

FLIP  click

click boards™ meet Arduino

PIC32MZ

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 handwritten signature in white ink, appearing to read 'Nebojsa Matic', is positioned in the lower right quadrant of the page. The signature is fluid and cursive, with a prominent initial 'N'.

Nebojsa Matic
General Manager

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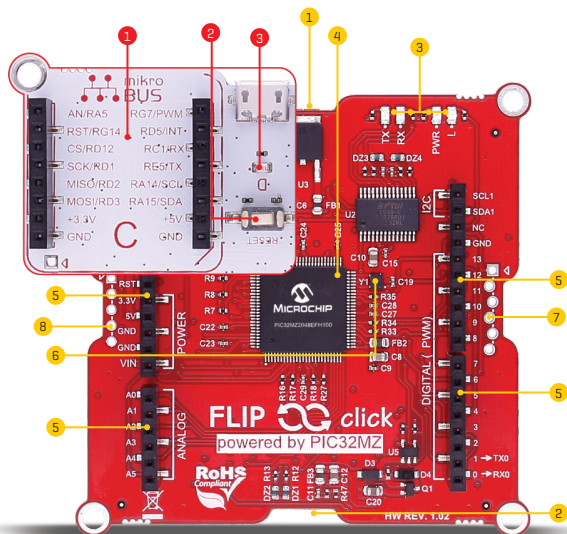
A maker's sidekick

Flip&Click PIC32MZ is a two-sided development board with a split personality. It can be used with chipKIT core (Arduino-style development environment), but it can also be used with mikroC, mikroBasic and mikroPascal.

With more than 300 bite-sized click boards™ 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 PIC32MZ is a perfect sidekick for your adventures in Maker land.



1. What's on board?



- 1 USB/UART port
- 2 host/device USB port
- 3 Signal LEDs
- 4 PIC32MZ2048EFH100 MCU
- 5 Arduino pinout
- 6 24 MHz Crystal oscillator
- 7 PICkit 3 connector
- 8 mikroProg connector

- 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 PIC32MZ

Using Flip&Click with Arduino IDE [chipKIT core]

1) Plug in **Flip&Click PIC32MZ** [use the USB-UART port between C and D socket].

2) Launch **Arduino IDE**

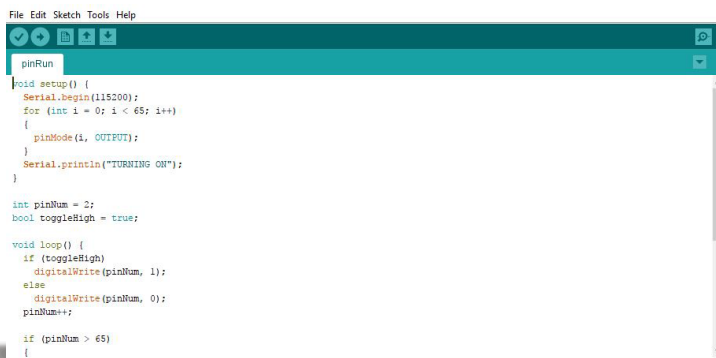
3) From within the Arduino IDE, go to **File->Preferences** dialog box. Look at the text entry field called "Additional Boards Manager URLs:". If that text entry field is blank, then you can just copy/paste the following URL into that text field https://github.com/chipKIT32/chipKIT-core/raw/master/package_chipkit_index.json. Then click OK to close the Preferences dialog box.

4) If that field is not blank, then click the little box icon to the right of the text field, and copy/paste the URL https://github.com/chipKIT32/chipKIT-core/raw/master/package_chipkit_index.json onto the next line of the text entry field. Arduino lets you have as many different cores as you want loaded into the IDE as long as each URL is on a separate line. Click OK to close the Additional Boards Manager URLs dialog box and then click OK again to close the Preferences dialog box.

5) Now select the **Tools->Board->Board Manager** menu from the **Arduino IDE**, and it will open up the Boards Manager window. From there, scroll down until you see the chipKIT board. Click once on any of the text in the chipKIT section, and you will see a button appear that says "Install". It will take some time to download all of the chipKIT components and install them, but when it's done, you can click the Close button to close the Board Manager window.

6) Now choose a Mikroelektronika Flip N Click MZ board from the **Tools -> Board** menu and program your Flip&Click board!

7) Start writing Arduino sketches.

A screenshot of the Arduino IDE code editor. The window title is 'pinRun'. The code is as follows:

```
File Edit Sketch Tools Help
pinRun
void setup() {
  Serial.begin(115200);
  for (int i = 0; i < 65; i++)
  {
    pinMode(i, OUTPUT);
  }
  Serial.println("TURNING ON");
}

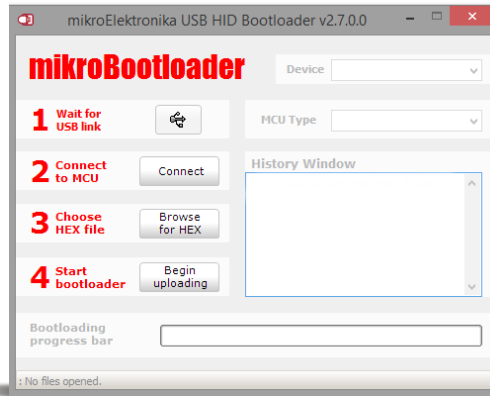
int pinNum = 2;
bool toggleHigh = true;

void loop() {
  if (toggleHigh)
    digitalWrite(pinNum, 1);
  else
    digitalWrite(pinNum, 0);
  pinNum++;

  if (pinNum > 65)
  {
```

