALL	CHKND
2888 53FE C0		RET	NZ
2889 53FF 23		INC	HL
2890 5400 5E		LD	E, (HL)
2891 5401 23		INC	HL
2892 5402 56		LD	D, (HL)
2893 5403 DDCB006E	GD5:	BIT	5, (IX+F1)
2894 5407 C8		RET	Z
2895 5408 CD5754		CALL	DBOUND
2896 540B D8		RET	C
2897 540C CD6B54		CALL	DSYMSCH
2898 540F D0		RET	NC
2899 5410 E5		PUSH	HL
2900 5411 2A0941		LD	HL, (DEOSP)
2901 5414 E5		PUSH	HL
2902 5415 23		INC	HL
2903 5416 23		INC	HL
2904 5417 23		INC	HL
2905 5418 CD3248		CALL	SOF
2906 541B 380A		JR	C, E4
2907 541D E1		POP	HL
2908 541E 73		LD	(HL), E
2909 541F 23		INC	HL
2910 5420 72		LD	(HL), D
2911 5421 23		INC	HL
2912 5422 220941		LD	(DEOSP), HL
2913 5425 E1		POP	HL
2914 5426 C9		RET	
2915			
2916 5427 2E3F	E4:	LD	L, M14&255
2917 5429 C31446		JP	ERR
2918			
2919 542C 23	OFFSET:	INC	HL
2920 542D 1600		LD	D, 0
2921 542F 5E		LD	E, (HL)
2922 5430 E5		PUSH	HL
2923 5431 2A0341		LD	HL, (DRIP)
2924 5434 23		INC	HL
2925 5435 23		INC	HL
2926 5436 CB7B		BIT	7, E
2927 5438 2801		JR	Z, OFS2
2928 543A 15		DEC	D
2929 543B 19	OFS2:	ADD	HL, DE
2930 543C EB		EX	DE, HL
2931 543D E1		POP	HL
2932 543E C9		RET	
2933			
2934 543F 78	CHKND:	LD	A, B
2935 5440 CD4554		CALL	CKN2
2936 5443 C8		RET	Z
2937 5444 79		LD	A, C
2938 5445 FE30	CKN2:	CP	NO*16
2939 5447 C8		RET	Z
2940 5448 FE70		CP	NOI*16

2941	544A	C9		RET
2942				
2943	544B	78	CHKTNO:	LD A,B
2944	544C	CD5154		CALL CKTN2
2945	544F	C8		RET Z
2946	5450	79		LD A,C
2947	5451	FEC0	CKTN2:	CP TNO*16
2948	5453	C8		RET Z
2949	5454	FED0		CP TNOI*16
2950	5456	C9		RET
2951				
2952	5457	E5	DBOUND:	PUSH HL
2953	5458	D5		PUSH DE
2954	5459	EB		EX DE,HL
2955	545A	ED5BFF40		LD DE,(DRSTART)
2956	545E	B7		OR A
2957	545F	ED52		SBC HL,DE
2958	5461	D1		POP DE
2959	5462	3805		JR C,DBD2
2960	5464	2A0141		LD HL,(DRSTOP)
2961	5467	ED52		SBC HL,DE
2962	5469	E1	DBD2:	POP HL
2963	546A	C9		RET
2964				
2965	546B	DDCB0366	DSYMSCH:	BIT 4,(IX+F4)
2966	546F	37		SCF
2967	5470	C8		RET Z
2968	5471	C5		PUSH BC
2969	5472	E5		PUSH HL
2970	5473	2A0741		LD HL,(DSOSP)
2971	5476	ED4E0941	DSS2:	LD BC,(DEOSP)
2972	547A	B7		OR A
2973	547B	ED42		SBC HL,BC
2974	547D	09		ADD HL,BC
2975	547E	37		SCF
2976	547F	280C		JR Z,DSS3
2977	5481	4E		LD C,(HL)
2978	5482	23		INC HL
2979	5483	46		LD B,(HL)
2980	5484	23		INC HL
2981	5485	EB		EX DE,HL
2982	5486	B7		OR A
2983	5487	ED42		SBC HL,BC
2984	5489	09		ADD HL,BC
2985	548A	EB		EX DE,HL
2986	548B	20E9		JR NZ,DSS2
2987	548D	E1	DSS3:	POP HL
2988	548E	C1		POP BC
2989	548F	C9		RET
2990				
2991	5490	F5	DLABEL:	PUSH AF
2992	5491	D5		PUSH DE
2993	5492	E5		PUSH HL
2994	5493	215841		LD HL,TBUFF+4
2995	5496	22E740		LD (TEMP),HL
2996	5499	ED5B0341		LD DE,(DRIP)
2997	549D	CD6B54		CALL DSYMSCH
2998	54A0	3E00		LD A,0
2999	54A2	380A		JR C,DLB2
3000	54A4	CD8855		CALL DN2

3001	54A7	3E3A		LD	A, ' '
3002	54A9	CDDA55		CALL	DOUT
3003	54AC	3E06		LD	A, 6
3004	54AE	DD7706	DLB2:	LD	(IX+F7), A
3005	54B1	E1		POP	HL
3006	54B2	D1		POP	DE
3007	54B3	F1		POP	AF
3008	54B4	C9		RET	
3009					
3010	54B5	78	COMMA:	LD	A, B
3011	54B6	FEB0		CP	EOL*16
3012	54B8	C8		RET	Z
3013	54B9	79		LD	A, C
3014	54BA	FEB0		CP	EOL*16
3015	54BC	C8		RET	Z
3016	54BD	3E2C		LD	A, ' '
3017	54BF	C3DA55		JP	DOUT
3018					
3019	54C2	C5	DOUTOPT:	PUSH	BC
3020	54C3	D5		PUSH	DE
3021	54C4	E5		PUSH	HL
3022	54C5	47		LD	B, A
3023	54C6	CDDC54		CALL	GETKEY
3024	54C9	CDEB54		CALL	KEYADDR
3025	54CC	C641		ADD	A, 'A'
3026	54CE	CDDA55		CALL	DOUT
3027	54D1	CDS055		CALL	DC2
3028	54D4	0C		INC	C
3029	54D5	DD7105		LD	(IX+F6), C
3030	54D8	E1		POP	HL
3031	54D9	D1		POP	DE
3032	54DA	C1		POP	BC
3033	54DB	C9		RET	
3034					
3035	54DC	211756	GETKEY:	LD	HL, KEYTRAN
3036	54DF	0F	GK2:	RRCA	
3037	54E0	0F		RRCA	
3038	54E1	0F		RRCA	
3039	54E2	0F		RRCA	
3040	54E3	E60F		AND	0FH
3041	54E5	5F		LD	E, A
3042	54E6	1600		LD	D, 0
3043	54E8	19		ADD	HL, DE
3044	54E9	7E		LD	A, (HL)
3045	54EA	C9		RET	
3046					
3047	54EB	213150	KEYADDR:	LD	HL, KEYTB
3048	54EE	D5		PUSH	DE
3049	54EF	5F		LD	E, A
3050	54F0	1600		LD	D, 0
3051	54F2	19		ADD	HL, DE
3052	54F3	19		ADD	HL, DE
3053	54F4	5E		LD	E, (HL)
3054	54F5	23		INC	HL
3055	54F6	56		LD	D, (HL)
3056	54F7	EB		EX	DE, HL
3057	54F8	D1		POP	DE
3058	54F9	C9		RET	
3059					
3060	54FA	C5	DOUTOPD:	PUSH	BC

