

universal programmer

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- *From:* "Abstract Dissonance" <Abstract.Dissonance@hotmail.com>
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Since I'm trying to get into MCU it seems I will need a programmer to get anywhere. From looking online it seems that any "decent" programmer is pretty expensive(1k+) and those that are cheap seem to offer very few features and few chip support.

I was thinking that it shouldn't be very difficult to program just about any chip by using a computer if the computer had "access" to all the pins on the chip. From looking at a few data sheets it seems that its very easy to program a MCU by simply handling the procedure through the software.

heres a quote of how to program the PIC16C84

The device is placed into a program/verify mode by holding the RB6 and RB7 pins low, while raising the MCLR pin from VIL to VIH (see PIC16C84 EEPROM Memory Programming Specification (DS30189)). RB6 becomes the programming clock and RB7 becomes the programming data. Both RB6 and RB7 are Schmitt Trigger inputs in this mode.

After reset, to place the device into programming/verify mode, the program counter (PC) points to location 00h. A 6-bit command is then supplied to the device, 14-bits of program data is then supplied to or from the device, using load or read-type instructions. For complete details of serial programming, please refer to the In-Circuit Serial Programming Guide (DS30277).

For ROM devices, both the program memory and Data EEPROM memory may be read, but only the Data EEPROM memory may be programmed.

It seems to me that if most chips follow a very similar method where you use a few pins(lets say arbitrary too) to get it into program mode and a serial communication on one pin to transfer the code then it would be extremely easy to program any of those chips by using a computer(with just about any number of pins). Is this the actual case?

Lets suppose I have a device that simply lets me access any of the pins on a chip from software.... could I then not use the software to program the

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chip? If so, is this true of pretty much most of the MCU's and EEPROMS or just a few? If not, what are the reasons why I couldn't do this?

Only thing I can think of that could prevent it from being so easy is supplying the proper voltage to the right pin (but this shouldn't be that hard) and getting the right clock into the chip. Other things like having to have resistors and stuff on certain pins for certain reasons and such would surely screw this method up as then it might become too complicated to do (well, it would be just easier to buy a "universal programmer"). If there are no resistors needed and I can generate the clock from the software in a computer and potentially the voltage (or just allow the voltage to be selectable by the hardware and on what pin it should be on) then I can't see why this would be that difficult. Definitely would be much cheaper to do than buying a 1000\$ programmer.

Is it safe to say that the generalization of the above procedure for the PIC16C84 applies to almost all other MCU's? And what about those MCU's that cannot be programmed in that way, what makes them so different?

Any ideas?

Thanks,
AD

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