

**FLIP**  **click**  
click boards™ meet Arduino

# To our valued customers

I want to express my thanks to you for being interested in our products and for having confidence in MikroElektronika.

The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

A white handwritten signature on a blue background, consisting of stylized, overlapping letters.

Nebojsa Matic  
General Manager

# Table of Contents

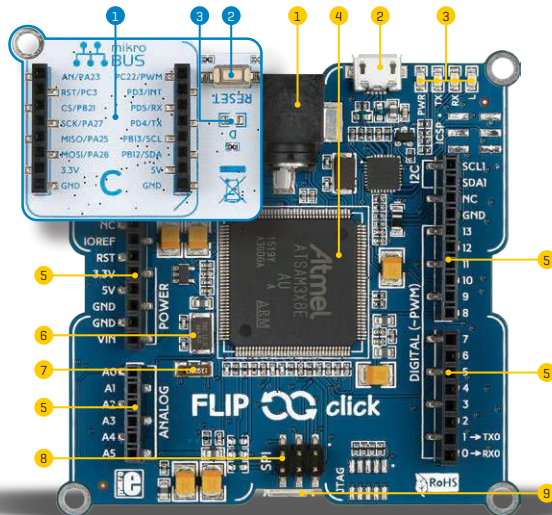
Introduction to Flip & click	4
1. What's on board?	5
2. Programming Flip & click	6
3. Code examples	7
4. Blue side	8
5. USB ports	9
6. White side	10
7. click boards™	11
8. Schematic	12

# A maker's sidekick

Meet Flip & click, Arduino's close cousin. This board shares a lot of Arduino DNA — **Atmel's 32-bit AT91SAM3X8E** MCU, the familiar pinout, firmware to program it like a regular Arduino — but it has a tendency to flip. When it does, you'll get to see its other side — four mikroBUS™ sockets for connecting click boards™. With **more than 160** bite-sized clicks to pick from (and more coming out every week), anything goes. All sorts of sensors, transceivers, encoders, displays, connection ports are at your disposal. Separate communication lines allow for thousands of click board combinations, with no need for unsightly stacking or wire jumping. Flip & click is a perfect sidekick for your adventures in Maker land.



# 1. What's on board?



- 1 7-20V DC connector
- 2 Programming USB port
- 3 Signal LEDs
- 4 AT91SAM3X8E MCU
- 5 Arduino UNO pinout
- 6 12 MHz Crystal oscillator
- 7 32.768 MHz Crystal oscillator
- 8 SPI header
- 9 host/device USB port

- 1 mikroBUS™ socket (one of 4)
- 2 Reset button
- 3 LED (one of 4)

## System specification



power supply  
via USB cable  
(5V DC)



board dimensions  
73 x 73 mm  
(2.87 x 2.87 inch)



weight  
30 g (0.066 lbs)



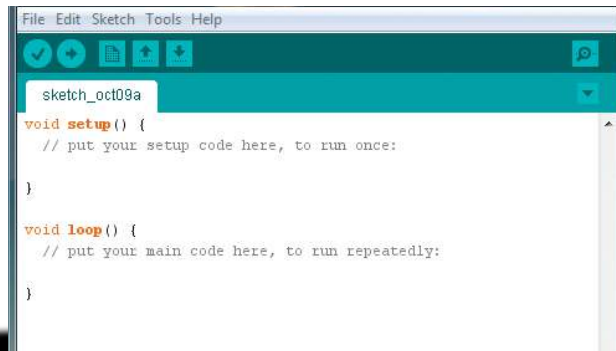
mikroBUS™  
4 sockets

## 2. Programming Flip & click

To program the Flip & click, download the latest version of the open-source Arduino IDE. The software is available for Windows, Mac, and Linux.

Once you connect the board to a PC (using the microUSB port next to the power connector) your system will recognize it as an Arduino Due. Just compile your sketch and you're good to go.

