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Micro Mike's baZic, Release 1

By Richard A. Milewski

While billed as a higher-speed replacement for North Star BASIC, Micro Mike's baZic is a product with much more to recommend it than simply increased speed. Micro Mike's has undertaken the formidable task of "reverse-engineering" the version of BASIC that North Star Computers has been supplying to users of its Horizon Z80-based microcomputer. "Why bother?" is the initial reaction of most Horizon owners I have spoken to about this product.

True, North Star BASIC is relatively bug-free, and it is shipped free with every Horizon; but there are some reasons for considering baZic as an alternative. The most obvious is that baZic is written in Z80 code. Although the Horizon employs a Z80 as its processor, North Star BASIC was written before North Star became a manufacturer of complete systems. At that time, a large number of North Star disk systems were sold to owners of various 8080 and Z80 computers.

North Star, much to the delight of 8080 owners, has kept the BASIC entirely in 8080 code. This, of course, means that some measure of performance is sacrificed when the language is run on a Horizon or other Z80 machine.

Usefulness

Micro Mike's claims that baZic is 28 to 60% faster than North Star BASIC, and that assertion seems to be correct. I ran several benchmark sorting programs that contained a mix of memory sorting and moderate amounts of disk access and got an average 36% speed increase using baZic. Numeric operations seemed to benefit more from baZic than did string operations.

While baZic seems to attain the promised speed increase, the features that make it most useful for serious program development are unrelated to speed. First, baZic provides some

terminal control facilities within the language. It also supplies statements that clear the CRT screen and position the cursor at a specified location. While this feature frees the application programmer from the task of defining cursor-addressing and screen-clearing routines in every program, it also means that baZic must be initialized for the particular terminal in use.

The greatest improvement over North Star BASIC is the executable APPEND statement in baZic. It enables you to write a software package containing many different programs and APPEND subroutines common to more than one module while the program is running. The advantage of appending at run-time is that each common subroutine need appear on the program diskette only once.

The obvious benefit is the disk space gained. Some quick modifications to an inventory and order-entry package written in BASIC yielded more than a 30% reduction in the disk space occupied by the 26-program package. The less obvious benefit of the dynamic APPEND statement is that since each subroutine appears only once, program maintenance is much easier. This advantage alone justifies the purchase of baZic if you have medium-to-large-scale applications programs written in North Star BASIC. It is a modification that software producers have repeatedly requested of North Star, but to no avail.

Documentation

The baZic manual is an adequate reference text for an experienced BASIC programmer. While it includes a detailed table of contents, it suffers from the lack of an index. The only other major problem I had with the documentation was in the area of cursor-addressing statements. The setup program provided with baZic does not handle the convoluted

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Software Report Card

baZic Release 1

	Poor	Fair	Good	Excellent
Usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

System Requirements

- Z80 computer
- North Star disk
- 16K RAM
- Floating-point board (optional)
- North Star DOS

Price: \$150

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cursor-addressing protocol of Hazeltine terminals, and the manual was of little help in fixing the problem.

Ease of Use

BaZic requires virtually no installation unless the cursor-addressing facility is used. Since cursor addressing is not supported at all in North Star BASIC, first-time users need not worry about customizing baZic for their terminal if they plan to run only their existing programs. From a casual user's viewpoint, baZic is identical to North Star BASIC, and no retraining of terminal operators should be



necessary.

Error Handling

baZic includes the extensive error-trapping capabilities of North Star BASIC. These seem to function properly and provide adequate error handling. There is one anomaly within baZic, however. If a multiple-argument user-defined function is called with arguments the same as, but in reverse order from, the dummy arguments, the function call returns an erroneous value. Consider the following example:

```
10 DEF FNA(A,B)=10*A+B
20 A=5
30 B=6
40 PRINT FNA(B,A)
```

This small program will print the value 66 instead of the proper answer of 65. Since release 5.2 of North Star BASIC behaves in exactly the same fashion (earlier release printed zero), I leave it to the reader to decide whether this is an error in baZic or simply a faithful duplication of North Star BASIC.

