Home

Notes on the Programming of 8051 Devices

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If you do not have a programmer, you may wonder how to get the program into the MCU.

Here I show a way to do this: Use an "oversized" ISP-MCU:

original MCU	possible pin-compatible ISP MCU	possible *non*-pin-compatible ISP MCU
AT89CX051		AT89S51, AT89S52, AT89S8252, AT89S53 for 3V AT89LS8252, AT89LS53
AT89C51	AT89S51, AT89S52, AT89S8252, AT89S53	
AT89C52	AT89S52, AT89S8252, AT89S53	
AT89C55	AT89C51RC2 (programming directly via RS232)	

Important: AT89S8252 and AT89S53 can NOT be reprogrammed in ISP-mode, when the MCU writes to any pin of the SPI interface in the first 500ms after reset! Parallel programming remains functional.

Here a list of some simple ISP programmer:

programmer	supported ISP MCU	connection	comment
Flashmagic	All modern NXP (Philips) 8051- and ARM-Flash MCU	serial port	works fine
Ponyprog	AT89S8252, AT89S53	serial port	works fine, no more modern AT89S supported yet
aec-electronics no parts programmer	AT89S51, AT89S52, AT89S8252, AT89S53	parallel port	works fine for a parallel port programmer, user interface a pain for the eye, does not work on non-CMOS parallel ports (found on very old computers, general problem of no parts programmers)
89S52prog and 89S52progUSB	AT89S51, AT89S52	serial port or USB	works fine, no other older AT89S supported yet, robust, fast, USB support needs Win XP, excepts only .bin files, get hex2bin.exe from Atmel to program .hex files

The other option is to ask me for a programmed chip: mc AT rotgradpsi DOT de