3061	54FB	D5		PUSH	DE
3062	54FC	E5		PUSH	HL
3063	54FD	47		LD	R,A
3064	54FE	CDE555		CALL	CHKIND
3065	5501	F5		PUSH	AF
3066	5502	3E28		LD	A,'('
3067	5504	CCDA55		CALL	Z,DOUT
3068	5507	CD1455		CALL	DOPD
3069	550A	F1		POP	AF
3070	550B	3E29		LD	A,'('
3071	550D	CCDA55		CALL	Z,DOUT
3072	5510	E1		POP	HL
3073	5511	D1		POP	DE
3074	5512	C1		POP	BC
3075	5513	C9		RET	
3076					
3077	5514	D5	DOPD:	PUSH	DE
3078	5515	212055		LD	HL,DOPDTAB
3079	5518	78		LD	A,B
3080	5519	CDDF54		CALL	GK2
3081	551C	5F		LD	E,A
3082	551D	19		ADD	HL,DE
3083	551E	D1		POP	DE
3084	551F	E9		JP	(HL)
3085					
3086	5520	0E	DOPDTAB:	DB	DCTR-#
3087	5521	1A		DB	DORP-#
3088	5522	28		DB	DOXY-#
3089	5523	56		DB	DOND-#
3090	5524	0A		DB	DCTR-#
3091	5525	16		DB	DORP-#
3092	5526	24		DB	DOXY-#
3093	5527	52		DB	DOND-#
3094	5528	27		DB	DORP-#
3095	5529	31		DB	DCCC-#
3096	552A	3A		DB	DOXYD-#
3097	552B	E9		DB	GUT2-#
3098	552C	68		DB	DOTNO-#
3099	552D	83		DB	DOTNOI-#
3100					
3101	552E	21D651	DCTR:	LD	HL,TREGS
3102	5531	78		LD	A,B
3103	5532	E60F		AND	0FH
3104	5534	FE07		CP	1A
3105	5536	2026		JR	NZ,DC3
3106	5538	3D		DEC	A
3107	5539	1923		JR	DC3
3108					
3109	553B	21EB51	DORP:	LD	HL,PPAIRS
3110	553E	78		LD	A,B
3111	553F	E60F		AND	0FH
3112	5541	0F		RRCA	
3113	5542	FE07		CP	1AF/2
3114	5544	2018		JR	NZ,DC3
3115	5546	3E04		LD	A,4
3116	5548	1814		JR	DC3
3117					
3118	554A	21FF51	DOXY:	LD	HL,XYPAIRS
3119	554D	180E		JR	DC2
3120					

3121 554F 210752	DORE:	LD	HL, RERE6S
3122 5552 78		LD	A, B
3123 5553 E60F		AND	0FH
3124 5555 0F		RRCA	
3125 5556 0F		RRCA	
3126 5557 0F		RRCA	
3127 5558 1804		JR	DC3
3128			
3129 555A 21BA51	DOCC:	LD	HL, CCODES
3130 555D 78	DC2:	LD	A, B
3131 555E CDFAS5	DC3:	CALL	IDFIND
3132 5561 C30856		JP	IDOUT
3133			
3134 5564 CD4A55	DOXYD:	CALL	DOXY
3135 5567 3E2B		LD	A, '+'
3136 5569 CB7A		BIT	7, D
3137 556B 2806		JR	Z, DXD2
3138 556D 7A		LD	A, D
3139 556E ED44		NEG	
3140 5570 57		LD	D, A
3141 5571 3E2D		LD	A, '-'
3142 5573 CDDA55	DXD2:	CALL	DOUT
3143 5576 7A		LD	A, D
3144 5577 1838		JR	DTNI2
3145			
3146 5579 CD6B54	DONO:	CALL	DSYMSCH
3147 557C 300A		JR	NC, DN2
3148 557E 7A		LD	A, D
3149 557F CDC055		CALL	DOUTH8
3150 5582 7B		LD	A, E
3151 5583 CDC955		CALL	DHB2
3152 5586 1834		JR	DTNI4
3153 5588 3E4C	DN2:	LD	A, 'L'
3154 558A CDDA55		CALL	DOUT
3155 558D 7A		LD	A, D
3156 558E CDC955		CALL	DHB2
3157 5591 7B		LD	A, E
3158 5592 1835		JR	DHB2
3159			
3160 5594 7B	DOTNO:	LD	A, E
3161 5595 FE41		CP	'A'
3162 5597 3817		JR	C, DOTNOI
3163 5599 FESB		CP	'Z'+1
3164 559B 3808		JR	C, DTN2
3165 559D FE61		CP	'a'
3166 559F 380F		JR	C, DOTNOI
3167 55A1 FE7B		CP	'z'+1
3168 55A3 300B		JR	NC, DOTNOI
3169 55A5 CDAC55	DTN2:	CALL	DTN3
3170 55A8 7B		LD	A, E
3171 55A9 CDDA55		CALL	DOUT
3172 55AC 3E27	DTN3:	LD	A, ""
3173 55AE 182A		JR	DOUT
3174			
3175 55B0 7B	DOTNOI:	LD	A, E
3176 55B1 FE0A	DTNI2:	CP	10
3177 55B3 3004		JR	NC, DTNI3
3178 55B5 C630		ADD	A, '0'
3179 55B7 1821		JR	DOUT
3180 55B9 CDC055	DTNI3:	CALL	DOUTH8

3181 558C 3E48	DTN14:	LD	A, 'H'
3182 558E 181A		JR	DOUT
3183			
3184 55C0 FE40	DOUTH8:	CP	0A0H
3185 55C2 F5		PUSH	AF
3186 55C3 3E30		LD	A, '0'
3187 55C5 D4D55		CALL	NC, DOUT
3188 55C8 F1		POP	AF
3189 55C9 F5	DHB2:	PUSH	AF
3190 55CA 0F		RRCA	
3191 55CB 0F		RRCA	
3192 55CC 0F		RRCA	
3193 55CD 0F		RRCA	
3194 55CE CDD255		CALL	DHB3
3195 55D1 F1		POP	AF
3196 55D2 E60F	DHB3:	AND	0FH
3197 55D4 C690		ADD	A, 90H
3198 55D6 27		DAA	
3199 55D7 CE40		ADC	A, 40H
3200 55D9 27		DAA	
3201 55DA E5	DOUT:	PUSH	HL
3202 55DB 2AE740		LD	HL, (TEMP)
3203 55DE 77		LD	(HL), A
3204 55DF 23		INC	HL
3205 55E0 22E740		LD	(TEMP), HL
3206 55E3 E1		POP	HL
3207 55E4 C9	DUT2:	RET	
3208			
3209 55E5 78	CHKIND:	LD	A, B
3210 55E6 E6F0		AND	0F0H
3211 55E8 FE50		CP	RP1*16
3212 55EA C8		RET	Z
3213 55EB FE40		CP	TRI*16
3214 55ED C8		RET	Z
3215 55EE FE70		CP	NOI*16
3216 55F0 C8		RET	Z
3217 55F1 FED0		CP	TNOI*16
3218 55F3 C8		RET	Z
3219 55F4 FE60		CP	XY1*16
3220 55F6 C8		RET	Z
3221 55F7 FE40		CP	XYD*16
3222 55F9 C9		RET	
3223			
3224 55FA E60F	IDFIND:	AND	0FH
3225 55FC C8		RET	Z
3226 55FD CB7E	IDF2:	BIT	7, (HL)
3227 55FF 23		INC	HL
3228 5600 28FB		JR	Z, IDF2
3229 5602 23		INC	HL
3230 5603 23		INC	HL
3231 5604 3D		DEC	A
3232 5605 20F6		JR	NZ, IDF2
3233 5607 C9		RET	
3234			
3235 5608 0E00	IDOUT:	LD	C, 0
3236 560A 7E	IDT2:	LD	A, (HL)
3237 560B CBBF		RES	7, A
3238 560D CDDA55		CALL	DOUT
3239 5610 0C		INC	C
3240 5611 CB7E		BIT	7, (HL)

