


# ATmega Flashing

Please follow steps to flash ATmega with current CPM ATmega Firmware.


- Current Firmware: [https://github.com/embedded-software-laboratory/cpm\\_lab/tree/master/low\\_level\\_controller](https://github.com/embedded-software-laboratory/cpm_lab/tree/master/low_level_controller)
- For questions, please contact Patrick Scheffe

 Steps require Main Vehicle PCB to be connected to vehicle to provide power

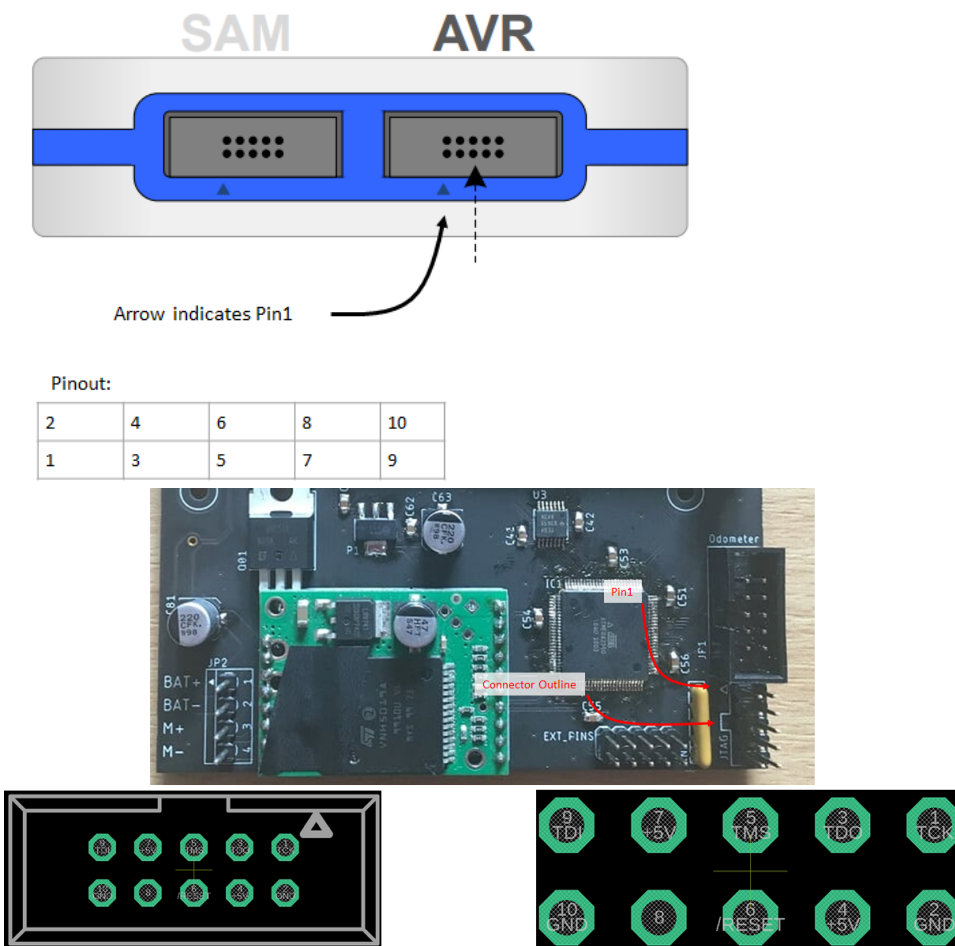
## 1. Atmel Studio 7.0

1. Start Atmel Studio 7.0
2. Load current vehicle firmware solution "vehicle\_atmega2560\_firmware.atsln"

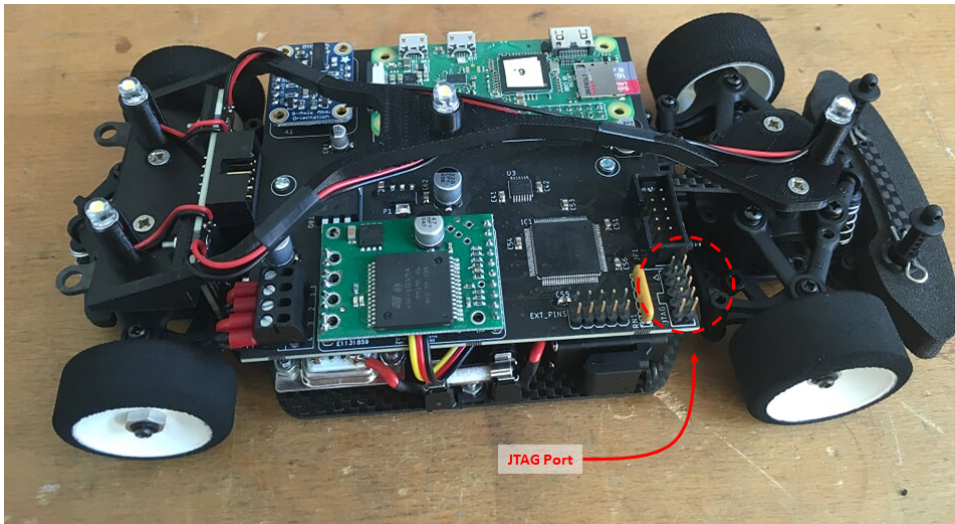
## 2. ICE Programmer

 Make sure vehicle is powered off before connecting the programmer!

