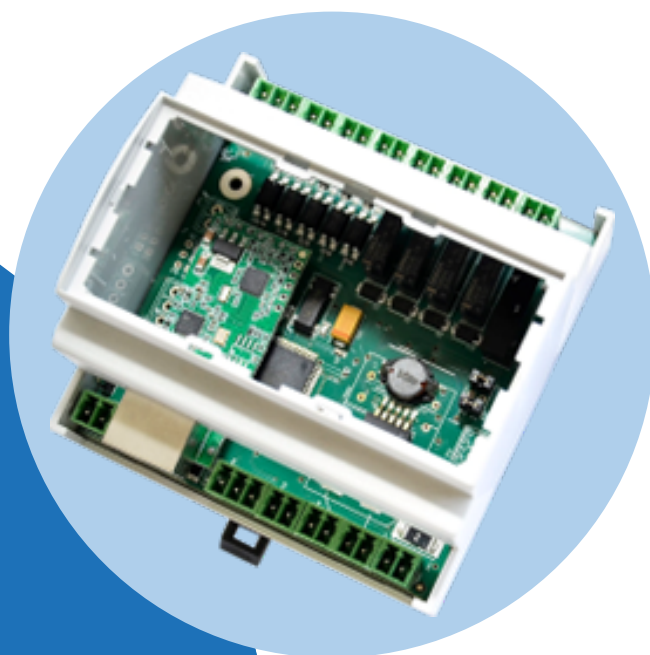# Instruction
M A N U A L

Soluzioni all'avanguardia per la realizzazione di sistemi Elettronici.

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Software and Initial Startup

The programming of the NRGYPLC1000 determines its way of functioning. The NRGYPLC1000 PLCs offer a high degree of flexibility and can therefore be used for many different purposes. Once programmed, your NRGYPLC1000 provides its service, e.g. as temperature control, light control, alarm system or house control. In case that other tasks are desired, the NRGYPLC1000 PLC can be reprogrammed as often as required.

Inside the NRGYPLC1000 works a microcontroller. This is a small computer on a chip which includes the program and memory as well as various other peripherals. Through the FLASH technology the user program is retained even if the operating voltage is disconnected from the system. The programming of the NRGYPLC1000 is done with the help of the "Arduino IDE" in the popular Programming language "C".

Install Arduino

Before using NRGYPLC1000 and start programming it, you have to do various preparations. These include installation of the programming / development environment for Arduino. Therefore first download the current Arduino IDE from the Internet.
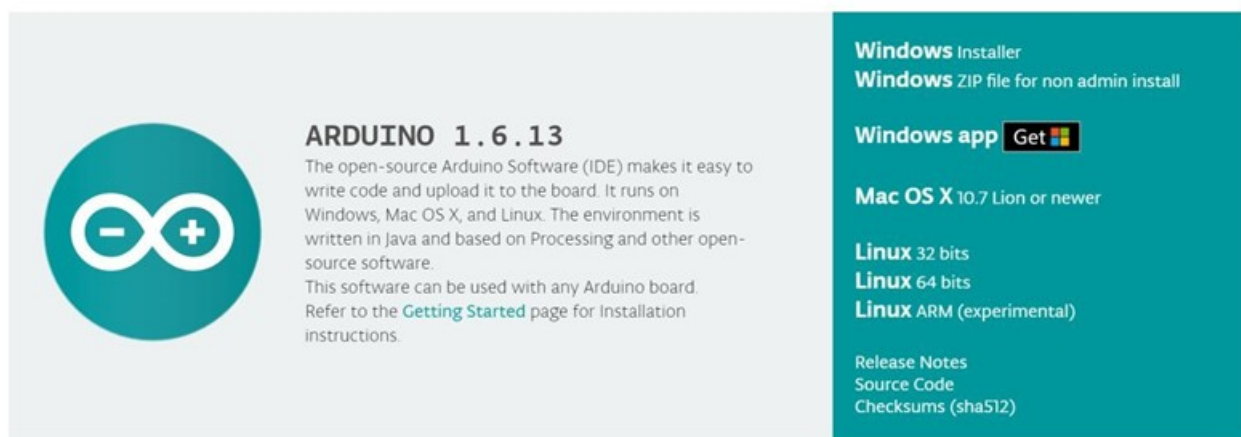

Figure 1: Download Arduino IDE

Arduino versions for Windows, Linux and MAC OSX are available. Select your operating system and start the installation.

