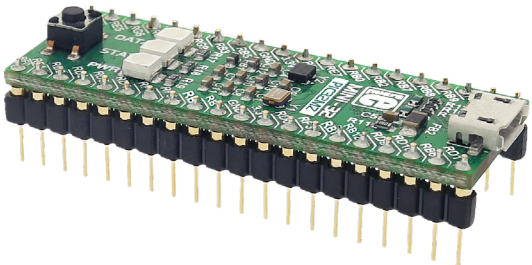

MINI-32™

development board for PIC32MZ

PIC32 development board fitted in a DIP40 form factor, containing a powerful microcontroller.

MINI ARM

MikroElektronika
DEVELOPMENT TOOLS | COMPILERS | BOOKS

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

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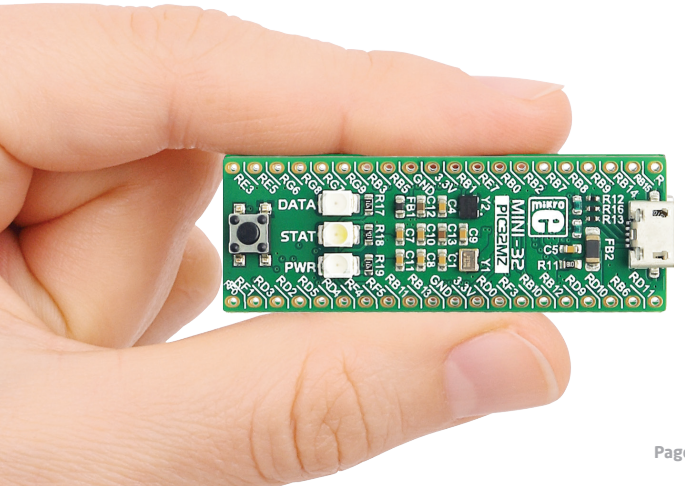
Nebojsa Matic
General Manager

Table of Contents

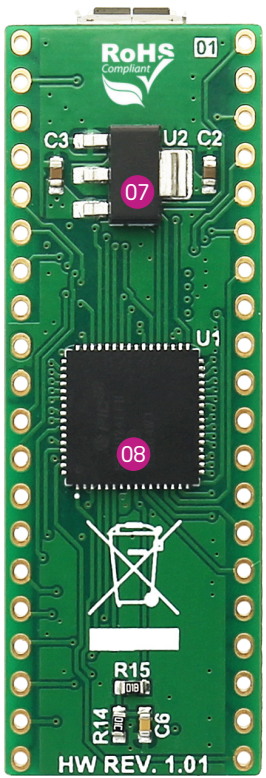
Introduction to MINI-32 for PIC32MZ

Miniature and powerful development tool designed to work as a standalone device or as a MCU card in DIP40 socket. MINI-32 for PIC32MZ is preprogrammed with USB HID bootloader so it is not necessary to have an external programmer. If you need to use an external programmer (like mikroProg) attach it to MINI-32 for PIC32MZ via pads marked with TMS, TDO, TCK, TDI.



Key features

01 Connection pads
02 Micro USB connector
03 DATA LED
04 STAT LED
05 POWER supply LED
06 Reset button
07 Power supply regulator
08 PIC32MZ1024EFH064 microcontroller



System specifications

power supply

3.3V via pads or 5V via USB

power consumption

depends on MCU state (max current into 3.3V pad is 300mA)

board dimensions

50.8 x 17.78mm (2 x 0.7")

weight

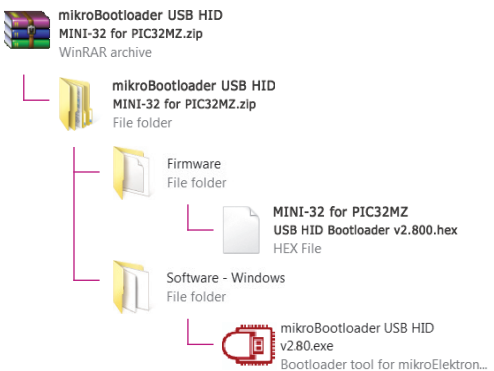
~6g (0.013 lbs)