Using Flip&Click with mikroC

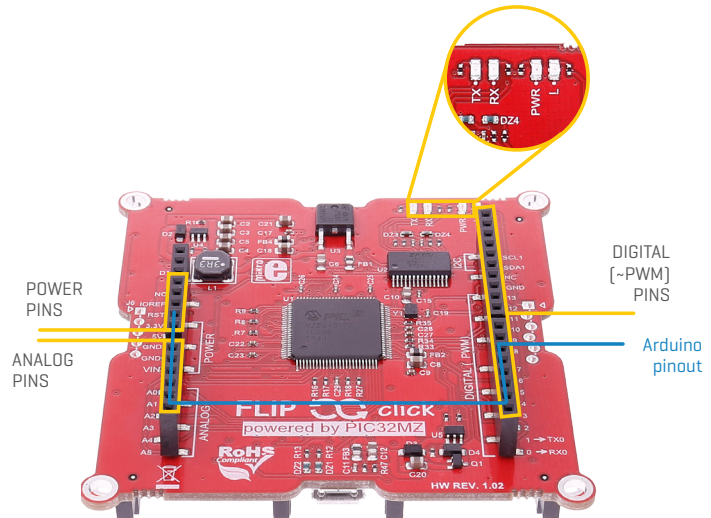
- 1) Plug in Flip&Click PIC32MZ [use the USB port between A and B socket].
- 2) Start mikroC PRO for PIC32
- 3) Write your code
- 4) Start mikroElektronika USB HID bootlader
[see our bootloader Learn article: <https://learn.mikroe.com/mikrobootloader/>]
- 5) Download your code on MCU.



4. Red side

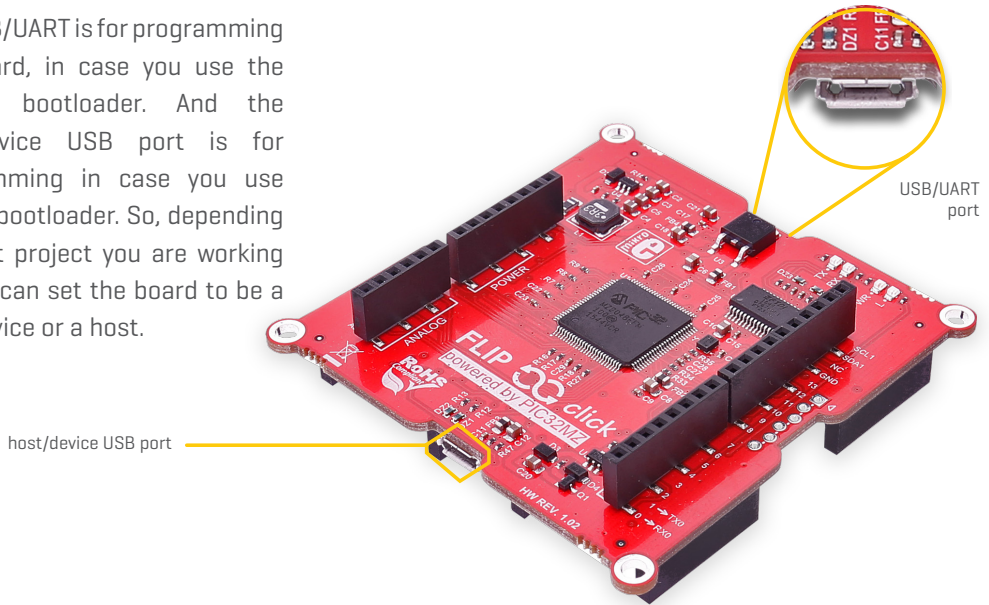
On the red side, Flip&Click PIC32MZ features a standard Arduino pinout, which makes it compatible with a range of Arduino shields. All the pins operate on 3.3V logic, just like with Arduino Due.

The four LEDs are the same as on Arduino Due. From left to right: indicating power supply (PWR), signaling programming in progress (TX, RX), and one connected to MCU pin 43 (L).