ATTENTION! We always recommend to download the latest version of Arduino IDE

Step by step guide for NRGYPLC1000 hardware installation

After installing, open Arduino IDE software and navigate to File → Preferences (Figure 2)
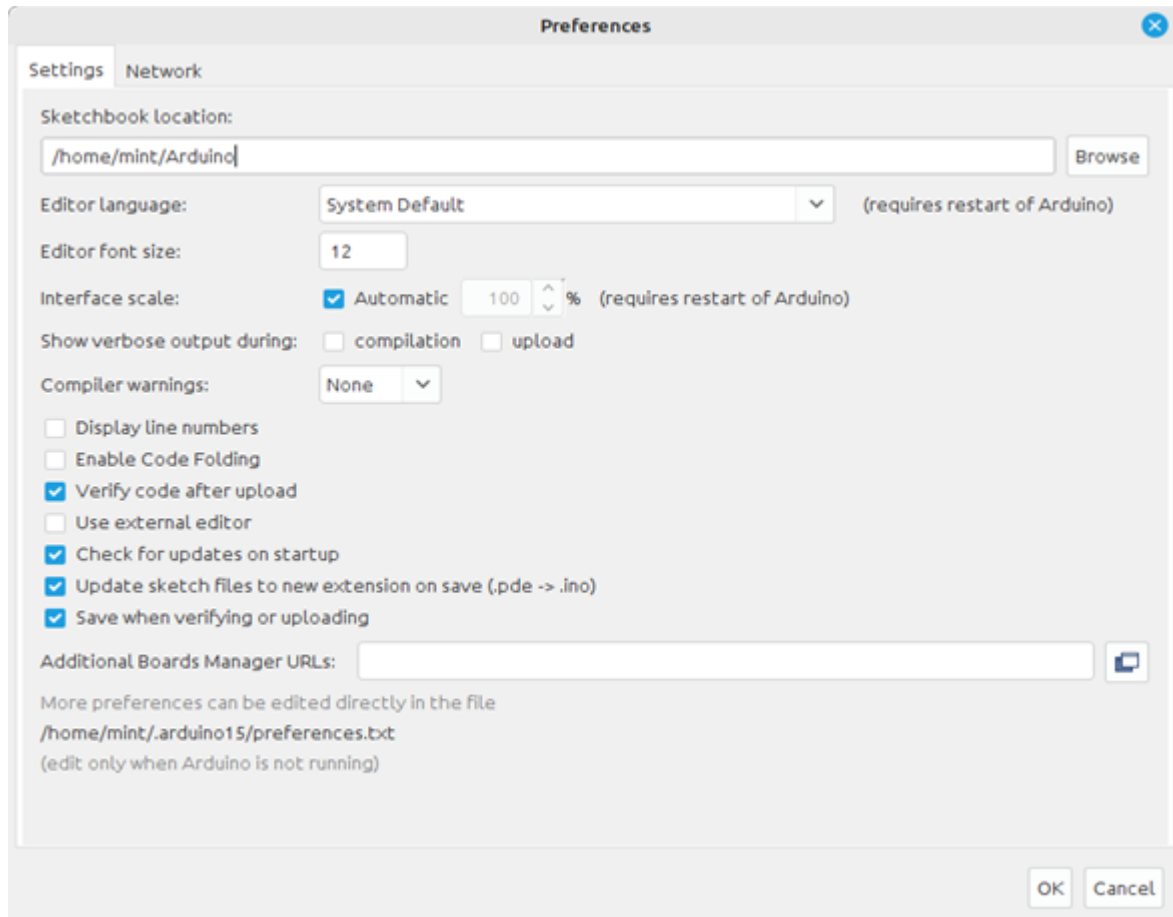

