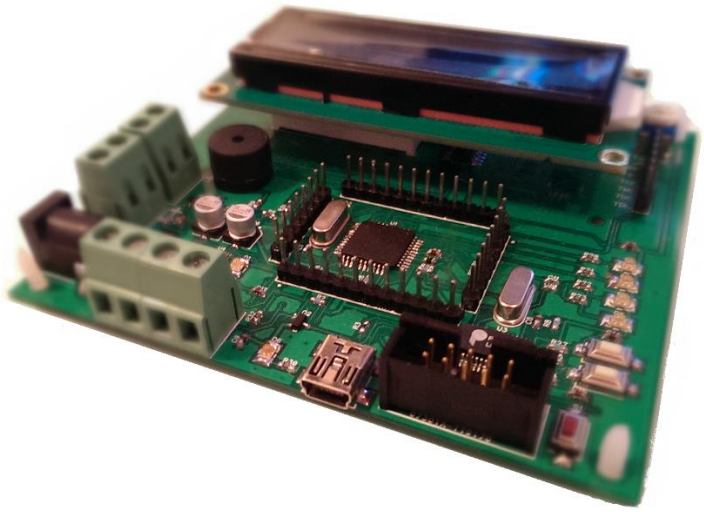
Atmega Robotic Development Board
User's Guide

Model: **ATA16R**

Revision: **A**



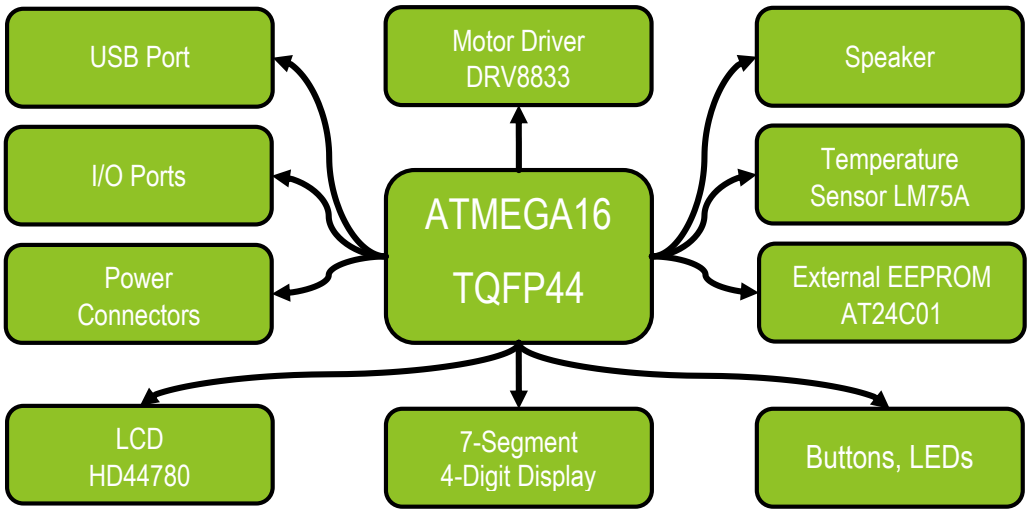
Introduction

This board is a robotic development kit. It has been designed to allow easy build own Atmega robot or simply to familiarize with AVR platform. It also could be used for prototyping or educational purposes. Board contains most fundamental components – everything is already prepared!

Product Overview

The ATA16R is an AVR based Robotic Development Board. Atmega16 (TQFP44) is used as the main controller on the kit. Board has special feature to control two DC motors or one step motor. Maximum total current is 1000mA.

