CDS

COMPILER DEVELOPMENT SYSTEM
FOR NORTH STAR SYSTEMS

$150
($100 to Registered Owners of PDS and HDS)

INCLUDING: BASIC Compiler
             Interface to North Star BASIC
             Integer BASIC Interpreter

Allen and David Ashley
395 Sierra Madre Villa
Pasadena, CA 91107

(213) 793-5748

FEATURING: Generation of Assembly Source Program
             Operational on Z-80 or 8080
             Assembly Programs Compatible with North Star BASIC

The CDS BASIC Compiler enables portions of North Star BASIC programs to be compiled into assembly language to achieve increased speed and to protect proprietary sections of code.   The CDS Compiler Development System includes COMPILER (which translates a subset of BASIC into an assembly language program), IBASIC (an integer BASIC interpreter), and a set of interface routines which couple the assembly language program to North Star BASIC.
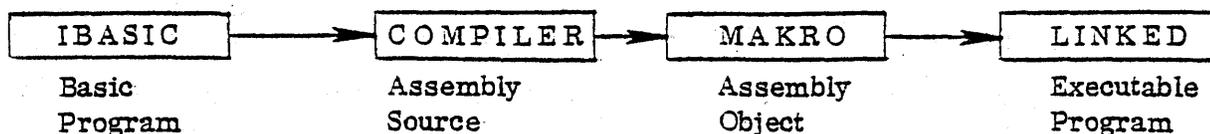
COMPILER recognizes FOR/NEXT/STEP, IF/THEN/ELSE, LET, GOTO, GOSUB, RETURN, EXAM, FILL, INP, OUT, CALL, RND, SGN, ABS, SIN, COS, ATN, EXP, LOG, SQRT, FIX, and INT. Arithmetic operations between floating point numbers in North Star BCD format or signed binary integer format are supported by the compiler, as well as logical operations AND, OR, EXCLUSIVE OR and relational operations =, <, >, <>, <=, and >=.   Variable storage is shared with North Star BASIC.

Generally only minor computational segments of a BASIC program need be compiled to achieve a dramatic improvement in execution speed.   Test cases show a speed improvement by a factor of twenty can often be achieved when the innermost of nested FOR/NEXT loops is compiled.

The compilation (or translation) task is rather evenly divided between IBASIC and COMPILER of CDS and MAKRO and LINKED of PDS.   Initial program entry is performed with IBASIC, which performs the necessary syntactical analysis.   COMPILER translates the IBASIC program into an assembly source text program.   MAKRO assembles the program and issues directives to LINKED regarding which interface modules are necessary to complete the program.   Program constructs such as floating point operations and transcendental functions which are not executable -- and are ignored -- by IBASIC are treated as references to North Star BASIC by COMPILER.

Programs created and run with the IBASIC interpreter can be compiled into self-contained assembly language programs.   BASIC programs which perform floating point operations utilize routines internal to North Star BASIC and communicate to those routines through the interface modules provided with CDS.

After creation of the BASIC program the compilation process is totally mechanical.   The flow sequence is:

IBASIC	→	COMPILER	→	MAKRO	→	LINKED
Basic Program		Assembly Source		Assembly Object		Executable Program

Documentation for CDS includes numerous step-by-step examples.   Versions are available for North Star Release 4 single density or Release 5 double density standard or floating point board BASIC.   Full user support is provided by mail or phone.