

“Touchless” ISP/IAP of the Philips P89LPC935

This version of No Touch is based on the original work by Erik Malund regarding the P89LPC932 micro. The ‘935 is a newer device, and has extra protection features to prevent unplanned alterations of flash or configuration bytes.

A call to the **no_touch935()** function here described brings the device back in its ISP mode by resetting the BOOTSTAT configuration byte to 0x01, this way the BSB bit is set. After the next reset of the device it’s accessible by FlashMagic again.

The **no_touch935()** does 2 things:

- 1: unlock the IAP by writing the IAP Status Authorization Key
- 2: Call the IAP function that writes to the Status Byte (BOOTSTAT)

Assembly version of **no_touch935()** (Keil A51 assembler used):

```
$NOMOD51
#include <reg935.h>

NAME      NOTOUCH935

PGM_MTP   EQU      0FF03H

?PR?no_touch935?NOTOUCH935          SEGMENT CODE
      PUBLIC no_touch935
; void no_touch935(){

      RSEG ?PR?no_touch935?NOTOUCH935
no_touch935:
      push IEN0          ;save EA status
      clr EA             ;disable int's
      mov R0, #0FFH     ;IAP authorization key first
      mov @R0, #96H
      mov A, #02
      mov R5, #01       ;write BOOTSTAT with 01H
      mov R7, #03
      lcall PGM_MTP
      pop IEN0          ;restore EA status
      RET

; }

; END OF no_touch935

      END
```

Calling from a C program:

```
extern void no_touch935(void);

if (condition) no_touch935(); // after next reset, chip is in ISP mode again
```

Thanks to Erik Malund for they original idea and improvements.