Block-scheme



Gallery

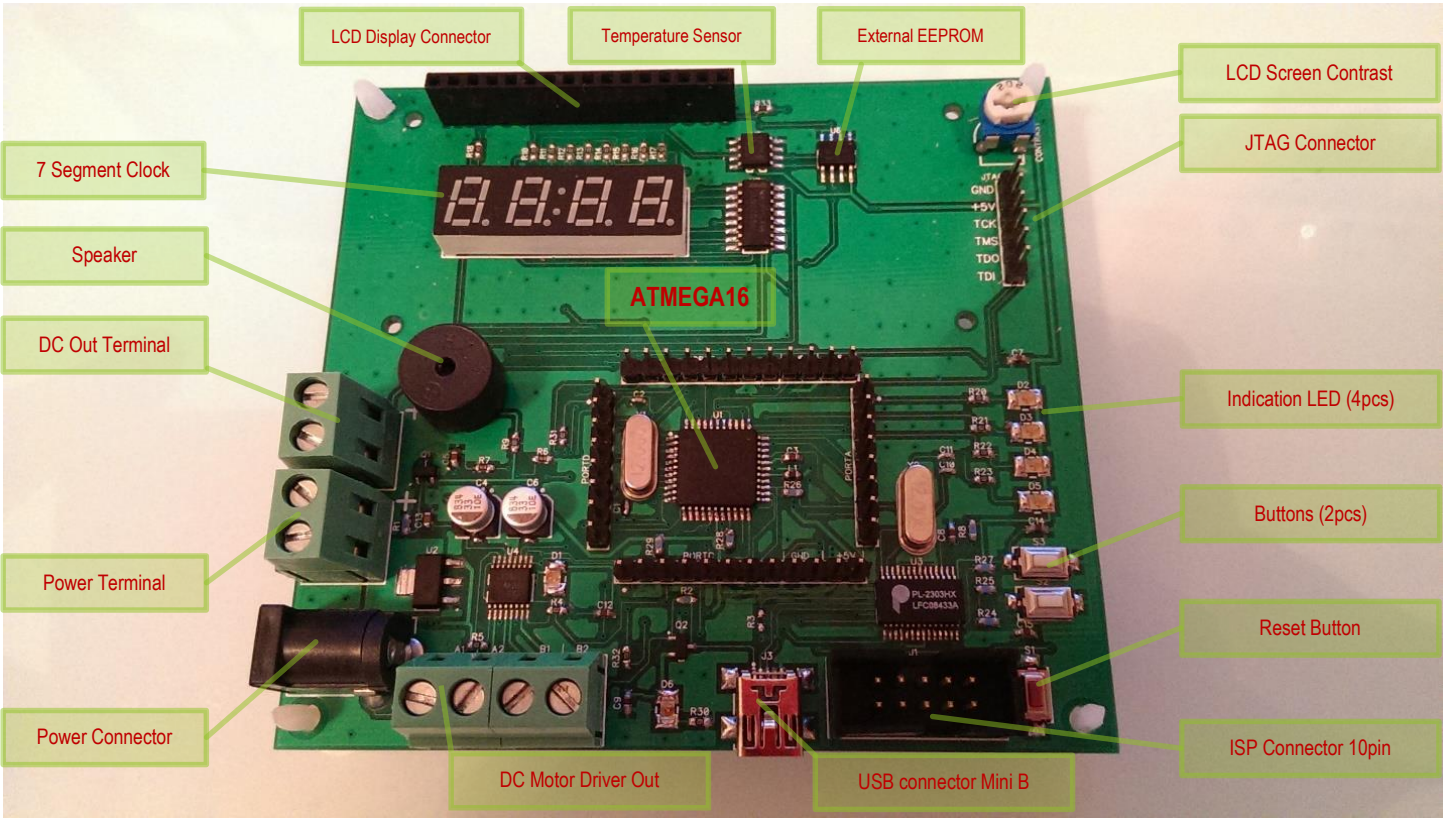


Figure 1. Product overview.

Key Features

- 8-bit RISC MCU Atmega16
- DC Motor controller
- I2C Temperature Sensor
- 1KB EEPROM
- USB (mini-B)
- ISP (10 pin)
- LCD display
- 7-segment display (4-digit clock)
- LED array
- Speaker
- Input voltage range 5-9V
- JTAG debug interface

Getting Started

Driver Installation

Before starting the development you should first install drivers and the development environment.