3241 5613 23		INC HL
3242 5614 28F4		JR Z, IDT2
3243 5616 C9		RET
3244		
3245 5617 00	KEYTRAN:	DB 'A'-'A'
3246 5618 01		DB 'B'-'A'
3247 5619 02		DB 'C'-'A'
3248 561A 03		DB 'D'-'A'
3249 561B 04		DB 'E'-'A'
3250 561C 07		DB 'H'-'A'
3251 561D 08		DB 'I'-'A'
3252 561E 09		DB 'J'-'A'
3253 561F 0B		DB 'L'-'A'
3254 5620 0D		DB 'N'-'A'
3255 5621 0E		DB 'O'-'A'
3256 5622 0F		DB 'P'-'A'
3257 5623 11		DB 'R'-'A'
3258 5624 12		DB 'S'-'A'
3259 5625 17		DB 'X'-'A'
3260		
3261 5626 CD9D57	DECODE:	CALL CHKAREAS
3262 5629 3E34		LD A, DBOF
3263 562B D8		RET C
3264 562C DD7E03		LD A, (IX+F4)
3265 562F E6F0		AND 0F0H
3266 5631 47		LD B, A
3267 5632 2AFD40		LD HL, (DIP)
3268 5635 7E		LD A, (HL)
3269 5636 FEDD		CP 0DDH
3270 5638 2805		JR Z, DCD2
3271 563A 04		INC B
3272 563B FEFD		CP 0FDH
3273 563D 2004		JR NZ, DCD3
3274 563F CBC8	DCD2:	SET 1, B
3275 5641 23		INC HL
3276 5642 7E		LD A, (HL)
3277 5643 DD7003	DCD3:	LD (IX+F4), B
3278 5646 01B0B0		LD BC, EOL*256+EOL*16
3279 5649 110000		LD DE, 0
3280 564C FEED		CP 0EDH
3281 564E CA7057		JP Z, DGED
3282 5651 FECB		CP 0CBH
3283 5653 CA3757		JP Z, DGC0
3284 5656 FE40		CP 40H
3285 5658 DAE356		JP C, DG00
3286 565B FE80		CP 80H
3287 565D 3872		JR C, DG40
3288 565F FEC0		CP 0C0H
3289 5661 3854		JR C, DG80
3290		
3291 5663 E607	DGC0:	AND 7
3292 5665 2835		JR Z, DGC00
3293 5667 FD21D957		LD IY, DGC0TAB1
3294 566B 3D		DEC A
3295 566C 2839		JR Z, DGC0135
3296 566E 3D		DEC A
3297 566F 2825		JR Z, DGC02
3298 5671 FD21F157		LD IY, DGC0TAB3
3299 5675 3D		DEC A
3300 5676 282F		JR Z, DGC0135

3301	5678	3D		DEC	A
3302	5679	2817		JR	Z,DGC04
3303	567B	FD210958		LD	IY,DGC0TAB5
3304	567F	3D		DEC	A
3305	5680	2825		JR	Z,DGC0135
3306	5682	3D		DEC	A
3307	5683	2809		JR	Z,DGC06
3308	5685	7E	DGC07:	LD	A,(HL)
3309	5686	E638		AND	38H
3310	5688	5F		LD	E,A
3311	5689	06C0		LD	B,TNO*16
3312	568B	3EC1		LD	A,RSTOP
3313	568D	C9		RET	
3314	568E	06C0	DGC06:	LD	B,TNO*16
3315	5690	1829		JF	D6802
3316	5692	3E20	DGC04:	LD	A,CALLOP
3317	5694	1802		JR	DGC022
3318	5696	3E71	DGC02:	LD	A,JPOP
3319	5698	0E30	DGC022:	LD	C,NO*16
3320	569A	1802		JR	DGC002
3321	569C	3EC0	DGC00:	LD	A,RETOP
3322	569E	F5	DGC002:	PUSH	AF
3323	569F	CDCC57		CALL	TRIPLET
3324	56A2	F690		OR	CC*16
3325	56A4	47		LD	B,A
3326	56A5	F1		POP	AF
3327	56A6	C9		RET	
3328	56A7	CDCC57	DGC0135:	CALL	TRIPLET
3329	56AA	5F	DGC01352:	LD	E,A
3330	56AB	07		RLCA	
3331	56AC	83		ADD	A,E
3332	56AD	CD5357		CALL	DGCB4
3333	56B0	FD4601		LD	B,(IY+1)
3334	56B3	FD4E02		LD	C,(IY+2)
3335	56B6	C9		RET	
3336					
3337	56B7	CDD357	D680:	CALL	GETREG
3338	56BA	47		LD	B,A
3339	56BB	FD212158	D6802:	LD	IY,D680TAB
3340	56BF	CD5057		CALL	DGCB3
3341	56C2	FE01		CF	ADDDP
3342	56C4	2807		JR	Z,D6803
3343	56C6	FE00		CF	ADDDP
3344	56C8	2803		JR	Z,D6803
3345	56CA	FED0		CF	SBCDP
3346	56CC	C0		RET	NZ
3347	56CD	48	D6803:	LD	C,B
3348	56CE	0607		LD	E,TR*16+IA
3349	56D0	C9		RET	
3350					
3351	56D1	FE76	D640:	CF	76H
3352	56D3	3E50		LD	A,HALTOP
3353	56D5	C8		RET	Z
3354	56D6	CDD357		CALL	GETREG
3355	56D9	4F		LD	C,A
3356	56DA	CDCC57	D6402:	CALL	TRIPLET
3357	56DD	F600		OR	TR*16
3358	56DF	47		LD	B,A
3359	56E0	3E80		LD	A,LDDP
3360	56E2	C9		RET	