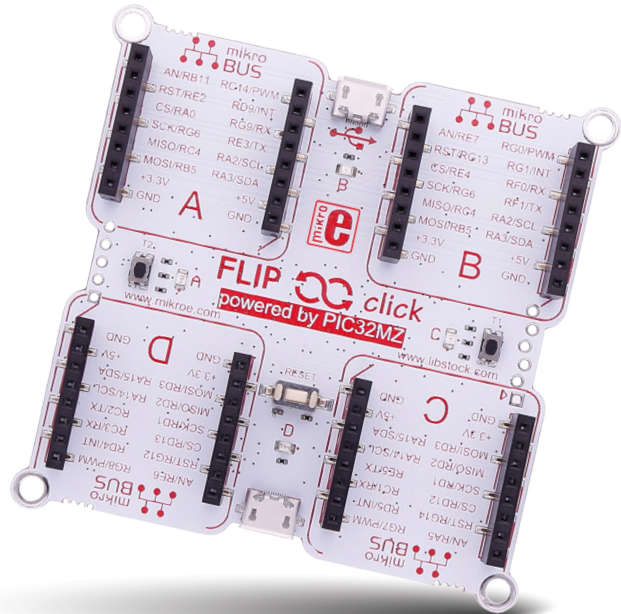
5. USB ports

The USB/UART is for programming the board, in case you use the chipKIT bootloader. And the host/device USB port is for programming in case you use mikroE bootloader. So, depending on what project you are working on, you can set the board to be a USB device or a host.



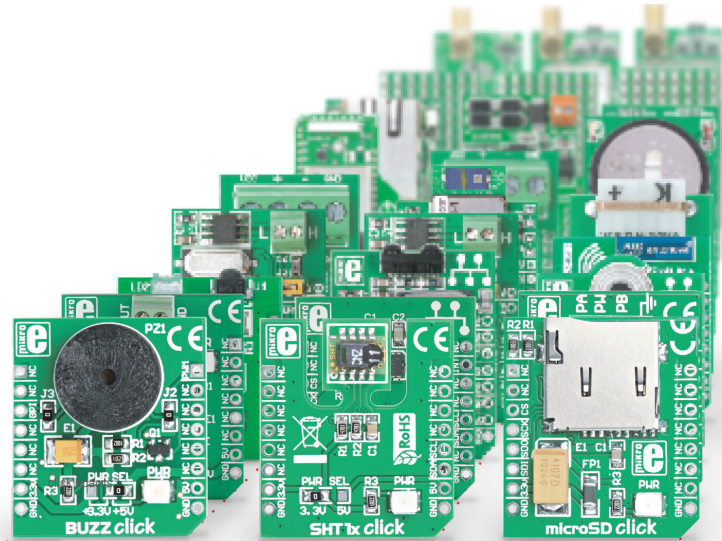
6. White side

On the white side, Flip&Click PIC32MZ 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.

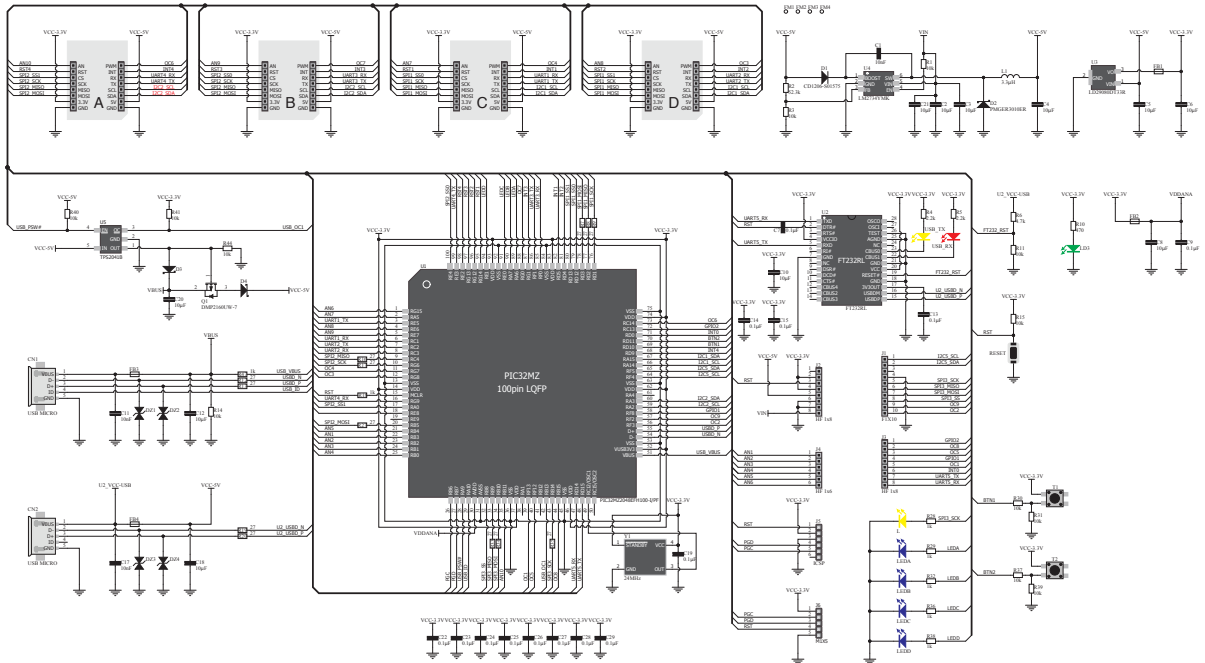


7. click boards™

Buzzer, Relays, WiFi, RFid, GSM, GPS, OLED, Speech recognition — you name it, we got it! There are more than 300 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: shop.mikroe.com/click



8. Schematic



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