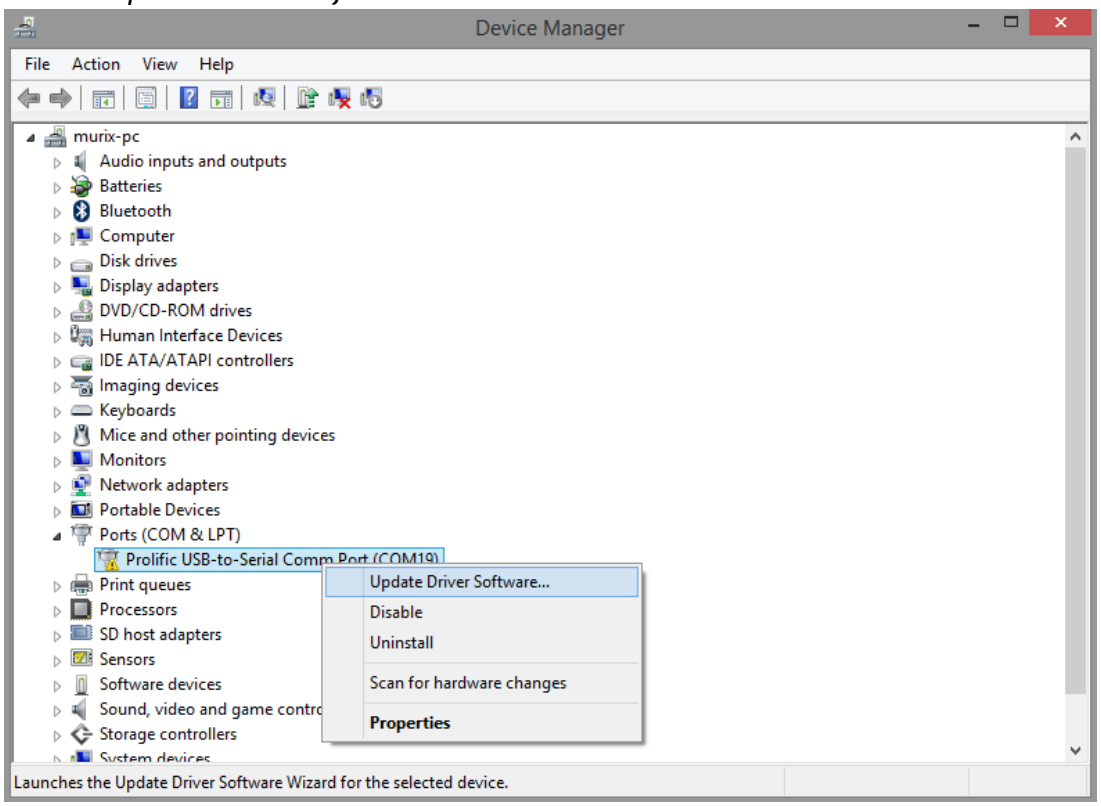
Windows 7.

If you are a Windows 7 user, then just connect USB cable to the connector J3 and system will automatically detect device and install driver.

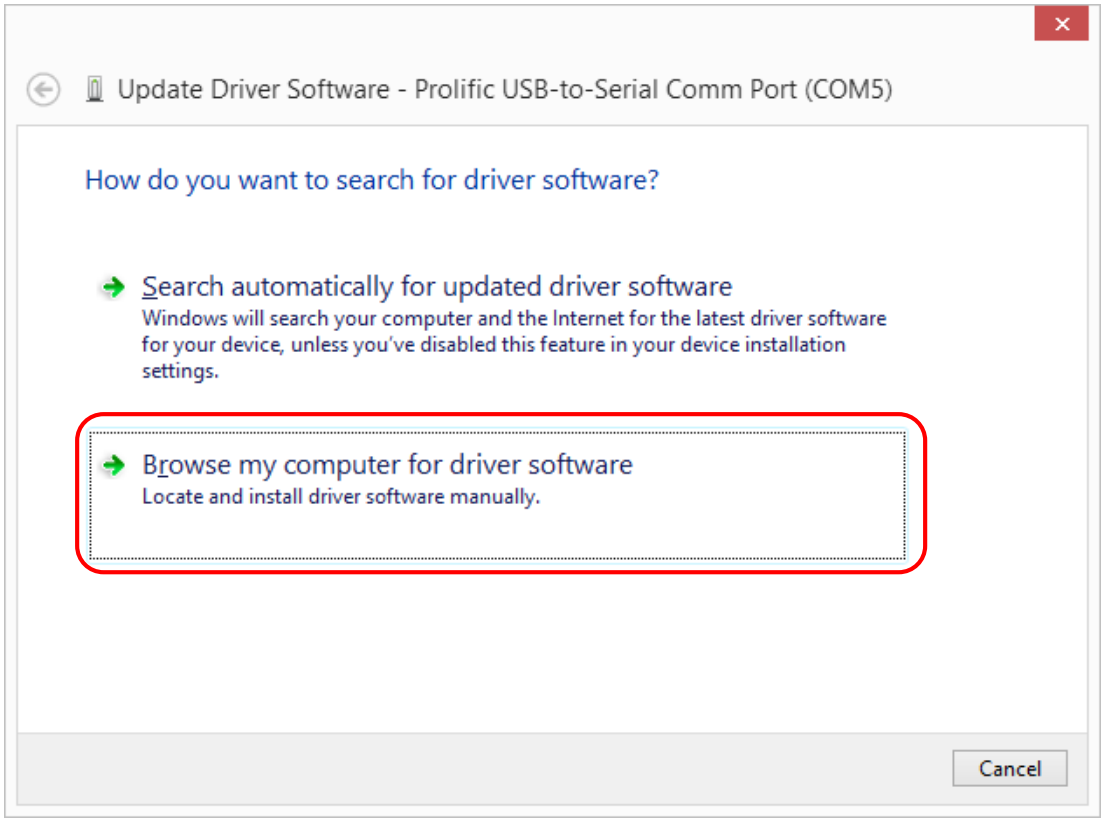
Windows 8.