Figure 2: Arduino IDE preferences

Copy-paste the following link into the field labelled "Additional Boards Manager URLs:" (Figure 3) and press "OK" button.

https://mcudude.github.io/MegaCore/package_MCUdude_MegaCore_index.json
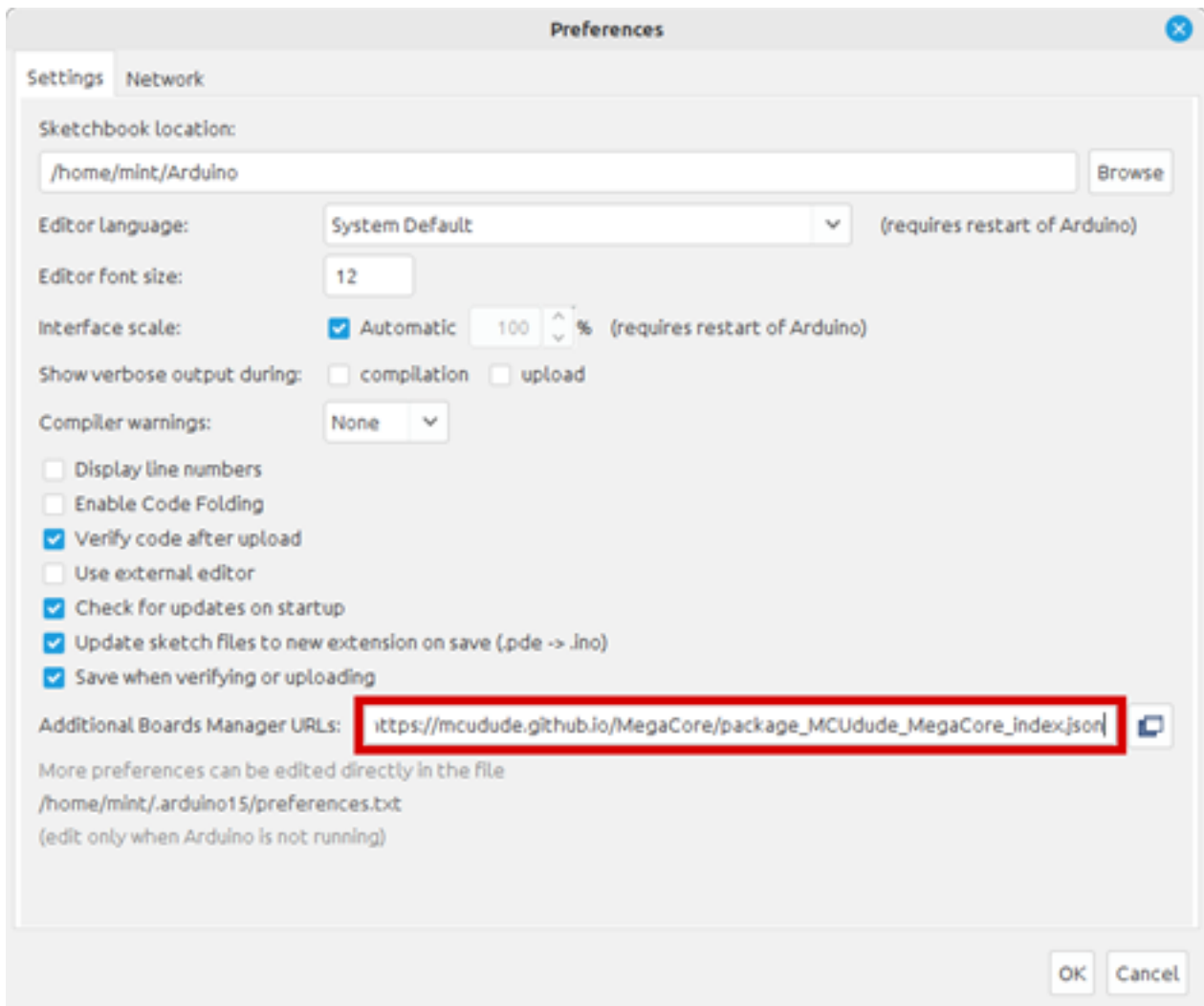