Summary

Micro Mike's baZic is a product that will be of only limited value to North Star Horizon owners who run packaged software and do not now feel limited by the speed of their machines. But for the Horizon owners who write and maintain their own software or need the fastest possible execution of their existing BASIC programs, baZic can be a valuable addition to their software library. It is a well-implemented product, obviously designed by someone who understands both the limitations of North Star BASIC and the requirements of the serious BASIC programmer.

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Versions of baZic are available for North Star DOS, CP/M and MicroDoZ, a companion disk operating system. Micro Mike's offers several hard disk operating/timesharing systems which support versions of baZic operating under MicroDoZ or CP/M.

MicroDoZ

Combining the best features of North Star DOS and CP/M, MicroDoZ is a

North Star file — compatible flexible disk operating system that can be easily made to function on virtually any Z80 processor-based computer. Taking advantage of the Z80 instruction set, MicroDoZ offers a significant speed increase over CP/M and a significant increase in features over North Star DOS.

For the convenience of OEM's MicroDoZ can be changed easily to include drivers for different computer systems and floppy disk drives, allowing virtually any Z80-based computer to run programs which run normally under North Star DOS (and BASIC). Created with timesharing features in place, MicroDoZ allows users to upgrade conveniently from single-user to multiple-user configurations.

MicroDoZ is designed to function without regard to specific disk capacities. A two-byte disk address permits MicroDoZ to address directly more than 33 million bytes. In conjunction with Micro Mike's hard disk/timesharing systems MicroDoZ provides for many additional millions of bytes of external memory storage through disk drive segmentation.

In addition to the commands of North Star DOS, MicroDoZ features the following commands:

- OD — set default output device
- ID — set default input device
- DD — define default drive
- RE — rename a file
- RO — set read-only status
- WE — write-enable a file
- SS — set file to system status
- NS — set file to non-system status
- AF — set one of 64 attributes to a file

MicroDoZ includes a "wildcard" feature which allows the user to Llist all files (e.g., "LI, GL" lists all files with names beginning with GL).

In addition, MicroDoZ features a comprehensive set of machine language interface routines, including:

- Input and Output
- Control C
- Input status
- Output status
- Clear screen
- Cursor addressing
- Complete facilities for outputting messages, including:
 - carriage return and line feed
 - any messages ending with a zero
 - 8 & 16 bit Hex numbers
 - 8 & 16 bit Decimal numbers
 - conversions of Decimal & Hex strings to binary
 - space (TAB) outputting

MicroDoZ has a special command which allows all MicroDoZ commands to be executed from another program.

Additional calls are available to:

- Select drive and density
- DCOM equivalent
- DLOOK equivalent
- DWRITE equivalent
- SAVE type 2 files
- LOAD type 2 files
- CREATE files
- Locate the next separator byte in the Common Command Buffer
- Return the boundaries of MicroDoZ
- Release the printer (timesharing)
- Provisions for LOCKing and UNLOCKing files (timesharing)

MicroDoZ includes a Monitor program and a complete source listing of the Monitor program to demonstrate the use of the MicroDoZ command CALLS.

With MicroDoZ, one has the ability to pass information from baZic programs to machine language programs and back again, allowing baZic programs to call machine language programs and have those programs return to any baZic program.

CSUB (Common SUBroutines)

CSUB, a defined set of Common SUBroutines, is an application program development system for programmers. It features menu-driven program, mask and file creation features.

CSUB allows easy, rapid creation of application software and data bases which run under CP/M and baZic or MicroDoZbaZic. CSUB eliminates the need to "re-invent the wheel" for every program written. CSUB contains all functions generally required in an application program.

CSUB takes advantage of the powerful string capabilities of baZic. All string information (variables) in CSUB-based programs is stored in a single string, providing the programmer rapid random access to any portion of the string, resulting in quick and easy accessing and printing of string information.

CSUB is a companion product to baZic for CP/M or MicroDoZbaZic.

baZic for CP/M

With baZic operating under CP/M, programs written in North Star BASIC can be run on virtually any Z80-based computer with few or no modifications. Micro Mike's has developed a utility, COPYALL, for copying North Star programs and files to CP/M and vice-versa. A version of CSUB to operate with baZic for CP/M is available.