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3361
3362 56E3 FD212958 DG00: LD IY,DG00TAB0
3363 56E7 E607 AND 7
3364 56E9 28BC JR Z,DGC0135
3365 56EB 3D DEC A
3366 56EC 283B JR Z,DG001
3367 56EE FD214158 LD IY,DG00TAB2
3368 56F2 3D DEC A
3369 56F3 28B2 JR Z,DGC0135
3370 56F5 3D DEC A
3371 56F6 2820 JR Z,DG003
3372 56F8 3D DEC A
3373 56F9 2812 JR Z,DG004
3374 56FB 3D DEC A
3375 56FC 280B JR Z,DG005
3376 56FE FD215958 LD IY,DG00TAB7
3377 5702 3D DEC A
3378 5703 204B JR NZ,DGCB3
3379 5705 0EC0 DG006: LD C,TND*16
3380 5707 18D1 JR DG402
3381 5709 3E30 DG005: LD A,DECOP
3382 570B 1802 JR DG0042
3383 570D 3E60 DG004: LD A,INCOP
3384 570F F5 DG0042: PUSH AF
3385 5710 CDCC57 CALL TRIPLET
3386 5713 F600 OR TR*16
3387 5715 47 LD B,A
3388 5716 F1 POP AF
3389 5717 C9 RET
3390 5718 7E DG003: LD A,(HL)
3391 5719 0F RRCA
3392 571A 0F RRCA
3393 571B 0F RRCA
3394 571C E606 AND 6
3395 571E F610 OR RP*16
3396 5720 47 LD B,A
3397 5721 3E60 LD A,INCOP
3398 5723 CB5E BIT 3,(HL)
3399 5725 C8 RET Z
3400 5726 3E30 LD A,DECOP
3401 5728 C9 RET
3402 5729 CD1857 DG001: CALL DG003
3403 572C 0E30 LD C,NO*16
3404 572E 3E80 LD A,LDOF
3405 5730 C8 RET Z
3406 5731 48 LD C,B
3407 5732 0614 LD B,RP*16+IHL
3408 5734 3E01 LD A,ADDOP
3409 5736 C9 RET
3410
3411 5737 23 DGCB: INC HL
3412 5738 DDCB034E BIT 1,(IX+F4)
3413 573C 2805 JR Z,DGCB1
3414 573E DDCB03D6 SET 2,(IX+F4)
3415 5742 23 INC HL
3416 5743 7E DGCB1: LD A,(HL)
3417 5744 E6C0 AND 0C0H
3418 5746 2012 JR NZ,DGCB5
3419 5748 FD216158 LD IY,DGCBTAB1
3420 574C CDD357 CALL GETREG

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3421	574F	47		LD	R,A
3422	5750	DDCC57	DGCB3:	CALL	TRIPLET
3423	5753	5F	DGCB4:	LD	E,A
3424	5754	FD19		ADD	IY,DE
3425	5756	FD7E00		LD	A,(IY+0)
3426	5759	C9		RET	
3427	575A	FD216858	DGCB5:	LD	IY,DGCBTAE2-1
3428	575E	07		RLCA	
3429	575F	07		RLCA	
3430	5760	DD5357		CALL	DGCB4
3431	5763	F5		PUSH	AF
3432	5764	DD0357		CALL	GETREG
3433	5767	4F		LD	C,A
3434	5768	DD0C57		CALL	TRIPLET
3435	576B	5F		LD	E,A
3436	576C	06C0		LD	B,TND*16
3437	576E	F1		POP	AF
3438	576F	C9		RET	
3439					
3440	5770	DDCB034E	DGED:	BIT	1,(IX+F4)
3441	5774	2024		JR	NZ,DGED4
3442	5776	23		INC	HL
3443	5777	7E		LD	A,(HL)
3444	5778	D640		SUB	42H
3445	577A	301E		JR	C,DGED4
3446	577C	FE3C		CP	3CH
3447	577E	300E		JR	NC,DGED3
3448	5780	FD216C58		LD	IY,DGEDTAB1
3449	5784	DDAA56		CALL	DGCB01352
3450	5787	FE61		CP	1MOP
3451	5789	C0		RET	NZ
3452	578A	59		LD	E,C
3453	578B	0EB0		LD	C,EOL*16
3454	578D	C9		RET	
3455	578E	D660	DGED3:	SUB	60H
3456	5790	3808		JR	C,DGED4
3457	5792	FD217059		LD	IY,DGEDTAB2
3458	5796	FE1C		CP	1CH
3459	579D	38B9		JR	C,DGCB4
3460	579A	3E34	DGED4:	LD	A,DBOP
3461	579C	C9		RET	
3462					
3463	579D	B7	CHKAREAS:	OR	A
3464	579E	DDCB0366		BIT	4,(IX+F4)
3465	57A2	C8		RET	Z
3466	57A3	213D59		LD	HL,AEND+2
3467	57A6	E5	OKA2:	PUSH	HL
3468	57A7	ED5B0541		LD	DE,(DECAP)
3469	57AB	B7		OR	A
3470	57AC	ED52		SBC	HL,DE
3471	57AE	E1		POP	HL
3472	57AF	C8		RET	Z
3473	57B0	5E		LD	E,(HL)
3474	57B1	23		INC	HL
3475	57B2	56		LD	D,(HL)
3476	57B3	23		INC	HL
3477	57B4	4E		LD	C,(HL)
3478	57B5	23		INC	HL
3479	57B6	46		LD	B,(HL)
3480	57B7	23		INC	HL

3481	57B8	E5		PUSH	HL
3482	57B9	2AFD40		LD	HL, (DIP)
3483	57BC	B7		OR	A
3484	57BD	ED52		SBC	HL, DE
3485	57BF	3F		CCF	
3486	57C0	3004		JR	NC, CKA3
3487	57C2	19		ADD	HL, DE
3488	57C3	B7		OR	A
3489	57C4	ED42		SBC	HL, BC
3490	57C6	E1	CKA3:	POP	HL
3491	57C7	D8		RET	C
3492	57C8	37		SCF	
3493	57C9	C8		RET	Z
3494	57CA	18DA		JR	CKA2
3495					
3496	57CC	7E	TRIPLET:	LD	A, (HL)
3497	57CD	0F		RRCA	
3498	57CE	0F		RRCA	
3499	57CF	0F		RRCA	
3500	57D0	E607		AND	7
3501	57D2	C9		RET	
3502					
3503	57D3	7E	GETREG:	LD	A, (HL)
3504	57D4	E607		AND	7
3505	57D6	F600		OR	TR*16
3506	57D8	C9		RET	
3507					
3508	57D9	B1	DGC0TAB1:	DB	POPOP
3509	57DA	10		DB	RP*16+IBC
3510	57DB	B0		DB	EOL*16
3511	57DC	C0		DB	RETOP
3512	57DD	B0		DB	EOL*16
3513	57DE	B0		DB	EOL*16
3514	57DF	B1		DB	POPOP
3515	57E0	12		DB	RP*16+IDE
3516	57E1	B0		DB	EOL*16
3517	57E2	41		DB	EXXOP
3518	57E3	B0		DB	EOL*16
3519	57E4	B0		DB	EOL*16
3520	57E5	B1		DB	POPOP
3521	57E6	14		DB	RP*16+IHL
3522	57E7	B0		DB	EOL*16
3523	57E8	71		DB	JPOP
3524	57E9	54		DB	RPI*16+IHL
3525	57EA	B0		DB	EOL*16
3526	57EB	B1		DB	POPOP
3527	57EC	1E		DB	RP*16+IAF
3528	57ED	B0		DB	EOL*16
3529	57EE	B0		DB	LDOP
3530	57EF	16		DB	RP*16+ISP
3531	57F0	14		DB	RP*16+IHL
3532					
3533	57F1	71	DGC0TAB3:	DB	JPOP
3534	57F2	30		DB	NO*16
3535	57F3	B0		DB	EOL*16
3536	57F4	34		DB	DBOP
3537	57F5	B0		DB	EOL*16
3538	57F6	B0		DB	EOL*16
3539	57F7	A1		DB	OUTOP
3540	57F8	D0		DB	TNDI*16