Figure 3: Arduino IDE preferences updated

Then navigate to Tools → Board: "Arduino (name of your last used board)" → Boards Manager (figure 4).
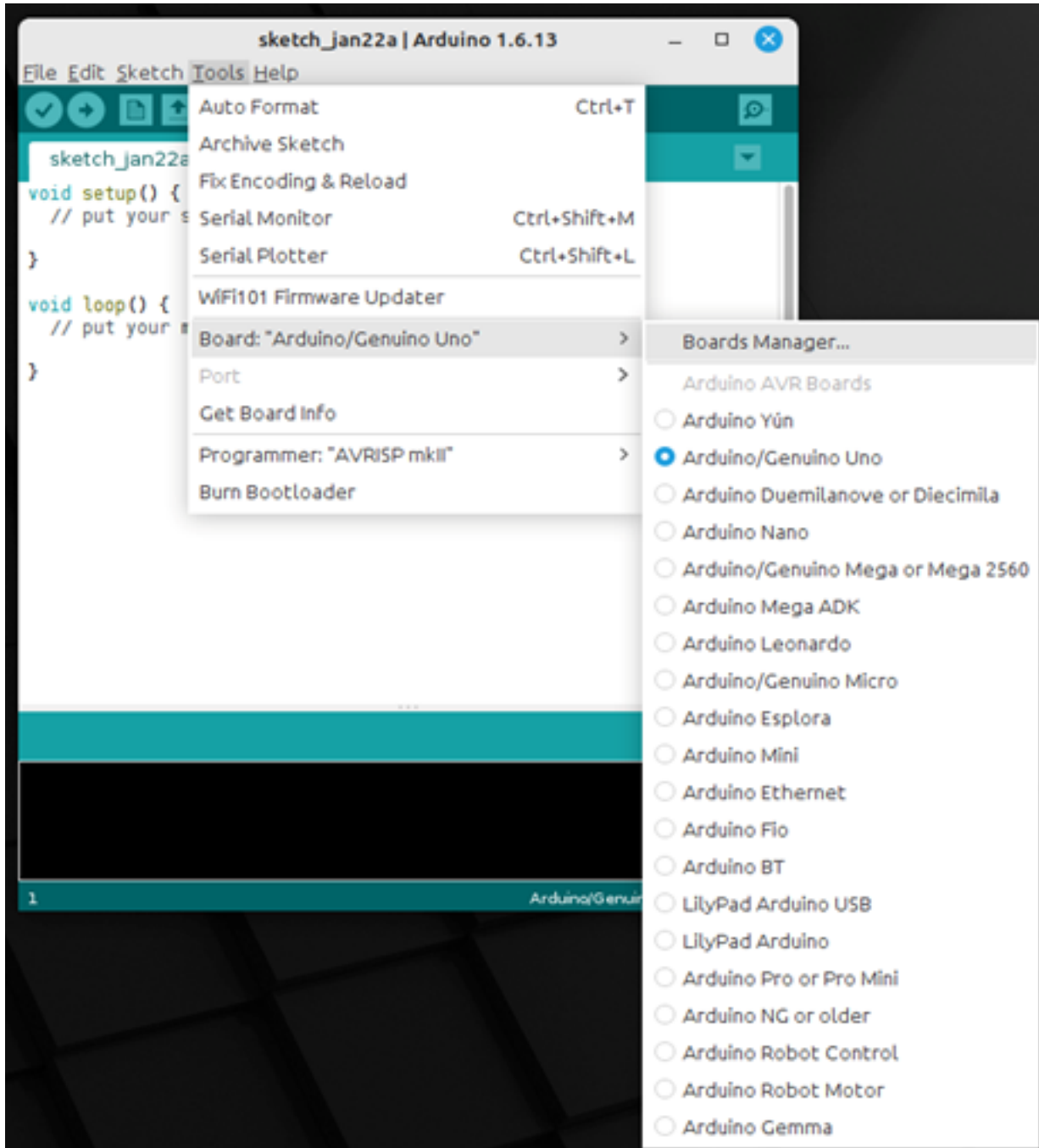

