
GENERAL NOTES

BB-PROM is a self-contained EPROM programmer for 2764 & 27128 type EPROMs.

It plugs into the user port of a BBC-B micro fitted with a disc drive.

All operating voltages and driving software are provided.

The 2764A and 27128A types can also be programmed by altering just one resistor value, by connecting a 59K across R4.

The driver software is supplied as a Sideways ROM for use in the BBC.

The 20 way cable on BB-PROM plugs into the User Port under the BBC microcomputer.

A voltage converter supplies the programming voltage (Vpp)

EPROMs are placed in a Zero Insertion Force(ZIF) socket whose jaws open and close by the turn of a screw slot.

Two switches allow all supplies to the ZIF to be removed, for safety while inserting or removing EPROMs.

TEST: An EPROM can be tested to be clean i.e. unprogrammed
READ: Will read i.e. transfer, an EPROM's contents to RAM A disc.

BLOW: Programs an EPROM from a named disc file

COMP: Compares the contents of an EPROM with a named disc file.

The address counter on BB-PROM is reset to zero when BREAK is pressed and when the program is first started. All tasks are executed on the target EPROM starting at address 0.

When BLOWing, if data is hex FF then that address is skipped over since a clean EPROM will already read FF at all locations. This feature not only produces speedier programming, but can also be used to start BLOWing away from address 0 by filling the start of the disc file with FFs.

A method of programming speedily for non-permanent storage, e.g. during program development, is also provided. This FAST programming has been found to work in practice with modern EPROMs although verification after blowing each byte, as required by the EPROM manufacturers, is not done.

When an EPROM is READ, it is read into memory as well as a disc file. BLOW, COMPare etc are all performed from the disc file and not from memory. The contents of memory can, of course be made into a disc file by +SAVE name 2000 + length since data is read into memory starting at address F2000.

Data in RAM can be modified and a disc file made from which to BLOW an EPROM. Modified EPROMs can be made in this way.

AN EXAMPLE

The example of creating a modified program in EPROM helps to illustrate most features of BB-PROM

Connect BB-PROM to the User Port before switching on the BBC.

The presence of BBPROM as a sideways ROM will be reported on the screen at power up.

Check that both slide switches are OFF (LEDs off). Open the jaws of the ZIF socket, insert the EPROM to be copied and close the jaws by turning the screw slot to 'c'. Make sure that pin 1 of the EPROM is next to 'pin 1' written on the BBPROM board.

WRONG INSERTION WILL DAMAGE THE EPROM
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Move the Vcc slide switch to the ON position (red LED on)

To copy EPROM contents into RAM and on to a disc file, first press BREAK to reset the BB-PROM counter. Place a disc in drive 0.

Enter +READ master ('master' is a file name in our example) EPROM contents will be read into a disc file named 'master', as well as into memory, starting at location A2000. Disc file may be examined by +DUMP master; memory contents by *VIEW

You can now modify a memory location (e.g. h2000) and make a new disk file called nmaster by use of *SAVE nmaster 2000+length.

SWITCH OFF Vcc. Remove the 'master' EPROM.

Place a new EPROM in the ZIP socket, switch on Vcc, and enter *TEST. This tests that the EPROM is actually blank and displays an 'O.K.' prompt on the screen. If it isn't then the first non-blank location's address is displayed.

*BLOW nmaster will now take your revised data from disc and load it into memory. If the file length is longer than &4000 then it will not fit even in a 27128 and you will see the message
FILE LENGTH =&...., TOO LONG, Otherwise you will see
FILE LENGTH =&...., DO YOU WISH TO PROGRAM THIS EPROM (Y/N)
Enter 'Y' if the file length fits the EPROM (2764 = &2000, 27128= &4000). The screen clears
and the following question appears
DO YOU WANT IT FAST (Y/N)?. Make your choice and switch on Vpp & press <RET> when
prompted, for programming (BLOWing) the EPROM. A hex and ASCII dump of the data being
programmed is displayed on the screen. When the task is completed, the screen shows
PROGRAMMING TERMINATED
SWITCH OFF Vpp THEN PRESS <RET> Please do this now !

To COMPare the data in the newly programmed EPROM with the file named 'nmaster'
and see the result of comparison, enter *COMP nmaster. A screen dump is produced in green
with mismatched comparisons in red. Red is brighter on monochrome displays. The format of
the display is

ADDRESS EPROM data FILE data

A summary of the mismatches is given at the end.

May we remind you that we also sell EPROM erasers ?

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