

cess, both on the command line and embedded in the 8080 source text. The options control the disks that the work and output files are on, whether the block-analysis information is output to disk, whether code and data segments are to be intermixed or kept separate, and whether the condition flags are active on exiting from subroutines.

XLT86 is a sophisticated program that does a reasonable job of optimizing the translation of 8080 source code to 8086 source code. BDOS calls from CP/M-80 are mapped into BDOS calls that are compatible with CP/M-86.

XLT86 has special features for handling translation of conditional JMP and CALL instructions in 8080 source code. In the 8080 instructions, JMP and CALL instructions are capable of reaching any address within the 64K-byte region. The 8086 conditional JMP instructions can reach only 128 bytes on either side of the IP (Instruction Pointer) register. XLT86 examines the target of the con-

ditional JMP. If the target cannot be reached, XLT86 changes the sense of the conditional JMP and skips over a long JMP to the target address. Since there are no conditional CALL or RET instructions in the 8086, the sense of the condition is changed and a short conditional JMP is performed

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to skip over an unconditional CALL or RET.

As noted earlier, the segment registers allow for separation of code and data regions. To reference data, you have to tell the 8086 whether data is in the code segment (CS) or the data segment (DS). For the Digital Research ASM86 assembler, the Offset directive handles this chore.

XLT86 examines an expression and determines the proper segment for the particular instruction.

XLT86 does have limits on the size of the 8080 source files that it can translate because the flow-analysis information must be in memory. In a 64K-byte CP/M system, the maximum source file that can be translated is approximately 6K bytes, depending on the structure of the program. Nothing is said in the manual about being able to deal with modular code using RMAC and external references. This implies that the entire source program must be converted at once, limiting the size of the program that can be translated by using XLT86 to 6K bytes.

In summary, if you're starting from 8080/8085 assembly code written for ASM or MAC and you want to go to CP/M-86, and if the source program does not exceed 6K bytes, XLT86 is the most useful translator. Code written for Z80s using MAC requires careful examination after the translation process to make sure that no

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