➦ [www.arduino.cc/en/Main/Software](http://www.arduino.cc/en/Main/Software)

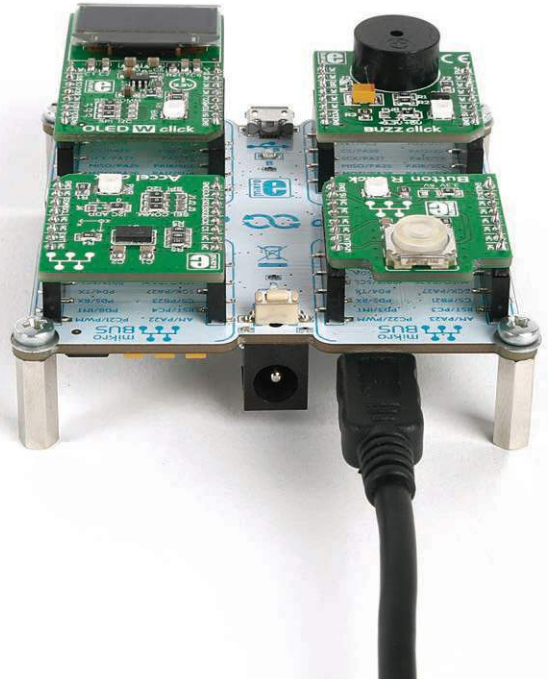
A screenshot of the Arduino IDE interface. The window title is "File Edit Sketch Tools Help". Below the title bar is a toolbar with icons for a checkmark, a plus sign, a document, an upload arrow, and a download arrow. The main editor area shows a sketch named "sketch\_oct09a" with the following code:

```
void setup() {  
  // put your setup code here, to run once:  
}  
  
void loop() {  
  // put your main code here, to run repeatedly:  
}
```

# 3. Code examples

We made several examples to show off the potentials of Flip & click and click board™ combinations. All the code is available on MikroElektronika's GitHub channel. Keep visiting the link, as more code will be added in the future:

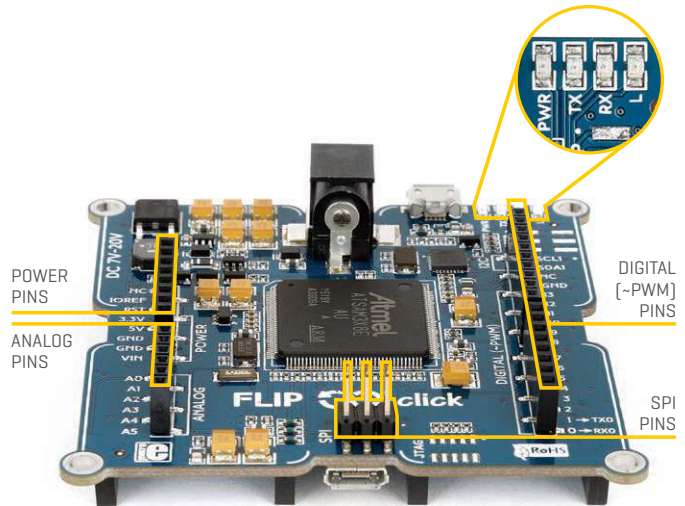
[www.github.com/mikroe/Flip\\_n\\_Click\\_Examples](http://www.github.com/mikroe/Flip_n_Click_Examples)



## 4. Blue side

On the blue side, Flip & click features a standard Arduino Uno pinout [with additional SPI pins] which makes it compatible with a range of Arduino shields. All the pins operate on 3.3V logic, just like with Arduino Due.

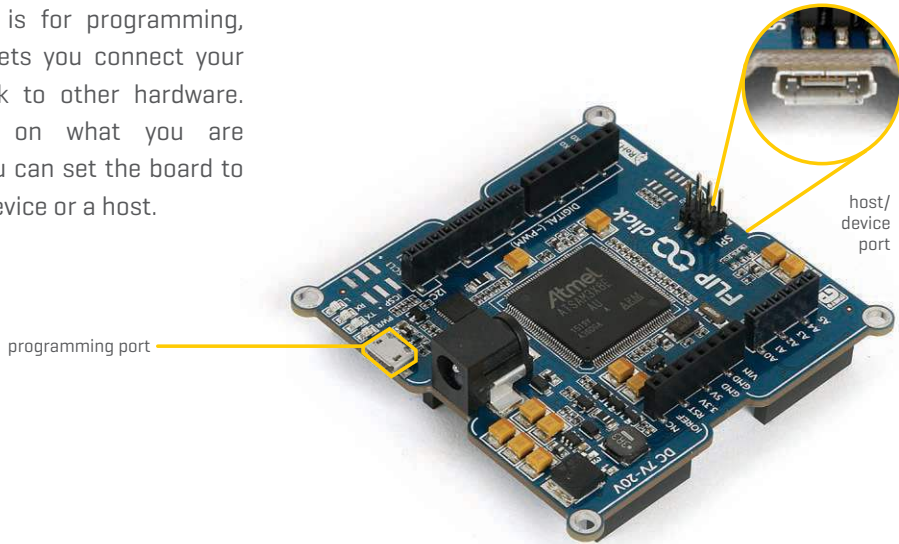
The four LEDs are the same as on Arduino Due. From left to right: indicating power supply [PWR], signaling programming is in progress [TX, RX], and one connected to MCU pin 13 [L].