Figure 4: Navigating to Boards Manager

In the Boards Manager type "megacore" into the search box. Megacore Package will be shown. Click the "Install" button (figure 5).
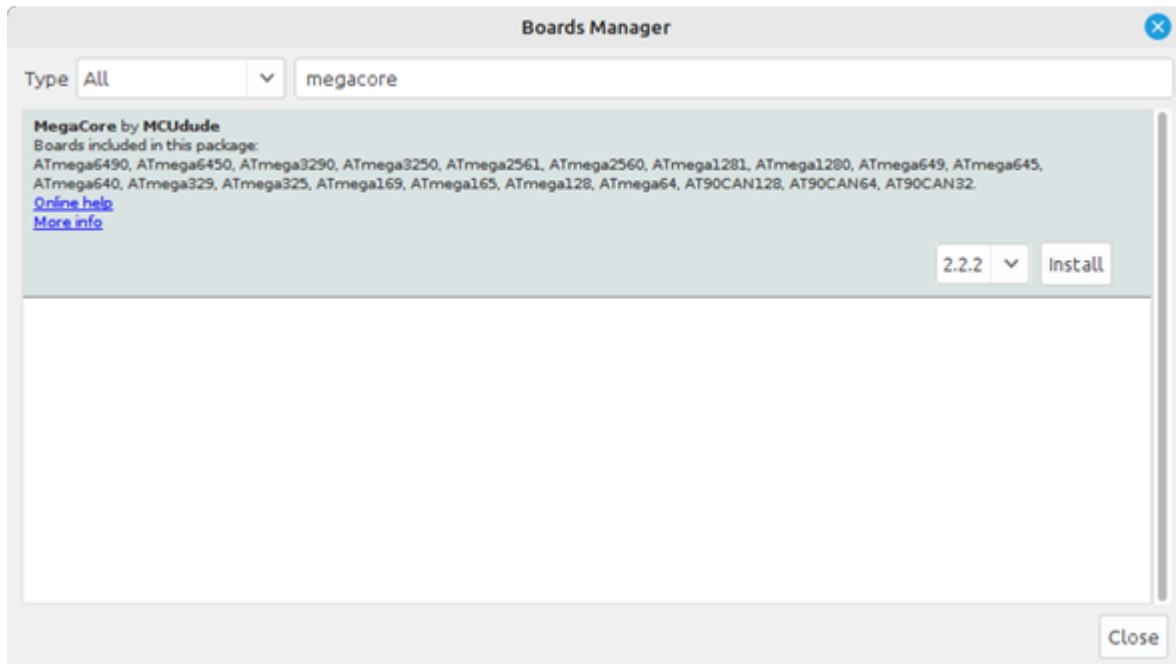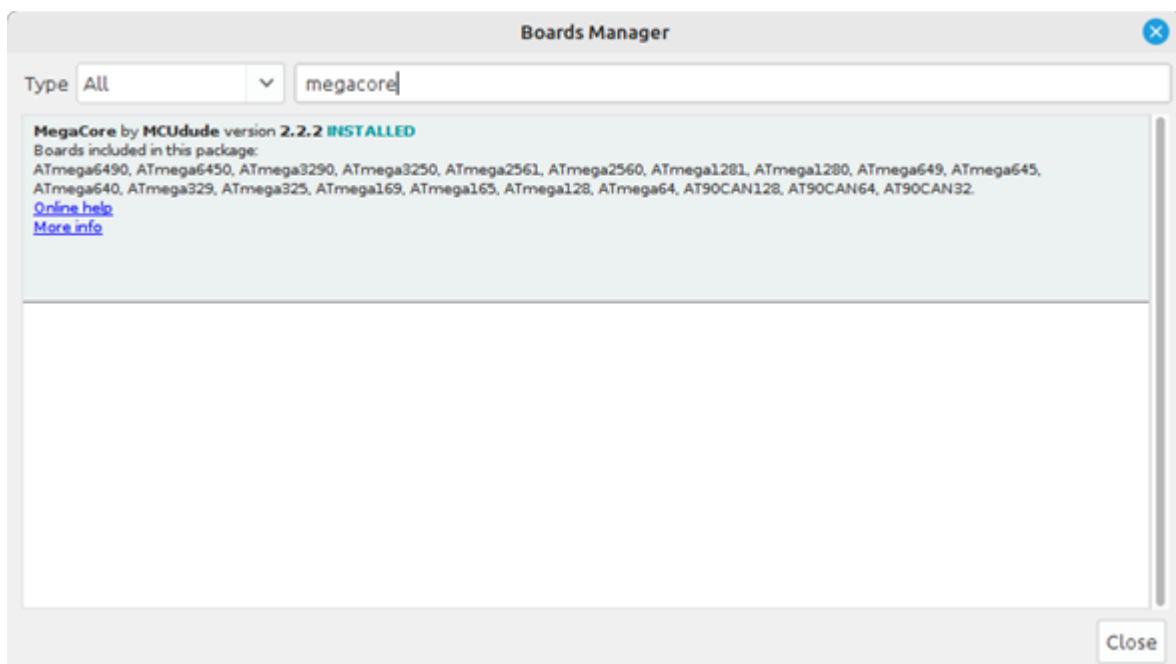