If you are using Windows 8 or 8.1 then you might experience Prolific driver incompatibility problem. To make this thing work just follow these instructions:

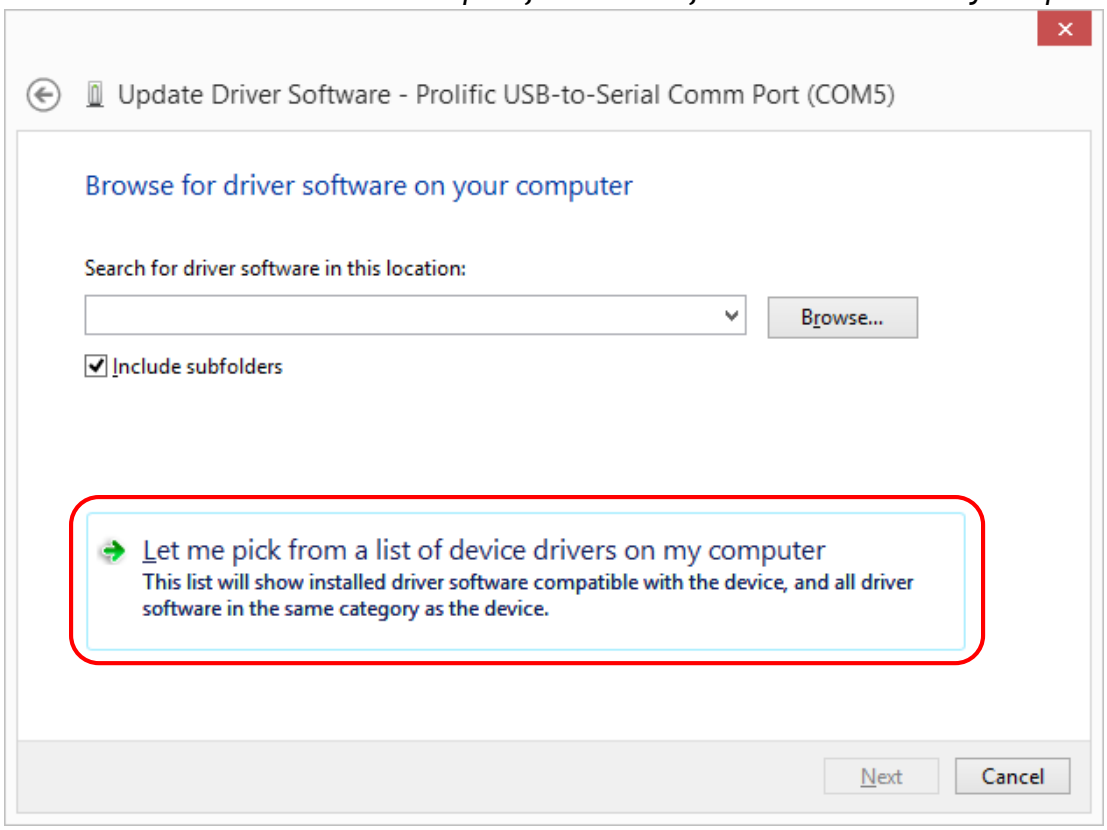
1. Connect USB cable to the connector J3 and let the system to detect device and to install driver automatically.
2. Download driver upgrade package from here: Download Driver (MD5 a008a5d8d43931f0fcaf39b5ae735267)
3. Run the installation.
4. After the installation complete, open Device Manager, expand the Ports (COM & LPT) tree.
5. Right click on the "*Prolific USB-to-Serial comm port (COMx)*"
6. Select "*Update Driver Software…*"



