BC 200 Basic Compiler (BASIC 2.0)

- All BASIC 2.0 statements and extensions are supported.
- Typical integer performance is improved by a factor of 10-30.
- Typical real performance is improved by a factor of 6-10.
- Compiled programs interface directly with Infotek math cards.
- Specific program segments may be compiled.
- Flexible directives permit program optimization.
- Compiled code provides user program security.

INTEGER PERFORMANCE SPECIFICATION

STATEMENT	INTERPRETED BASIC	COMPILED BASIC	PERFORMANCE RATIO
FOR...NEXT	67	10	6.7
REPEAT...UNTIL	262	4	65.5
WHILE...END WHILE	418	6	69.7
IF...THEN	205	6	34.2
SELECT...CASE	1126	24	46.9
A = B	129	3	43.0
A = B + C	197	6	32.8
A = B − C	197	6	32.8
A = B * C	204	11	18.5
A = B DIV C	218	24	9.1
A = NOT B	155	6	25.8
A = B AND C	190	8	23.8
A = B OR C	191	8	23.9
A = B EXOR C	192	10	19.2
A = Array(B)	251	11	22.8
A = Array(B,C)	324	24	13.5
A = ABS(B)	161	6	26.8
A = SGN(B)	160	8	20.0
A = BINCMP(B)	275	4	68.8
A = BINAND(B,C)	326	6	54.3
A = BINIOR(B,C)	325	6	54.2
A = BINEOR(B,C)	326	6	54.3
A = ROTATE(B,C)	330	10	33.0
A = SHIFT(B,C)	332	10	32.0
A = BIT(B,C)	331	10	33.1

The integer performance numbers are in microseconds and represent typical execution times for Interpreted and Compiled BASIC. All variables in the statements are of Integer type. The Compiled BASIC numbers are for optimized code generation.

REAL PERFORMANCE SPECIFICATION

STATEMENT	INTERPRETED BASIC	COMPILED BASIC	PERFORMANCE RATIO
FOR...NEXT	165	47	3.5
REPEAT...UNTIL	317	10	31.7
WHILE...END WHILE	473	11	43.0
IF...THEN	220	15	14.7
SELECT...CASE	1280	42	30.5
A = B	134	9	14.9
A = B + C	277	41	6.8
A = B − C	295	41	7.2
A = B * C	438	46	9.5
A = B / C	574	58	11.3
A = NOT B	194	28	6.9
A = B AND C	219	29	7.6
A = B OR C	245	31	7.9
A = B EXOR C	232	31	7.5
A = Array(B)	255	18	14.2
A = Array(B,C)	326	31	10.5
A = ABS(B)	174	13	13.4
A = SGN(B)	230	31	7.4
A = SQR(B)	1949	218	8.9
A = SIN(B)	4020	470	8.6
A = COS(B)	4285	524	8.2
A = TAN(B)	4110	472	8.7
A = ASN(B)	5142	596	8.6
A = ACS(B)	5137	599	8.6
A = ATN(B)	4234	490	8.6
A = EXP(B)	3465	446	7.8
A = LOG(B)	3771	465	8.1
A = LGT(B)	4023	495	8.1
A = B^C	6373	950	6.7

The real performance numbers are in microseconds and represent typical execution times for Interpreted and Compiled BASIC. The index variables in the array statements are of Integer type. All other variables in the statements are of Real type. The Compiled BASIC numbers are for the FP 210 with optimized code generation.

INFOTEK

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The BC 200 Basic Compiler is compatible with all BASIC 2.0 programs. All BASIC 2.0 statements and extensions are supported. Compiled programs produce results which are identical with the results produced by interpreted programs.

Execution performance is significantly improved by the Basic Compiler. Typical integer performance is improved by a factor of 10 to 30; programs using integer data which require an hour for execution will run in two to six minutes. Typical real performance is improved by a factor of 6 to 10; programs using real data which require an hour for execution will run in six to ten minutes.

Compiled programs interface directly with the Infotek Floating Point Processors. One of the Floating Point Processors (the FP 200 or FP 210) must be present to compile programs or to execute programs which have been compiled. The real data performance specification on the front side of this data sheet is for the FP 210. Execution times for the FP 200 are 10 to 15 percent larger. The integer data performance specification is the same for both Floating Point Processors.

The Basic Compiler translates into native machine code those statements for which there is a significant performance benefit. Numeric program control and assignment statements are compiled because of the substantial performance improvements. Those statements for which the performance improvement is slight are not modified; these statements are executed in the normal interpreted mode. For example, most Input/Output statements are not modified. This selective compilation provides for efficient use of the computer memory.

The Basic Compiler is easy to use. The system is implemented as two binary programs. The first binary contains the compiler and uses approximately 66 thousand bytes; this binary is required for program compilation. The second binary contains the execution support and uses approximately 11 thousand bytes; this binary is required for program execution. These binaries are loaded into memory using the "LOAD BIN" command. The user compiles a program which is in memory by executing the "COMPILE" command. The compiled program remains resident in the computer memory. Compiled programs are executed in the normal manner. A compiled program may be stored on mass storage for future use by executing the "STORE" command. In addition, specific subprograms may be retrieved by using the "LOADSUB" keyword.

A number of compiler directives are provided to permit program optimization. Compiled programs may be optimized in terms of efficient memory use and execution speed. The directives include "EVENT TEST", "RANGE CHECK", "MATH CHECK", "PARAMETER CHECK" and "ALLOCATION CHECK". These directives may be enabled or disabled for any section of a program. The user should be aware that unpredictable results may occur if certain directives are disabled. For example, if "RANGE CHECK" is disabled, then an array reference with a subscript which is out of range will reference memory that is outside the range of the array.

User interaction is maintained with compiled programs. The trace facility for both lines and variables may be used. The "STEP", "PAUSE" and "CONTINUE" functions are maintained. Variables may be inspected and modified from the keyboard.

Compiled programs provide the user with additional program security. Compiled statements may not be inspected or modified because the source statements do not exist in the compiled program.

How To Order

The Basic Compiler may be ordered as:

(1) Compiler with execution support, or
(2) Execution support only.

The programs are available on 5 1/4" disks or 3 1/2" disks.

Users who have an Infotek Floating Point Processor must provide the serial number of the card. Users who do not have an Infotek Floating Point Processor must order an FP 200 or FP 210.

Discounts

OEM, government, educational and quantity discounts are available. Please call for details.

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Printed in USA 85/1