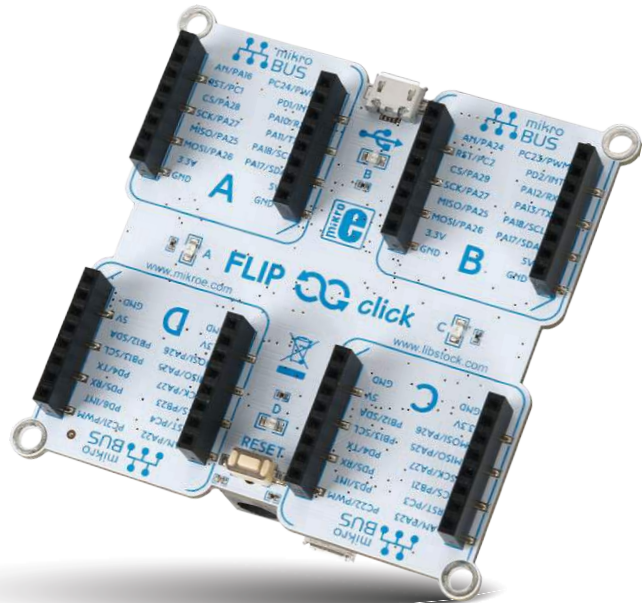
# 5. USB ports

The board has two micro-USB ports. One is for programming, the other lets you connect your Flip & click to other hardware. Depending on what you are making, you can set the board to be a USB device or a host.



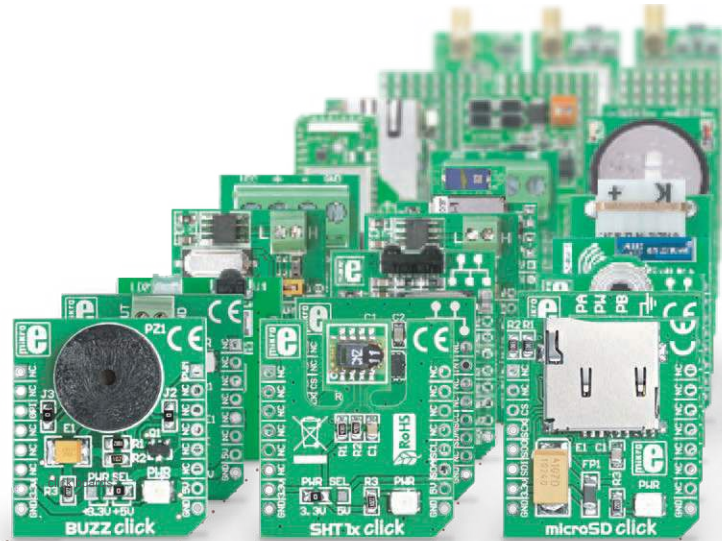
## 6. White side

On the white side, Flip & click has four mikroBUS™ sockets along with four LEDs and a reset button. The silkscreen markings clearly denote which microcontroller pins are used on each socket. The pinout provides both 3.3V and 5V power supplies.

