AT90PWM2/3

Programming Guide

Section 1

AT90PWM2/3 Programming Guide

1.1 Introduction

This document is intended for AT90PWM2/3 users, it focuses on fuse bit programming and configuration. It also provides information and synthesis about fuse bit configuration versus different Atmel hardware development kits using AT90PWM2/3.

For each hardware element referenced in this document please refer to the corresponding hardware user guide available on the Atmel web site.

1.2 General Remarks Concerning Fuse Bits

When DWEN fuse bit is enable there is no more ISP. The only way to disable this fuse is parallel programming or Debug wire using JTAGICE mkII (open project, start debugging session, then in JTAGICE mkII options there is a “Disable DebugWire” button).

When SPIEN fuse bit is disable there is no more ISP, the only wayto enable it is parallel programming .

On AT90PWM2/3, When PSCxRB or PSCRV fuse are used, the parallel programming fails, ISP must be used to desativate these fuse bits or to program the part.

Warning: If SPIEN fuse is disable and PSCxRB used, the chip’s firmware can be programmed using DebugWire only. The fuse bits cannot be changed any more.

Table 1-1. Fuse bit configuration vs effect on ATAVRMC100, ATAVRMC200, ATAVRFBKIT, STK500+STK520 used with AT90PWM2/3 Rev A

PSCxRB	RSTDISBLE	DWEN	SPIEN	ATAVRMC100, ATAVRMCMC200, ATAVRFBKIT	STK500 and STK520
❒	❒	❒	❒	AT90PWM2/3 is no more programmable, it must be unsoldered	AT90PWM2/3 can be programmed using parallel programming only
❒	❒	❒	☒	AT90PWM2/3 code can be programmed using ISP only.	AT90PWM2/3 code can be programmed using ISP and parallel programming.
❒	❒	☒	❒	AT90PWM2/3 code can be programmed using Debugwire only. Fuse bits are no more accessible.	AT90PWM2/3 code can be programmed using Debugwire and parallel programming only.
❒	❒	☒	☒	AT90PWM2/3 code can be programmed using Debugwire Fuse bits are accessible in ISP mode only.	AT90PWM2/3 code can be programmed using Debugwire and parallel programming.

Table 1-1. Fuse bit configuration vs effect on ATAVRMC100, ATAVRMC200, ATAVRFBKIT, STK500+STK520 used with AT90PWM2/3 Rev A (Continued)

PSCxRB	RSTDISBLE	DWEN	SPIEN	ATAVRMC100, ATAVRMCMC200, ATAVRFBKIT	STK500 and STK520
❒	☒	❒	❒	AT90PWM2/3 is no more programmable, it must be unsoldered	AT90PWM2/3 code can be programmed using parallel programming only.
❒	☒	❒	☒	AT90PWM2/3 is no more programmable, it must be unsoldered	AT90PWM2/3 code can be programmed using parallel programming only.
❒	☒	☒	❒	AT90PWM2/3 is no more programmable, it must be unsoldered	AT90PWM2/3 code can be programmed using parallel programming only.
❒	☒	☒	☒	AT90PWM2/3 is no more programmable, it must be unsoldered	AT90PWM2/3 code can be programmed using parallel programming only.
☒	❒	❒	❒	Part is no more accessible	Part is no more accessible
☒	❒	❒	☒	AT90PWM2/3 code can be programmed using ISP only.	AT90PWM2/3 code can be programmed using ISP only.
☒	❒	☒	❒	AT90PWM2/3 code can be programmed using Debugwire only. Fuse bits are no more accessible.	AT90PWM2/3 code can be programmed using Debugwire only. Fuse bits are no more accessible.
☒	❒	☒	☒	AT90PWM2/3 code can be programmed using Debugwire only . Fuse bits are accessible in ISP only.	AT90PWM2/3 code can be programmed using Debugwire only. Fuse bits are accessible in ISP only.
☒	☒	❒	❒	Part is no more accessible	Part is no more accessible
☒	☒	❒	☒	Part is no more accessible	Part is no more accessible
☒	☒	☒	❒	Part is no more accessible.	Part is no more accessible
☒	☒	☒	☒	Part is no more accessible	Part is no more accessible