3541 57F9 07		DB	TR*16+IA
3542 57FA 62		DB	INOP
3543 57FB 07		DB	TR*16+IA
3544 57FC D0		DB	TNOI*16
3545 57FD 40		DB	EXOP
3546 57FE 56		DB	RPI*16+ISP
3547 57FF 14		DB	RP*16+IHL
3548 5800 40		DB	EXOP
3549 5801 12		DB	RP*16+IDE
3550 5802 14		DB	RP*16+IHL
3551 5803 33		DB	DIOPI
3552 5804 80		DB	EOL*16
3553 5805 B0		DB	EOL*16
3554 5806 42		DB	EIOP
3555 5807 B0		DB	EOL*16
3556 5808 B0		DB	EOL*16
3557			
3558 5809 B0	DGC0TAB5:	DB	PUSHOP
3559 580A 10		DB	RP*16+IBC
3560 580B B0		DB	EOL*16
3561 580C 20		DB	CALLOP
3562 580D 30		DB	NO*16
3563 580E B0		DB	EOL*16
3564 580F B0		DB	PUSHOP
3565 5810 12		DB	RP*16+IDE
3566 5811 B0		DB	EOL*16
3567 5812 34		DB	DBOP
3568 5813 B0		DB	EOL*16
3569 5814 B0		DB	EOL*16
3570 5815 B0		DB	PUSHOP
3571 5816 14		DB	RP*16+IHL
3572 5817 B0		DB	EOL*16
3573 5818 34		DB	DBOP
3574 5819 B0		DB	EOL*16
3575 581A B0		DB	EOL*16
3576 581B B0		DB	PUSHOP
3577 581C 1E		DB	RP*16+IAF
3578 581D B0		DB	EOL*16
3579 581E 34		DB	DBOP
3580 581F B0		DB	EOL*16
3581 5820 B0		DB	EOL*16
3582			
3583 5821 01	DG80TAB:	DB	ADDOP
3584 5822 00		DB	ADCOPI
3585 5823 D6		DB	SUBOP
3586 5824 D0		DB	SECOPI
3587 5825 02		DB	ANDOP
3588 5826 E0		DB	XOROP
3589 5827 A0		DB	OROP
3590 5828 21		DB	CPOP
3591			
3592 5829 90	DG00TAB0:	DB	NOPOP
3593 582A B0		DB	EOL*16
3594 582B B0		DB	EOL*16
3595 582C 40		DB	EXOP
3596 582D 1E		DB	RP*16+IAF
3597 582E 1E		DB	RP*16+IAF
3598 582F 31		DB	DJNZOP
3599 5830 30		DB	NO*16
3600 5831 B0		DB	EOL*16

3601	5832	70		DB	JROP
3602	5833	30		DB	NO*16
3603	5834	80		DB	EOL*16
3604	5835	70		DB	JROP
3605	5836	90		DB	CC*128+INZ/8
3606	5837	30		DB	NO*16
3607	5838	70		DB	JROP
3608	5839	91		DB	CC*128+IZ/8
3609	583A	30		DB	NO*16
3610	583B	70		DB	JROP
3611	583C	92		DB	CC*128+INCY/8
3612	583D	30		DB	NO*16
3613	583E	70		DB	JROP
3614	583F	93		DB	CC*128+ICY/8
3615	5840	30		DB	NO*16
3616					
3617	5841	80	DG00TAB2:	DB	LDOP
3618	5842	50		DB	RPI*16+IBC
3619	5843	07		DB	TR*16+IA
3620	5844	80		DB	LDOP
3621	5845	07		DB	TR*16+IA
3622	5846	50		DB	RPI*16+IBC
3623	5847	80		DB	LDOP
3624	5848	52		DB	RPI*16+IDE
3625	5849	07		DB	TR*16+IA
3626	584A	80		DB	LDOP
3627	584B	07		DB	TR*16+IA
3628	584C	52		DB	RPI*16+IDE
3629	584D	80		DB	LDOP
3630	584E	70		DB	NOI*16
3631	584F	14		DB	RP*16+IHL
3632	5850	80		DB	LDOP
3633	5851	14		DB	RP*16+IHL
3634	5852	70		DB	NOI*16
3635	5853	80		DB	LDOP
3636	5854	70		DB	NOI*16
3637	5855	07		DB	TR*16+IA
3638	5856	80		DB	LDOP
3639	5857	07		DB	TR*16+IA
3640	5858	70		DB	NOI*16
3641					
3642	5859	C5	DG00TAB7:	DB	RLCAOP
3643	585A	C9		DB	RRCOP
3644	585B	C6		DB	RLAOP
3645	585C	CA		DB	RRAOP
3646	585D	32		DB	DAAOP
3647	585E	23		DB	CPLOP
3648	585F	D1		DB	SCFOP
3649	5860	22		DB	CCFOP
3650					
3651	5861	C4	DGCBTAB1:	DB	RLCOP
3652	5862	C8		DB	RRCOP
3653	5863	C3		DB	RLOP
3654	5864	C7		DB	RROP
3655	5865	D2		DB	SLAOP
3656	5866	D3		DB	SRAOP
3657	5867	34		DB	DBOP
3658	5868	D4		DB	SRLOP
3659					
3660	5869	10	DGCBTAB2:	DB	BITOP

3661	586A	C2	DB	RESOP
3662	586B	D5	DB	SETOP
3663				
3664	586C	62	DB	INOP
3665	586D	00	DB	TR*16+IB
3666	586E	41	DB	TRI*16+IC
3667	586F	A1	DB	OUTOP
3668	5870	41	DB	TRI*16+IC
3669	5871	00	DB	TR*16+IB
3670	5872	D0	DB	SBCOP
3671	5873	14	DB	RP*16+IHL
3672	5874	10	DB	RP*16+IBC
3673	5875	80	DB	LDOF
3674	5876	70	DB	NOI*16
3675	5877	10	DB	RP*16+IBC
3676	5878	91	DB	NEGOP
3677	5879	B0	DB	EOL*16
3678	587A	B0	DB	EOL*16
3679	587B	CE	DB	RETNOP
3680	587C	B0	DB	EOL*16
3681	587D	B0	DB	EOL*16
3682	587E	61	DB	INOP
3683	587F	C0	DB	TNO*16
3684	5880	00	DB	0
3685	5881	80	DB	LDOF
3686	5882	80	DB	RE*16+11NT
3687	5883	07	DB	TR*16+IA
3688	5884	62	DB	INOP
3689	5885	01	DB	TR*16+IC
3690	5886	41	DB	TRI*16+IC
3691	5887	A1	DB	OUTOP
3692	5888	41	DB	TRI*16+IC
3693	5889	01	DB	TR*16+IC
3694	588A	00	DB	ADDCOP
3695	588B	14	DB	RP*16+IHL
3696	588C	10	DB	RP*16+IBC
3697	588D	90	DB	LDOF
3698	588E	10	DB	RP*16+IBC
3699	588F	70	DB	NOI*16
3700	5890	34	DB	DBOP
3701	5891	80	DB	EOL*16
3702	5892	B0	DB	EOL*16
3703	5893	CD	DB	RETIOP
3704	5894	B0	DB	EOL*16
3705	5895	B0	DB	EOL*16
3706	5896	34	DB	DBOP
3707	5897	B0	DB	EOL*16
3708	5898	B0	DB	EOL*16
3709	5899	80	DB	LDOF
3710	589A	88	DB	RE*16+IREF
3711	589B	07	DB	TR*16+IA
3712	589C	62	DB	INOP
3713	589D	02	DB	TR*16+ID
3714	589E	41	DB	TRI*16+IC
3715	589F	A1	DB	OUTOP
3716	58A0	41	DB	TRI*16+IC
3717	58A1	02	DB	TR*16+ID
3718	58A2	D0	DB	SBCOP
3719	58A3	14	DB	RP*16+IHL
3720	58A4	12	DB	RP*16+IDE