1. Check pinout of Programmer, Vehicle and Connector Cable:



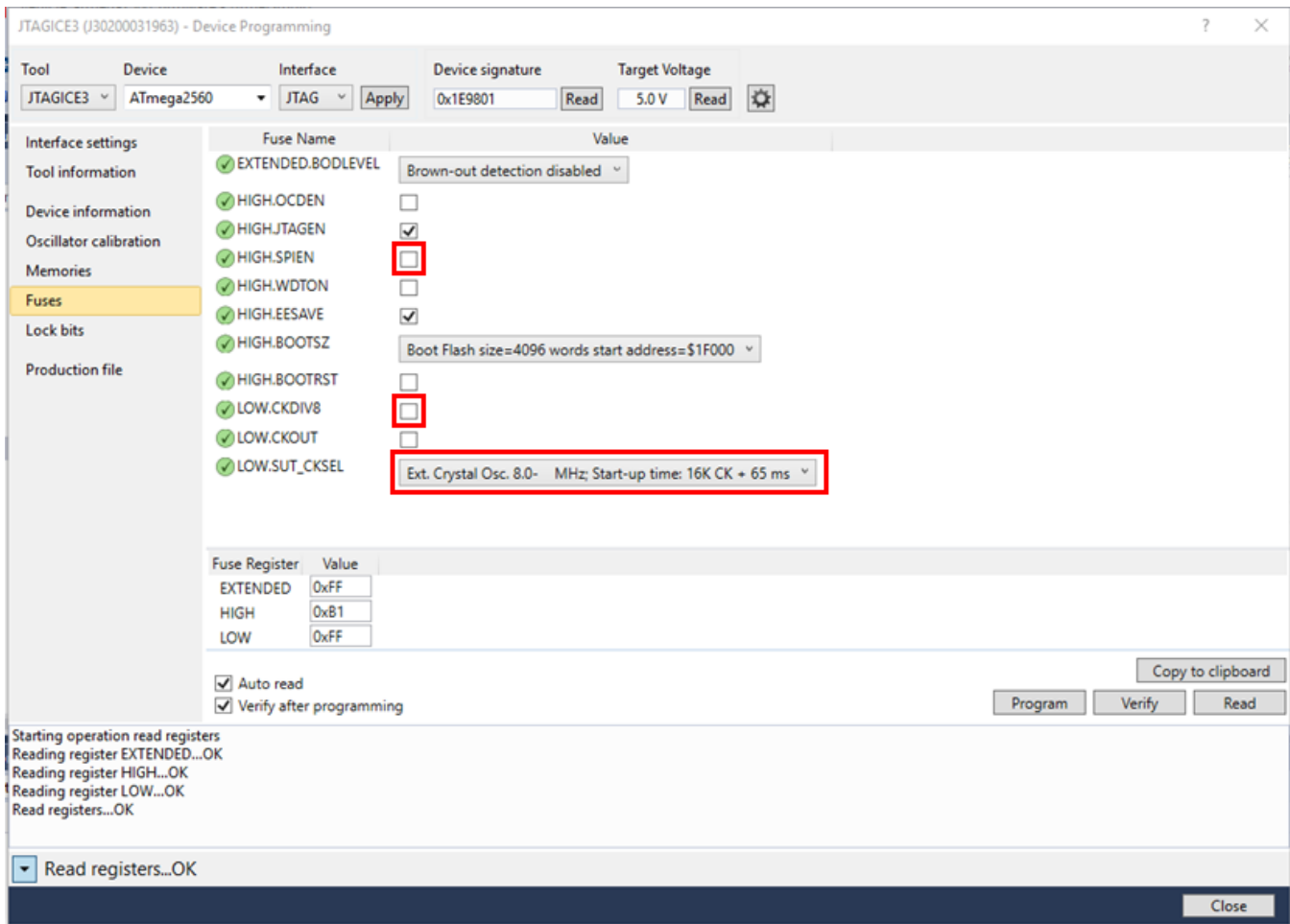
3. Connect ICE programmer with USB cable to PC.



### 3. Fuses

1. Turn ON vehicle
2. Connect to ATmega Chip with *ToolsDevice Programming*
  - a. Click *Apply*
  - b. Click *Read*
3. Set the correct fuses (see table and screenshot below)
4. Click *Program*

Fuse	Correct Setting
HIGH.SPIEN	Unchecked
HIGH.EESAVE	Optional i.e. checked or unchecked
LOW.CKDIV8	Unchecked
LOW.SUT_CKSEL	Ext. Crystal Osc. 8.0- MHz; Start-up time: 16 CK + 65ms

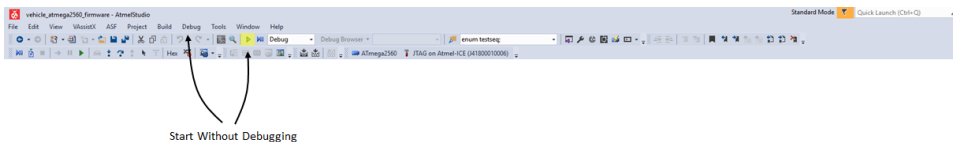


If vehicle is behaving irregularly i.e. servo steering is acting erratic, LEDs timing appears off, this is most likely due to an issue with the clock.

1. Check the above settings again.
2. Check external crystal oscillator on bottom side of board using oscilloscope (should be 16MHz)

## 4. Flash ATmega

1. Flash chip using Start without Debugging



2. Turn OFF vehicle
3. Disconnect programmer

## 5. Tests

By setting a jumper, a test mode is activated. This allows testing the inputs and outputs without the MLC.

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