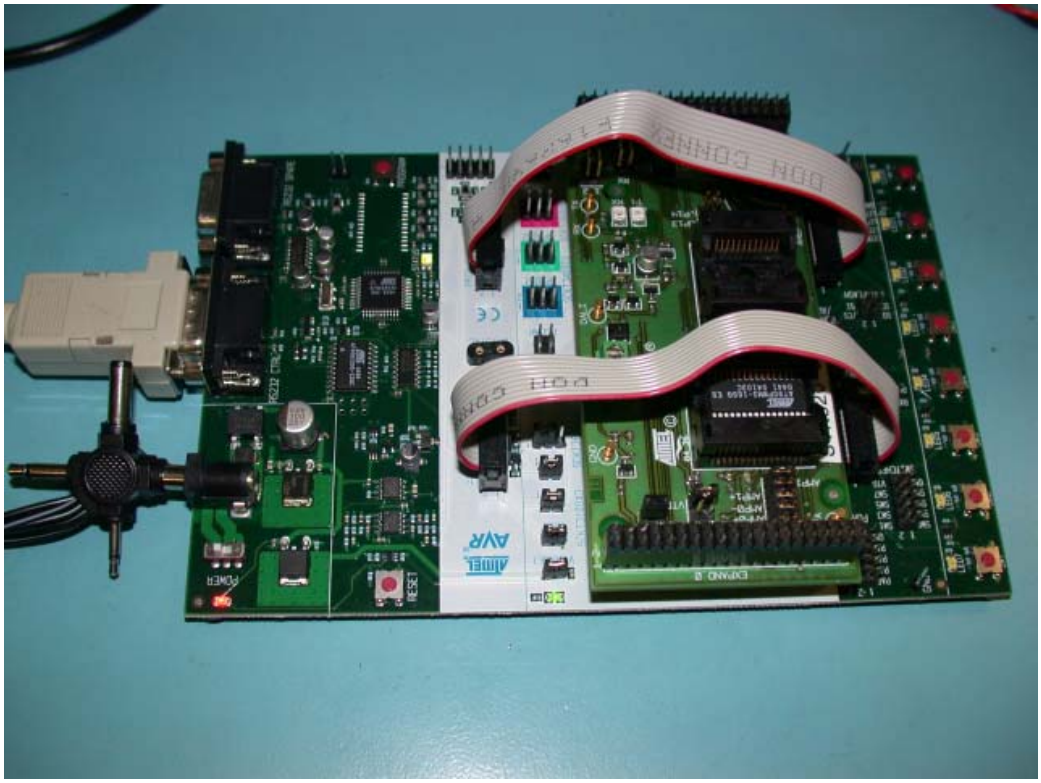
Note: In Debugwire mode, fuse bit can not be accessed.

☒ programmed

❒ Unprogrammed

Warning this configuration must be verified before programming it may completly lock the part

Figure 1-1. Annexe 1 : STK500, STK520 Parallel programming configuration



1.2.1 Connections

- RS232 cable from PC to RS232 CTRL connector
- 10 wire cable from PROG CTRL to PORTD
- 10 wire cable from PROG DATA to PORTB

1.2.2 Jumpers:

- VTARGET, AREF, RESET, XTAL1 and BSEL2 are selected
- OSCSEL is selecting on board oscillator
- PJUMP jumpers are removed

1.3 STK520 Jumper Configuration for Parallel Programming

Jumper	Position	Function	Description
JP1	On	XT1	Connect STK500 XT1 circuit to AVR PE1
JP2	On	XT2	Connect STK500 XT2 circuit to AVR PE2
JP3	On	RESET	Connect STK500 RESET circuit to AVR PE0
JP4	Off	RX	Connect RxD DALI to RxD Input of the AVR
JP5	Off	TX	Connect TxD DALI to TxD Output of the AVR
JP6	Off	VTG	Useful to measure the VCC and AVCC current
JP7	On	ANA REF	Connect STK500 REF circuit to AVR AREF
JP8	On	D2A	Isolate D2A output
JP9	On	AMP0+	Isolate AMP0+ input
JP10	On	AMP0-	Isolate AMP0- input
JP11	On	AMP1+	Isolate AMP1+ input
JP12	On	AMP1-	Isolate AMP1- input
JP13	Off		Potentiometer supply from Analog V Ref
JP14	Off		Potentiometer output to ADC0 input

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