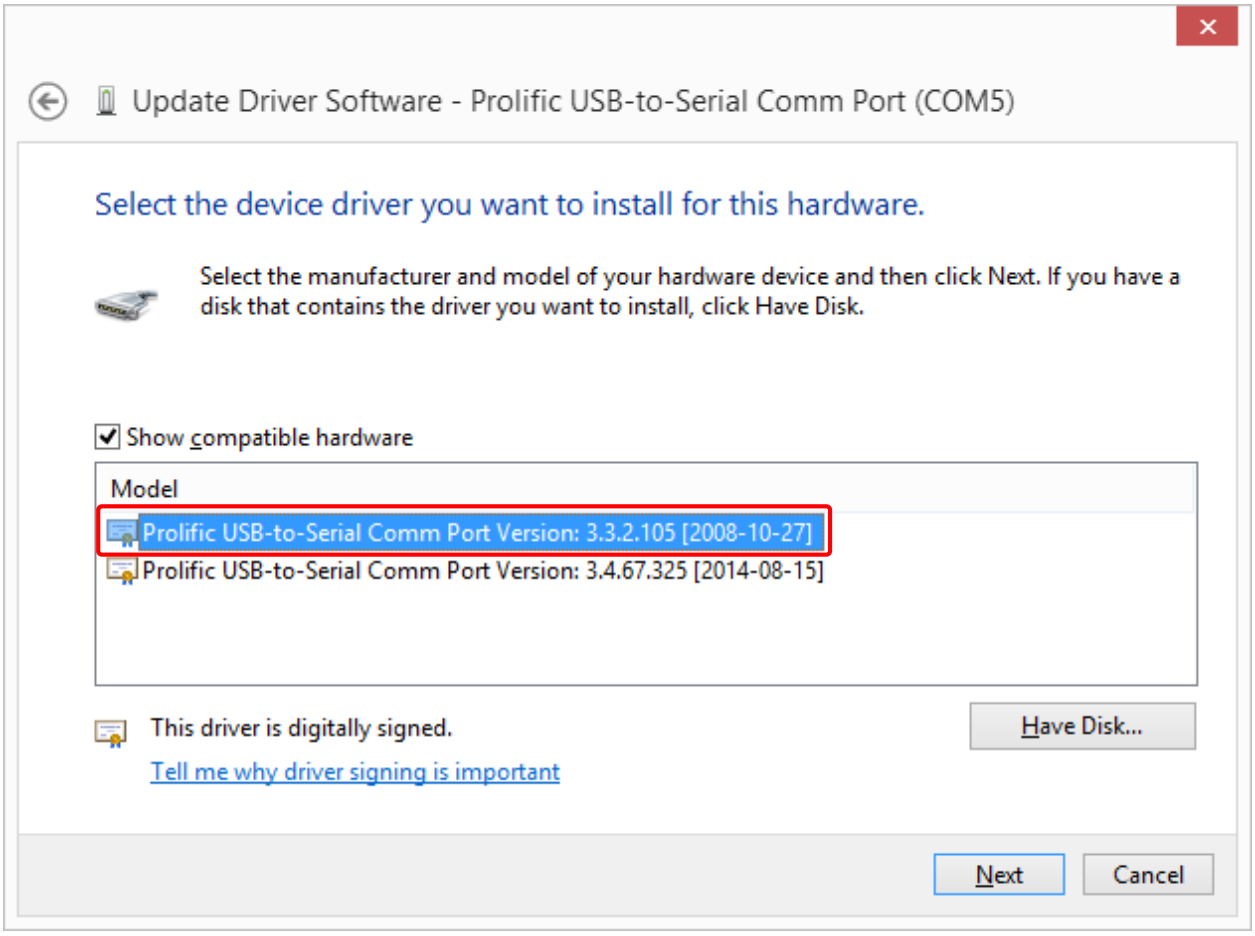
7. In the newly opened window select "*Browse my computer for driver software*"



8. On the next window click "*Let me pick from a list of device drivers on my computer*"



9. In the next window select "*Prolific USB-to-Serial Comm Port Version: 3.3.2.105*"



10. Click "*Next*" to apply new driver version.
11. Close the window and make sure that yellow rectangle with exclamation sign has disappeared.

Development Environment (Optional)

In order to start software development you should install the IDE first. The recommended option is the latest version of Atmel Studio [www.atmel.com/microsite/atmel_studio6/]. However, you can use any other suitable IDE.

Programmer

If you do not have ISP programmer device, then recommended option is Thomas Fischl open **USBasp Programmer** [www.fischl.de/usbasp/].