Figure 5: Boards Manager before Installation

Figure 6: Boards Manager after Installation

Installation successful

The Megacore Hardware package will allow you to see and select Megacore microcontrollers now (figure 7): for NRGYPLC1000 to work, you have to choose ATmega64 microcontroller.
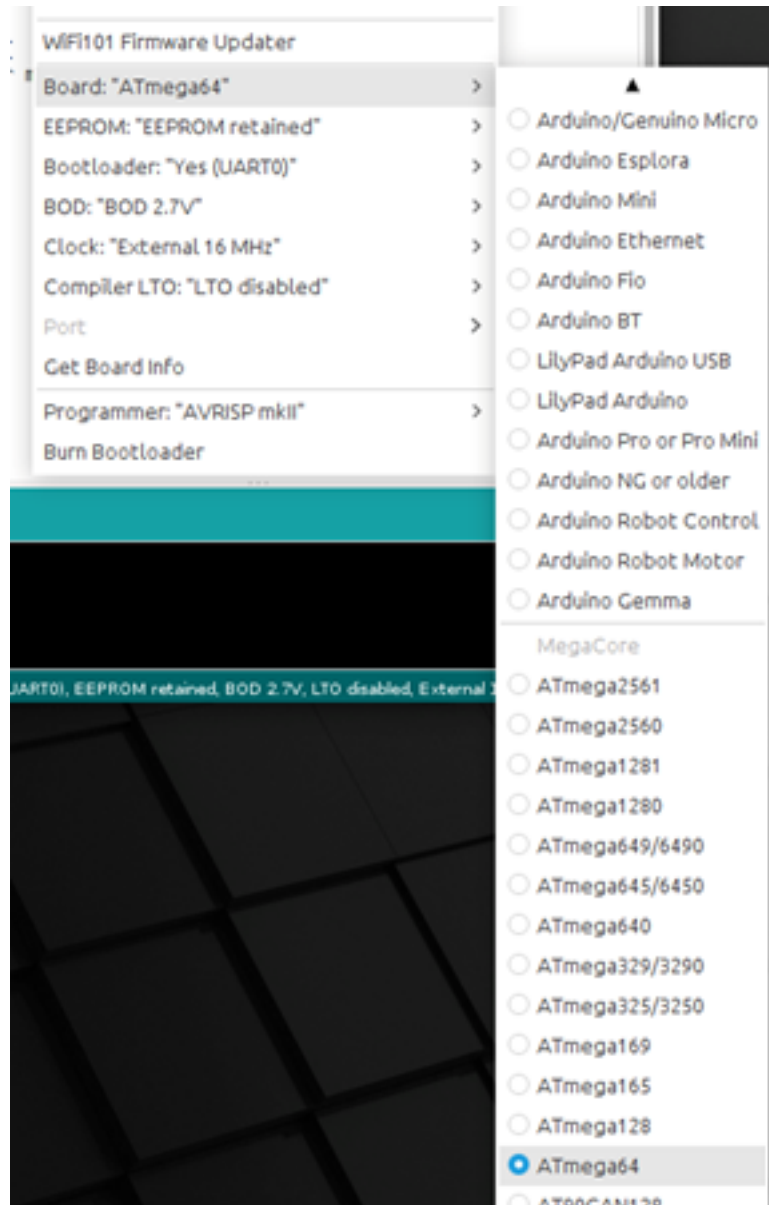

