

# Engbedded Atmel AVR® Fuse Calculator

## Device selection

Select the AVR device type you want to configure. When changing this setting, default fuse settings will automatically be applied. Presets (hexadecimal representation of the fuse settings) can be reviewed and even be set in the last form at the bottom of this page.

AVR part name:   (141 parts currently listed)

## Feature configuration

This allows easy configuration of your AVR device. All changes will be applied instantly.

**Features**

Ext. Crystal Osc.; Frequency 8.0- MHz; Start-up time PWRDWN/RESET: 16K CK/14 CK + 65 ms; [CKSEL=1111 SUT=11]

Clock output on PORTB0; [CKOUT=0]

Divide clock by 8 internally; [CKDIV8=0]

Preserve EEPROM memory through the Chip Erase cycle; [EESAVE=0]

Watch-dog Timer always on; [WDTON=0]

Serial program downloading (SPI) enabled; [SPIEN=0]

Debug Wire enable; [DWEN=0]

Reset Disabled (Enable PC6 as i/o pin); [RSTDISBL=0]

Boot Reset vector Enabled (default address=\$0000); [BOOTRST=0]

## Manual fuse bits configuration

This table allows reviewing and direct editing of the AVR fuse bits. All changes will be applied instantly.

Note:  means unprogrammed (1);  means programmed (0).

Bit	Low	High	Extended
7	<input type="checkbox"/> <b>CKDIV8</b> Divide clock by 8	<input type="checkbox"/> <b>RSTDISBL</b> External reset disable	

6	<input type="checkbox"/> <b>CKOUT</b> Clock output	<input type="checkbox"/> <b>DWEN</b> debugWIRE Enable	
5	<input type="checkbox"/> <b>SUT1</b> Select start-up time	<input checked="" type="checkbox"/> <b>SPIEN</b> Enable Serial programming and Data Downloading	
4	<input type="checkbox"/> <b>SUT0</b> Select start-up time	<input type="checkbox"/> <b>WDTON</b> Watchdog Timer Always On	
3	<input type="checkbox"/> <b>CKSEL3</b> Select Clock Source	<input type="checkbox"/> <b>EESAVE</b> EEPROM memory is preserved through chip erase	
2	<input type="checkbox"/> <b>CKSEL2</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL2</b> Brown-out Detector trigger level	<input checked="" type="checkbox"/> <b>BOOTSZ1</b> Select boot size
1	<input type="checkbox"/> <b>CKSEL1</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL1</b> Brown-out Detector trigger level	<input checked="" type="checkbox"/> <b>BOOTSZ0</b> Select boot size
0	<input type="checkbox"/> <b>CKSEL0</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL0</b> Brown-out Detector trigger level	<input type="checkbox"/> <b>BOOTRST</b> Select reset vector

Apply manual fuse bit settings

## Current settings

These fields show the actual hexadecimal representation of the fuse settings from above. These are the values you have to program into your AVR device. Optionally, you may fill in the numerical values yourself to preset the configuration to these values. Changes in the value fields are applied instantly (taking away the focus)!

Low	High	Extended	Action	AVRDUDE arguments	
				-U lfuse:w:0xff:m -U hfuse:w:0xdf:m -U efuse:w:0xf9:m	
				Select (try triple-click) and copy-and-paste this option string into your avrdude command line. You may specify multiple -U arguments within one call of avrdude.	
			Apply values		
			Defaults		
0x	FF	0x	DF	0x	F9*
			Apply manual changes to the values on the left side, or load factory default values for the selected device.	* Note that some numerical values refer to fuses containing undefined bits (set to '1' here). Depending on the target device these fuse bits will be read either as '0' or '1'. Verification errors will occur if the values are read back with undefined bits set to '0'. Everything is fine if the values read from the device are either the same as programmed, or the following values (undefined set to	

'0'): **Extended: 0x01.**