Support Group Application Note
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Acorn

BASIC IV Application Note

Applicable Hardware :

Master 128
Master Compact

Related Application Notes:

Support Group
Acorn Computers Limited
Acorn House
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BASIC IV

Incorporates changes from BASIC II to BASIC III as follows:

* Provides some formatting of Assembly listings
* COLOR is accepted as an alternative to COLOUR
* SAVE A$+B$ works correctly
* USE of ! and ? as formal parameters works correctly
* A USA version listing COLOR instead of COLOUR is available

Includes the following additional changes:

* The version number in ROM is 4
* Incorporates all the 65C02 (65C12) instructions in Assembler:
    * DEC A may be represented as DEA
    * INC A may be represented as INA for compatibility with MASM
    * STZ may be represented as CLR
* ASL ALFRED or similar is accepted ie the 'A' indication of accumulator addressing mode for ASL, LSR, ROL, ROR, DEC, INC no longer affects symbol recognition.
* X, Y or A in the Assembler may be in lower case. EQUB, EQUW & EQUD may also be in lower case.
* Trailing spaces will always be stripped from lines entered into the interpreter.
* Leading spaces will be stripped from lines entered into the interpreter when a non-zero LISTO is set. The assumption is that there will be a formatted listing on screen when cursor editing is used when LISTO is non-zero.
* LISTO indents loops correctly.
* Cross-reference/Search output is available from LIST. Lines will be LISTed IF the specified string is present eg:
  ```
  LIST  IF  DEF
  LIST  10, 1000 IF =
  LIST  ,2000 IF A%
  ```
  It is not possible to search for TIME=90, for example, as a statement. It will only be checked for as a boolean expression. PTR£, HIMEM, PAGE, LOMEM are similarly affected.
* RENUMBER or LIST will not be affected by &8D in comments or strings. In addition LIST will not be confused by coloured comments.
* A statement to update an open file's extent 'EXT£chan=length' has been added.. This uses OSARGS and so will not work until there are suitable filing systems.
* A display real-time clock pseudo variable TIME$ has been introduced. It fetches a fixed 24 byte string from the OS in response to PRINT TIME$ (or similar). The string looks like Wed, 31 Dec 1900.23:59:59. Assigning to TIME$="fred" merely passed the string directly to the OS with the length in the first byte.
* AUTO no longer outputs a space after the line number.
* General recursion is now allowed in 'FOR' loops eg:
  ```
  DEF FNQ FORJ=1TO10 : P.J;:N. :=10
  FORI=FNQ-9 TO FNQ STEP FNQ/10
  ```
  now works. In previous version on the first FNQ or FNQ's without the loop would work.
* A new command EDIT which has identical syntax to LIST (even the IF section) can be used to create an in core text file of the current program (or section of it eg EDIT 10,100). It then issues the command "*EDIT hh, hh" where the hex addresses are addresses in zero page of the start of the in-memory text and the address in zero page of the end of the in-memory text plus one LISTO 0 is set before conversion begins.

If there is not enough space to convert the entire file, the error message 'No room' will be given together with a line number which shows how far through the program it had got: at this stage either CLEAR or a different EDIT command should be used. ESCAPE will behave similarly, stopping the conversion to text.

* The use of the " | " character at the end of VDU parameters can be used to insert the correct number of remaining zeros.

A full description of BBC BASIC IV can be found in the Master Series Reference Manual part 2 (product code ADJ23). The Master Series Welcome Guide contains a summary of the features (product code ADJ01).