Programming Software

If you are prefer USBasp Programmer, then you might want to use **GUI Software for USBasp based USB AVR Programmers** which is offered by **eXtreme Electronics** [eXtreme Burner].

Hardware

MCU

- Power Supply: 5 – 9V DC
- I/O Pin Current: 20mA

Motor Driver

- Maximum Current: 1.2A

LCD

- HD44780 16x2 Display

LED

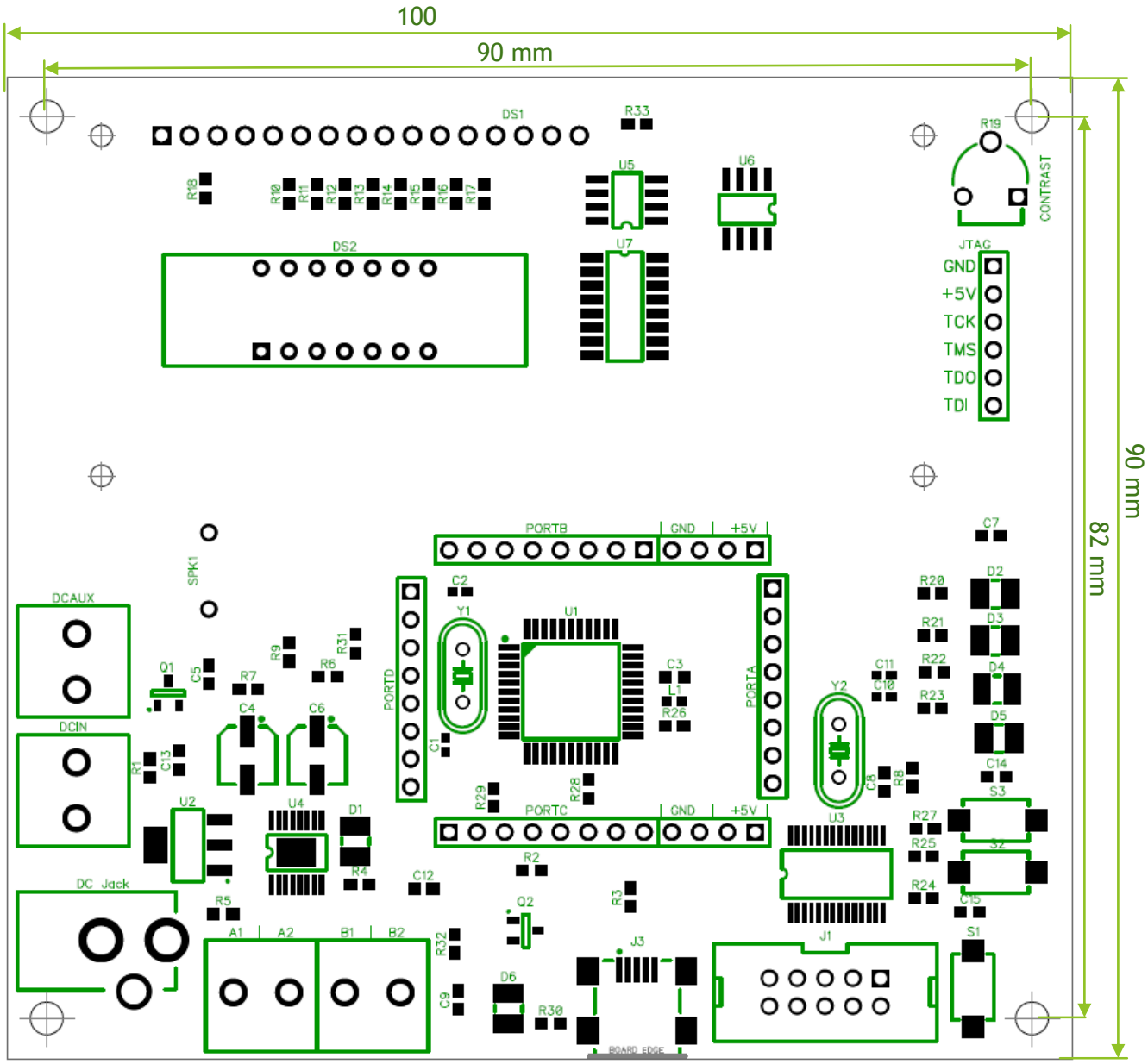
- 7-segment 4-digit clock
- 4 x single LED

Software

Demo Source Code

- Provided as a separate document.

Mechanical Drawing



Dimensions of the board: 100 x 90 (±2) mm.