

# SD Systems Z80 Assembler

The SD SYSTEMS Z80 ASSEMBLER is a CPM compatible program. The user first prepares his source module using an Editor.

To use the Z80 Assembler, enter the following command:

**A>ZASM file.ext / options (CR)**

Where 'file' is the primary file name and 'ext' is the secondary file name of the file to be assembled. Also where '/' allows the batching of several assemblies without operator interaction and 'options' described below.

Example: **A>ZASM FILE.ASM/CL (CR)**

This would cause the Z80 source program file named "FILE.ASM" to be assembled with the 'C' (cross reference table) and 'L' (listing on printer) options.

The object output of the Assembler is sent to the disk on file.OBJ, and the listing output is sent to the disk on file.PRN unless T or L options are specified. One or more object files from the Assembler may be linked and relocated by using the SD SYSTEMS Linker, which produces an absolute object file with extension HEX. The absolute object file may then be loaded via the DOS loader, and the listing file may be printed using XFER. Note that if the (/) is omitted, the "options" will be requested as specified below, which prevents continuous batch operation. Therefore, if no options are required, enter the slash (/) on the command line with no options following.

## SD SYSTEMS Z80 ASSEMBLER V3.3. OPTIONS?

Options are described below. If no options are to be entered, the user enters 'carriage return'. The Assembler makes two passes over the source file. At the end of the first pass the following message is printed on the user console:

PASS 1 DONE

At the end of the assembly, the Assembler prints the total number of errors (in decimal) found:

ERRORS=nnnn

Control is then returned to the CPM console processor (A>).

When the Assembler outputs the message:

### OPTIONS?

The user may enter any of the following codes, terminated with a carriage return:

**C** - cross reference table - prints a cross reference table of all the symbols at the end of the assembly listing.

**K** - no listing - this suppresses the assembly listing. All errors are output to the user console for this option.

**L** - list to listing device - this option directs the assembly listing out to the listing device rather than to a disk file.

**N** - no object output - this suppresses object output from the Assembler.

**P** - pass 2 only - this option selects and runs only pass 2 of the Assembler. The symbol table is left intact from a previous run of the Assembler.

**R** - reset the symbol table - clears the symbol table of all previous symbol references. This operation is automatical done for pass 1. It is used primarily for single pass operation.

**S** - symbol table - prints a symbol table at the end of the assembly listing.

**T** - list to console device - this option directs the assembly listing out to the console device rather than to a disk file.

## **ERROR MESSAGES**

Any error which is found is denoted in the assembly listing. A message is printed immediately after the statement in error. All messages are self-explanatory.

EXAMPLE

H2: LC AB

\*\*\*\*\* ERROR \*\*\*\*\*BAD OPCODE

Certain errors abort the Assembler when they are encountered. Abort error messages are output only to the user console. Control is immediately returned to the CPM console processor (A>). Abort errors may occur during pass 1 or pass 2.

## **OBJECT OUTPUT**

The object output from the Assembler is put on diskette to the same primary file name as the source input file, with a secondary file name of 'OBJ\*'. One or more object modules may be linked and relocated by the SD SYSTEMS Linker to produce an absolute object file with a secondary file name of 'HEX'. This file may then be loaded by the CPM loader.

## **ASSEMBLY LISTING OUTPUT**

The assembly listing is put on diskette to the same primary file name as the source input file, with a secondary file name of 'PRN'. The user may insert tab characters in the source to obtain columns in the assembly listing. The value of each equated symbol will be printed with a pointer (>) next to it. The statement number and page number are printed in decimal. Assembler directives do not appear in the assembly listing, but they are assigned statement numbers. If the no listing option is selected, errors will be output to the user console. Any addresses which are relocatable will have a prime (') printed next to them.