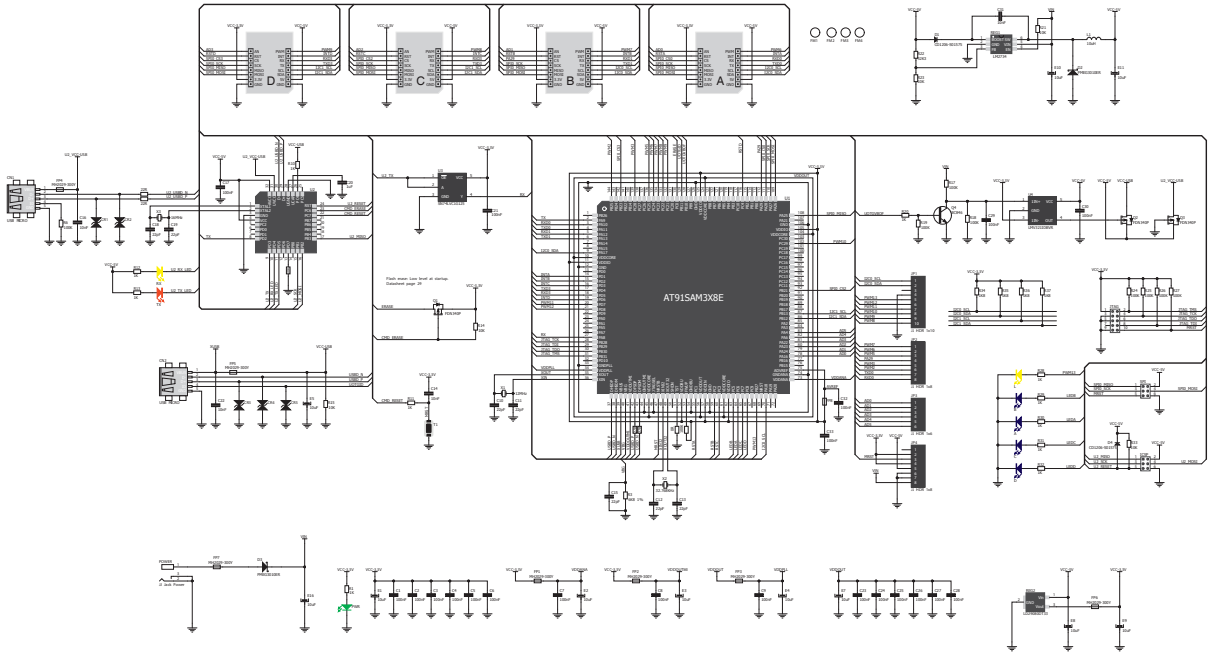


## 7. click boards™

Buzzer, Relays, WiFi, Rfid, GSM, GPS, OLED, Speech recognition — you name it, we got it! There are more than 160 click boards™ available. Many of the chips on clicks already have their own Arduino libraries you can reuse. More and more will be coming out in the future. See them all, on: [www.mikroe.com/click](http://www.mikroe.com/click)



# 8. Schematic



# DISCLAIMER

All the products owned by MikroElektronika are protected by copyright law and international copyright treaty. Therefore, this manual is to be treated as any other copyright material. No part of this manual, including product and software described herein, may be reproduced, stored in a retrieval system, translated or transmitted in any form or by any means, without the prior written permission of MikroElektronika. The manual PDF edition can be printed for private or local use, but not for distribution. Any modification of this manual is prohibited. MikroElektronika provides this manual 'as is' without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties or conditions of merchantability or fitness for a particular purpose. MikroElektronika shall assume no responsibility or liability for any errors, omissions and inaccuracies that may appear in this manual. In no event shall MikroElektronika, its directors, officers, employees or distributors be liable for any indirect, specific, incidental or consequential damages (including damages for loss of business profits and business information, business interruption or any other pecuniary loss) arising out of the use of this manual or product, even if MikroElektronika has been advised of the possibility of such damages. MikroElektronika reserves the right to change information contained in this manual at any time without prior notice, if necessary.

## HIGH RISK ACTIVITIES

The products of MikroElektronika are not fault – tolerant nor designed, manufactured or intended for use or resale as on – line control equipment in hazardous environments requiring fail – safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines or weapons systems in which the failure of Software could lead directly to death, personal injury or severe physical or environmental damage ('High Risk Activities'). MikroElektronika and its suppliers specifically disclaim any expressed or implied warranty of fitness for High Risk Activities.

## TRADEMARKS

The MikroElektronika name and logo, mikroC™, mikroBasic™, mikroPascal™, Visual TFT™, Visual GLCD™, mikroProg™, Ready™, MINI™, mikroBUS™, EasyPIC™, EasyAVR™, Easy8051™, click™ boards and mikromedia™ are trademarks of MikroElektronika. All other trademarks mentioned herein are property of their respective companies. All other product and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are only used for identification or explanation and to the owners' benefit, with no intent to infringe.



If you want to learn more about our products, please visit our web site at [www.mikroe.com](http://www.mikroe.com). If you are experiencing some problems with any of our products or just need additional information, please place your ticket at [www.mikroe.com/helpdesk](http://www.mikroe.com/helpdesk). If you have any questions, comments or business proposals, do not hesitate to contact us at [office@mikroe.com](mailto:office@mikroe.com)

Flip & click Manual  
ver 1.00