DGEDTAB1:

3721	58A5	B0	DB	LDOP
3722	58A6	70	DB	NOI*16
3723	58A7	12	DB	RP*16+IDE
3724	58A8	34	DB	DBOP
3725	58A9	B0	DB	EOL*16
3726	58AA	B0	DB	EOL*16
3727	58AB	34	DB	DBOP
3728	58AC	B0	DB	EOL*16
3729	58AD	B0	DB	EOL*16
3730	58AE	61	DB	IMOP
3731	58AF	C0	DB	TNO*16
3732	58B0	01	DB	1
3733	58B1	B0	DB	LDOP
3734	58B2	07	DB	TR*16+IA
3735	58B3	B0	DB	RE*16+IINT
3736	58B4	62	DB	INOP
3737	58B5	03	DB	TR*16+IE
3738	58B6	41	DB	TRI*16+IC
3739	58B7	A1	DB	OUTOP
3740	58B8	41	DB	TRI*16+IC
3741	58B9	03	DB	TR*16+IE
3742	58BA	00	DB	ADCOP
3743	58BB	14	DB	RP*16+IHL
3744	58BC	12	DB	RP*16+IDE
3745	58BD	B0	DB	LDOP
3746	58BE	12	DB	RP*16+IDE
3747	58BF	70	DB	NOI*16
3748	58C0	34	DB	DBOP
3749	58C1	B0	DB	EOL*16
3750	58C2	B0	DB	EOL*16
3751	58C3	34	DB	DBOP
3752	58C4	B0	DB	EOL*16
3753	58C5	B0	DB	EOL*16
3754	58C6	61	DB	IMOP
3755	58C7	C0	DB	TNO*16
3756	58C8	02	DB	2
3757	58C9	B0	DB	LDOP
3758	58CA	07	DB	TR*16+IA
3759	58CB	B8	DB	RE*16+IREF
3760	58CC	62	DB	INOP
3761	58CD	04	DB	TR*16+IH
3762	58CE	41	DB	TRI*16+IC
3763	58CF	A1	DB	OUTOP
3764	58D0	41	DB	TRI*16+IC
3765	58D1	04	DB	TR*16+IH
3766	58D2	D0	DB	SBCOP
3767	58D3	14	DB	RP*16+IHL
3768	58D4	14	DB	RP*16+IHL
3769	58D5	34	DB	DBOP
3770	58D6	B0	DB	EOL*16
3771	58D7	B0	DB	EOL*16
3772	58D8	34	DB	DBOP
3773	58D9	B0	DB	EOL*16
3774	58DA	B0	DB	EOL*16
3775	58DB	34	DB	DBOP
3776	58DC	B0	DB	EOL*16
3777	58DD	B0	DB	EOL*16
3778	58DE	34	DB	DBOP
3779	58DF	B0	DB	EOL*16
3780	58E0	B0	DB	EOL*16

3781 58E1 CC	DB RRDOP
3782 58E2 B0	DB EOL*16
3783 58E3 B0	DB EOL*16
3784 58E4 62	DB INOP
3785 58E5 05	DB TR*16+IL
3786 58E6 41	DB TRI*16+IC
3787 58E7 A1	DB OUTOP
3788 58E8 41	DB TRI*16+IC
3789 58E9 05	DB TR*16+IL
3790 58EA 00	DB ADCOP
3791 58EB 14	DB RP*16+IHL
3792 58EC 14	DB RP*16+IHL
3793 58ED 34	DB DBOP
3794 58EE B0	DB EOL*16
3795 58EF B0	DB EOL*16
3796 58F0 34	DB DBOP
3797 58F1 B0	DB EOL*16
3798 58F2 B0	DB EOL*16
3799 58F3 34	DB DBOP
3800 58F4 B0	DB EOL*16
3801 58F5 B0	DB EOL*16
3802 58F6 34	DB DBOP
3803 58F7 B0	DB EOL*16
3804 58F8 B0	DB EOL*16
3805 58F9 CB	DB RLDOP
3806 58FA B0	DB EOL*16
3807 58FB B0	DB EOL*16
3808 58FC 34	DB DBOP
3809 58FD B0	DB EOL*16
3810 58FE B0	DB EOL*16
3811 58FF 34	DB DBOP
3812 5900 B0	DB EOL*16
3813 5901 B0	DB EOL*16
3814 5902 00	DB SBCCOP
3815 5903 14	DB RP*16+IHL
3816 5904 16	DB RP*16+ISP
3817 5905 B0	DB LDOP
3818 5906 70	DB NOI*16
3819 5907 16	DB RP*16+ISP
3820 5908 34	DB DBOP
3821 5909 B0	DB EOL*16
3822 590A B0	DB EOL*16
3823 590B 34	DB DBOP
3824 590C B0	DB EOL*16
3825 590D B0	DB EOL*16
3826 590E 34	DB DBOP
3827 590F B0	DB EOL*16
3828 5910 B0	DB EOL*16
3829 5911 34	DB DBOP
3830 5912 B0	DB EOL*16
3831 5913 B0	DB EOL*16
3832 5914 62	DB INOP
3833 5915 07	DB TR*16+IA
3834 5916 41	DB TRI*16+IC
3835 5917 A1	DB OUTOP
3836 5918 41	DB TRI*16+IC
3837 5919 07	DB TR*16+IA
3838 591A 00	DB ADCOP
3839 591B 14	DB RP*16+IHL
3840 591C 16	DB RP*16+ISP

3841 591D 80	DB	LDDP
3842 591E 16	DB	RF*16+ISP
3843 591F 70	DB	NOI*16
3844		
3845 5920 81	DGEDTAB2:	DB
3846 5921 24		DB
3847 5922 63		DB
3848 5923 A2		DB
3849 5924 34		DB
3850 5925 34		DB
3851 5926 34		DB
3852 5927 34		DB
3853 5928 83		DB
3854 5929 26		DB
3855 592A 65		DB
3856 592B A4		DB
3857 592C 34		DB
3858 592D 34		DB
3859 592E 34		DB
3860 592F 34		DB
3861 5930 82		DB
3862 5931 25		DB
3863 5932 64		DB
3864 5933 A3		DB
3865 5934 34		DB
3866 5935 34		DB
3867 5936 34		DB
3868 5937 34		DB
3869 5938 84		DB
3870 5939 27		DB
3871 593A 66		DB
3872 593B A5	AEND:	DB
3873 593C FF		DB
3874		0FFH
3875		END

