

ACT Sirius1

GRAPHICS TOOLKIT - No. 503





GW-BASIC is an extended version of MicroSoft's **MS-BASIC**, the most popular language in the micro-computer world. It meets the requirements for the ANSI subset standard for the **BASIC** language and supports unique features such as high-resolution graphics and music. **GW-BASIC** is an interactive interpreter. It translates a program into machine instructions one line at a time as the program is actually running.

GW-BASIC provides a unique and powerful program development environment. A program can be written with the full screen editing facilities of the **GW-BASIC** Interpreter and debugged using its program trace and immediate execution abilities. The fully-developed and tested program may then be saved in 'protect' mode to prevent listing or alteration of the source code. **GW-BASIC** is run under the **MS-DOS** operating system.

Major Language Features

Advanced (level 3) high-resolution graphics are available using commands such as the following:

- SCREEN
- LINE
- PAINT
- CIRCLE
- PSET
- PRESET
- DRAW

Text is entered by typing at the keyboard in **AUTO** mode. When a change is required, the cursor can be moved directly to the location in question and text inserted or deleted without leaving **AUTO** mode. During debugging, the **EDIT** mode works in a similar fashion. Characters, lines or the entire screen may be erased, and the cursor may be moved horizontally and vertically.

A full screen editor is included in **GW-BASIC** for ease in program development.

LCOPY supports the printing of the current screen contents, including graphics (on a suitable printer).

The **SOUND** statement generates a desired frequency for a specified duration.

Frequently used **GW-BASIC** commands (such as **RUN**.**CONT**.**LCOPY**.**SAVE**.**LOAD**.**FILES** and **LIST**) may be entered with a single keystroke. The command emitted by a special function key may be user defined with the **KEY** statement.

The cursor can be placed at any position on the screen using the **LOCATE** statement.

GW-BASIC supports four data types: Integer (± 32767), String (up to 255 characters), Single Precision Floating Point (7 digits), and Double Precision Floating Point (16 digits).

GW-BASIC has program trace facilities (**TRON**, **TROFF**) for easy debugging.

Error trapping is available using the **ON** **ERROR** **GOTO** statement.

With the interpreter, line numbers can be automatically generated and renumbered.

Boolean operators include:

- OR
- AND
- NOT
- NOR
- EQV
- IMP

Formatted Output is supported by the **PRINT** **USING** facility, including asterisk fill, floating dollar sign, scientific notation, trailing sign and comma insertion.

Extensive program editing facilities are available in the interpreter with the **EDIT** command and **EDIT** mode sub-commands.

Up to ten assembly language sub-routine calls per program are supported.

Program CHAINing with **COMMON** variables is supported.

Nested **IF**/**THEN**/**ELSE** constructs are allowed.

Variable length Random and Sequential access files are supported with a full set of file manipulation commands:

- OPEN
- CLOSE
- GET
- PUT
- KILL
- NAME

Interactive mode commands in the interpreter include:

- AUTO
- EDIT
- LOAD
- RENUM
- CONT
- ERASE
- MERGE
- LLIST
- DELETE
- LIST
- NEW
- SAVE

DATE\$ and **TIME\$** will retrieve or set the current date and time.

Graphics Support

The **ACT SIRIUS 1**'s resolution is 800×400 . In the graphics commands, this allows the X co-ordinate to range from 0 to 799, and the Y co-ordinate to range from 0 to 399.

GW-BASIC graphics statements range from the very simple **PSET** (which turns on a single pixel at co-ordinates given as parameters) to the very complex **PAINT** (which fills a bounded area). Also included are the statements such as **LINE** (which uses pairs of co-ordinates to delimit a line or rectangle) and **CIRCLE** (which draws circles, ellipses and partial curves, given a centre co-ordinate, radius and aspect ratio).

The **SCREEN** statement sets the screen attribute to alpha or graphics mode.

ACT (Sirius) Limited

Shenstone House, Dudley Road, Halesowen, West Midlands B63 3NT Telephone 021-501 2284 Telex 337007

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