Figure 7: Megacore pack microcontrollers

After selecting ATmega64 microcontroller, you can set varius properties: it's mandatory that 'External 14,7456 MHz' is choosen in clock section. You can refer to figure 8 for an example of configuration:
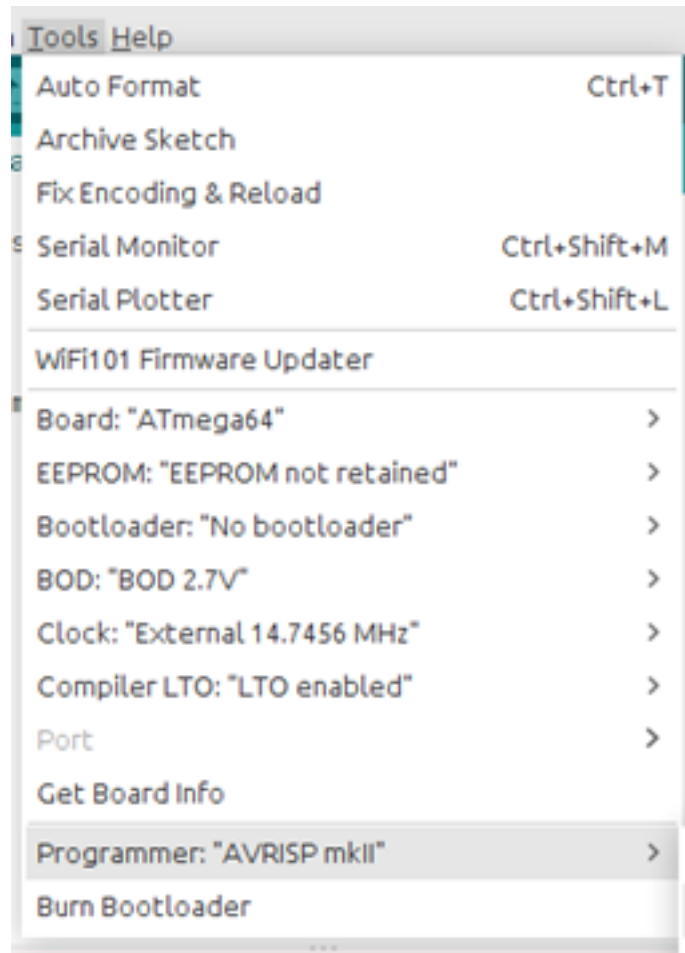

Figure 8: Configuration example

More detailed informations can be found to Megacore homepage:

https://github.com/MCUdude/MegaCore

Service and Maintenance

This product is free of maintenance. For cleaning of the housing please use a dry, soft and clean cloth. Under no circumstances use aggressive detergent or chemical solvents, because they may damage the housing (e.g. cause discolorations).

Disposal

At the end of its lifespan, please dispose of this product according to current legal regulations.

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