AL	0002	ADL	0004	ASMB	48B8	ADCTAB	4F56
ADDTAB	4F64	AOPS	5065	ADCOF	0000	ADDOP	0001
ANDOP	0002	AEND	593B	BS	000B	BLANK	0020
BMIR	B91B	BKPTADDR	40F3	BKPTCODE	40F5	BYE	4342
BYTESP	4892	BYTE	4897	BAD	4812	BITH	4FC0
BIT2	4FC9	BOPS	5072	BITOP	0010	CR	000D
CURON	BB01	CUROFF	BB04	CINIT	BC65	CCAT	BC9B
CIDIR	BC83	CODIR	BC9B	CIABAN	BC7D	COABAN	BC92
CICCHAR	BC80	COCHAR	BC95	CIOFEN	BC77	COOPEN	BC8C
CICLOSE	BC7A	COCLOSE	BC8F	COMWIDTH	40CD	CURRENT	40DD
CRBUFF	410B	CWBUFF	410D	CATALOG	43F6	COPY	44CA
COMTAB	45C0	CRLF	4621	CUE	46AC	CONVERT	47D2
CV0	47E3	CV1	47E7	CV2	47F3	CV3	4805
CLEAR	482D	CL	0001	CC	0009	CLASS	4D0A
CL1	4D12	CL3	4D19	CL2	4D1A	CL4	4D27
CL41	4D29	CL5	4D44	CL6	4D50	CLER	4D5E
CL7	4D61	CL71	4D63	CL72	4D77	CALTAB	4EFA
COPS	5077	CCODES	51BA	CALLOP	0020	CPOP	0021
CCFOP	0022	CFLOP	0023	CF1OP	0024	CFIROP	0025
CPDOP	0026	CPDROP	0027	CHKHL	535D	CHKXY	547D
CXY2	539D	CHKOPD	53BE	CHKND	543F	CKN2	5445
CHKTNO	544B	CKTN2	5451	COMMA	54B5	CHKIND	55E5
CHKAREAS	579D	CKA2	57A6	CKA3	57C6	DEL	007F
DSTART	40F9	DSTOP	40FB	DIP	40FD	DRSTART	40FF
DRSTOP	4101	DRIP	4103	DEQAP	4105	DGOSP	4107
DEOSP	4109	DOWN	4281	DELAY	4812	DEL1	4815
DJH	4DBB	DJ1	4DA4	DJ2	4DA6	DWH	4DAA
DBH	4DB0	DBH1	4DB4	DBH3	4DBE	DBH4	4DC5
DSH	4DDC	DL1	4F71	DL2	4F74	DL3	4F7P
DL4	4F88	DL5	4F8F	DOPS	509A	DECOF	0030
DJNZOP	0031	DAADP	0032	D1OP	0033	DEOP	0034
DASH	520E	DSM2	5223	DPASS	524A	DPS2	5251
DPS3	526D	DLIST	52D0	DL82	52E0	DL83	52FF
DINSTR	531B	DBOUND	5457	DBD2	5469	DSYMSCH	546B
DSS2	5476	DSS3	548D	DLABEL	549D	DLR2	54AC
DOUTOPT	54C2	DOUTOPD	54FA	DOPD	5514	DOPDTAB	5520
DOTR	552E	DORP	553B	DOXY	554A	DORF	554F
DOCC	555A	DC2	555D	DC3	555E	DOXYD	5564
DXD2	557C	DON0	5579	DN2	5588	DOTNO	5571
DTN2	55A5	DTN3	55AC	DOTNO1	55B0	DTN12	55B1
DTN13	55B9	DTN14	55BC	DOUTH3	55C0	DHB2	55C9
DHB3	55D2	DOUT	55DA	DUT2	55E4	DECODE	5626
DCD2	563F	DGD3	5643	DGD0	5663	DGC07	5685
DGC06	568E	DGC04	5692	DGC02	5696	DGC022	569B
DGC00	569C	DGC002	569E	DGC0135	56A7	DGC01352	56A0
DSB0	56B7	DG802	56BB	DG803	56CD	DG40	56D1
DG402	56DA	DG00	56E3	DG006	5705	DG005	5709
DG004	570D	DG0042	570F	DG003	5718	DG001	5739
DGCB	5737	DGCB1	5743	DGCB3	5750	DGCB4	5753
DGCB5	575A	DGED	5770	DGED3	579E	DGED4	579A
DG00TAB1	57D9	DG00TAB3	57F1	DG00TAB5	580F	DG00TAB	5821
DG00TAB0	5829	DG00TAB2	5841	DG00TAB7	5859	DG00TAB1	5861
DGCBTAB2	5869	DGEDTAB1	586C	DGEDTAB2	5920	ENTRY	4000
EOFF	40E1	EXIT	414D	E0	42A7	ER	42A9
ENTER	42DF	EOF	4606	ERR	4614	ERR2	461D
EXTERN	4647	EXT2	4674	E10	47CD	E20	4847
EOL	000B	E1	4917	E6	4B50	E7	4CA6
E11	4D22	EQUH	4DFE	E02	4E04	ENDH	4E0B
EOPS	50C3	EXOP	0040	EXXOP	0041	E1OP	0042
E4	5427	FF	000C	F1	0000	F2	0001

F3	0002	F4	0003	F5	0004	F6	0005
F7	0006	FLAGS	40C6	FEP	40E9	FILL	44D8
FIL2	44E3	FIELD	44A8	FD1	4AB4	FD2	4ABD
FD3	4ABE	FD4	4ACB	FD5	4ACF	FD6	4AD3
FD7	4AD9	FD8	4AE1	FIND	4CBB	FIN1	4CC1
FIN2	4CC8	FOPS	50D6	GOTO	4485	GOT2	448B
GOT3	44AC	GETNAME	46DD	GETOPTION	491C	GOPS	50D7
GETAREAS	5280	GTA2	5285	GETOPD	53DA	GD2	53E6
GD22	53EE	GD3	53F3	GD4	53FB	GD5	5403
GETKEY	54DC	GK2	54DF	GETREG	57D3	HOWBIG	4406
HOLD	4931	HOPS	50D8	HALTOP	0050	IMAGE	4137
INSERT	4326	INPORT	45A8	IN2	45B1	INL	0003
IBC	0000	IDE	0002	IHL	0004	IAF	000E
ISP	0006	IB	0000	IC	0001	ID	0002
IE	0003	IH	0004	IL	0005	IA	0007
IIX	00DD	IY	00FD	IREF	0008	IINT	0000
ICY	001B	INCY	0010	IZ	0008	INZ	0000
IP0	0020	IPE	0028	IMIN	0038	IP0S	0030
IMH	4F28	IM2	4F31	IMTAB	4F39	INCH	4F3C
INC2	4F4C	INTAB	4FEB	IO1	4FFF	IO2	5006
IOER	50DD	IOPS	50DE	INCOF	0060	IMOP	0061
INOP	0062	INIOP	0063	INIROP	0064	INDOP	0065
INDROP	0066	IDFIND	55FA	IDF2	55FD	IDOUT	5608
IDT2	560A	JL	0003	JUMP	4995	JP2	499E
JP3	49CF	JPTAB	49D7	JRH	4D7D	JMPTAB	4EE5
JMP1	4EEF	JMF2	4EF3	JMP21	4EF6	JMP3	4EFE
JOPS	50FB	JROP	0070	JPOP	0071	KILL	426A
KEYBOARD	467D	KB2	4680	KB22	4689	KB3	469D
KEYTB	5031	KOPS	5102	KEYADDR	54EB	KEYTRAN	5617
LF	000A	LCT	40D9	LIMIT	40DB	LBLP	40ED
LOCATE	4232	LC1	4240	LC2	4250	LINE	4290
LAST	42C4	LINC	48AE	LL	0015	LIST	4A0F
LS1	4A20	LS12	4A35	LS2	4A41	LS3	4A50
LS4	4A53	LS5	4A74	LS6	4A81	LS7	4A85
LS8	4AB6	LS9	4ABF	LITLE	4B44	LITLE2	4B48
LOADH	4DE1	LTAB	4E0D	L1	4E4D	L2	4E51
L21	4E58	L3	4E5B	L30	4E62	L31	4E65
L4	4E68	L5	4E6E	L6	4E73	L61	4E74
L62	4E77	L63	4E7A	L7	4E7D	LER	4E82
LS	4E85	L9	4E97	LA	4E9E	LB	4EA6
LC	4EAB	LE	4EB4	LE1	4EC2	LOPS	5103
LDDP	0080	LDIOP	0081	LDIROP	0082	LDDOP	0083
LDDROP	0084	M1	4006	M2	400B	M4	4010
M5	4015	M7	4019	M9	4021	M11	402D
M12	4036	M14	403F	M13	4044	M15	4048
M16	4052	M17	405A	M18	4064	M20	4069
M21	4070	M22	4076	M23	407D	M24	4083
M25	4089	M27	408F	M28	4095	M29	409B
M30	40B3	MDEF	40E3	MODIFY	44EB	MOD1	44F1
MOD2	44FA	MOD3	44FA	MOD4	4517	MOD5	4522
MEMCHECK	4B3D	MEMTOP	4B4E	MOFMIX	4B55	MOFMX2	4B56
NOFPRE	4B61	MOFLH	4B65	MOFH	4B69	MOFB	4B6C
MOF	4B6D	MOF2	4B8A	MOF5	4B94	MATH	4C1C
MA2	4C22	MA3	4C29	MA4	4C34	MA5	4C3F
MA50	4C46	MA51	4C4C	MA52	4C54	MA6	4C5E
MA61	4C67	MA62	4C6E	ML1	4F9B	ML11	4FA1
ML12	4FA4	ML2	4FA9	ML3	4FB2	MOPS	511E
NEW	42F8	NEXT	4B52	NX0	4B55	NX1	4B58
NYB	4BA0	NO	0003	NOI	0007	NOPS	511F
NOPOP	0090	NEGOP	0091	OBJ	40F1	ONEPAIR	4591

OUTPORT	459E	OUTPUT	4630	OL	0003	OPDSCH	4AED
OPTSCH	4AFB	ORGH	4DED	OUTAB	4FF5	OOPS	5128
OROP	00A0	OUTOP	00A1	OUTIOP	00A2	OTIROP	00A3
OUTDOP	00A4	OTDROF	00A5	OFFSET	542C	OFFS2	543B
PBUSY	BD2E	PSEND	BD31	PAGENO	40D7	PC	40EF
PRINT	42B6	PAIR	4592	PR2	461C	PR3	461E
PAGE	4718	PG2	4726	PARAMETER	47A8	PARAM1	47AB
POSITION	4860	POS1	4868	POS2	4877	PASS	48CA
PS1	48CD	PS2	4908	PARSER	4B9B	PA1	4B0B
PA2	4BB7	PA31	4BE4	PA3	4BE8	PA7	4BED
PER	4BF9	PA4	4BFC	PA5	4C02	PA6	4C1A
PPH	4F10	PF2	4F1F	PP21	4F22	POPS	5148
PUSHOP	00B0	POFOP	00B1	ODEF	40E5	QUERY	452A
QU2	4530	QU3	4539	QU4	453F	QU5	454C
QU7	4553	QOPS	5152	READCHAR	BB09	REENTRY	4003
READ	439D	RD2	43AA	RB4	43C4	RSOURCE	43C7
RS2	43CA	RS3	43EA	RS4	43EE	RCHAR	46F3
ROPEN	470A	REMOVE	478C	RP	0001	RP1	0005
RE	0008	RESOLV	4B35	RSTH	4ECE	RST2	4ED6
RETH	4EDB	ROPS	5153	RPAIRS	51EB	REREGS	5207
RETOP	00C0	RSTOP	00C1	RESOP	00C2	RLOP	00C3
RLCOP	00C4	RLCAOP	00C5	RLAOP	00C6	RROP	00C7
RRCOP	00C8	RRCAOP	00C9	RRADP	00CA	RLDOP	00CB
RKDOP	00CC	RETIOP	00CD	RETNOP	00CE	SYMWIDH	40CF
SOFP	40DF	STK	40EB	STACK	41E0	SORT	441B
SRT2	4432	SCAN	443B	SCN1	443E	SCN2	443F
SCN3	444A	SCN31	446B	SCN4	4470	SPACE	462E
STRING	46A0	STR1	46A2	STARTSTOP	47BD	SOF	4832
SEL	0002	SYMBOL	4941	SY2	4992	SYMFIELD	4AA4
SYMSCH	4AEB	SEARCH	4B1A	SC2	4B20	SC3	4B25
SBCTAB	4F5D	SRH	4FD2	SR2	4FE2	SOPS	5192
SBCOP	00D0	SCFOP	00D1	SLADP	00D2	SRAOP	00D3
SRLOP	00D4	SETOP	00D5	SUBOP	00D6	SWAFHL	536A
SWAPXY	53A0	SXY2	53B2	SXY3	53BC	TXTOUT	BB5A
TEMP	40E7	TBUFF	4154	TOP	4270	TARGET	427D
THIS	42CE	TRAP	474E	TRAP2	4784	TL	0010
TR	0000	TRI	0004	TNO	000C	TNOJ	000D
TALPHA	0030	TLAB	0031	TOPD	0032	TCOM	0033
TIND	0034	TADD	0040	TSUB	00C0	TMUL	0080
TDIV	0081	TAND	0082	TOR	0083	TDEF	0035
TLIT	0036	TERM	4C75	TE2	4C7D	TE3	4C87
TYPE	4CAB	TYPTAB	4CD9	TOPS	51AF	TREGS	51D6
TRIPLET	57CC	USTK	410F	USP	414E	UPC	4152
UP	425E	USER	46AF	US0	46B3	US1	46B9
US2	46C8	US4	46D8	UPDATE	48AB	UOPS	51B0
UNSCRAMBLE	52AF	UM2	52B5	UM3	52BA	VECTOR	40F6
VIDEO	4636	VID2	4644	VOPS	51B1	WAITCHAR	BB06
WRITE	4346	WBIN	4349	WB3	4365	WB4	436D
WSOURCE	4370	WS2	4384	WS3	4390	WCHAR	46EB
WOPEN	46FB	WPE2	4707	WORDSP	48BD	WOPS	5192
XAMINE	4563	XL	0004	XY	0002	XYI	0006
XYD	000A	XTAB	5010	X1	501D	XER	5029
X2	502B	X3	502E	XOPS	51B3	XYPAIRS	51FF
XOROP	00E0	YOPS	51B8	ZEN	41E0	ZEN2	422E
ZAP	4299	ZOPS	51B9				