1. Programming with mikroBootloader

You can program the microcontroller with the bootloader that is preprogrammed into the device by default. To transfer .hex file from a PC to the MCU you need the bootloader software (**mikroBootloader USB HID**) which can be downloaded from:

download.mikroe.com/examples/starter-boards/mini/pic32mz/mini-pic32mz-mikrobootloader-usb-hid-v280.zip

After the software is downloaded unzip it to the desired location and start mikroBootloader USB HID software.



step 1 – Connecting MINI-32

Figure 1-1: USB HID mikroBootloader window

01 To start, connect the USB cable, or if already connected press the **Reset** button on your MINI-32 board. Click the **Connect** button within 5s to enter the bootloader mode, otherwise existing microcontroller program will execute.

step 2 - Browsing for .HEX file

Figure 1-2: Browse for HEX

01 Click the **"Browse for HEX"** button and from a pop-up window (**Figure 1-3**) choose the .HEX file which will be uploaded to MCU memory.

step 3 - Selecting .HEX file

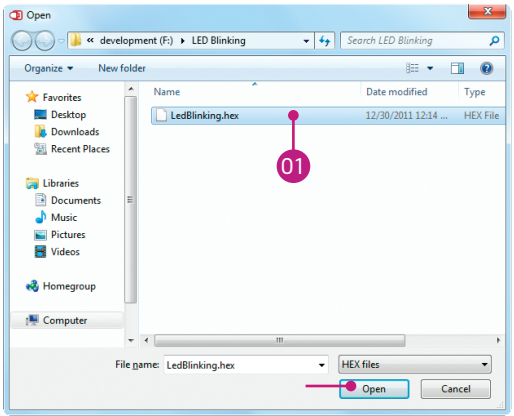


Figure 1-3: Selecting HEX

01 Select .HEX file using open dialog window.

02 Click **Open**.

step 4 - Uploading .HEX file

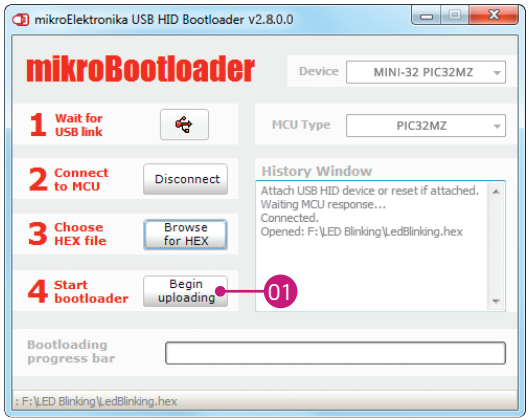


Figure 1-4: Begin uploading

01 To start .HEX file bootloading click the **Begin uploading** button.

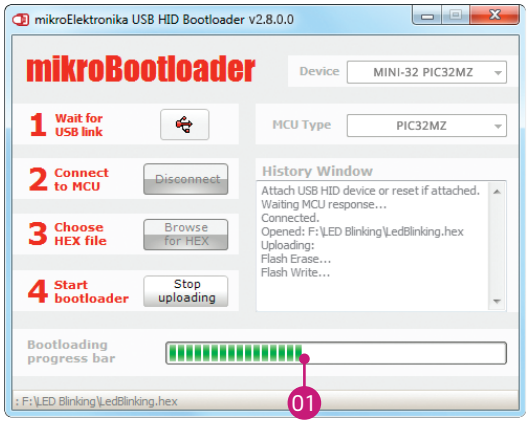


Figure 1-5: Progress bar

01 You can monitor .HEX file uploading via progress bar

step 5 - Finish upload

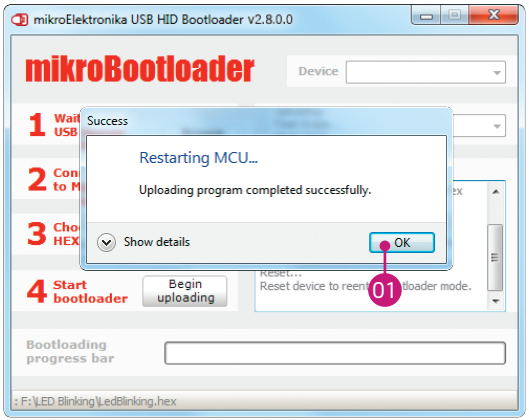


Figure 1-6: Restarting MCU

01 Click **OK** after uploading is finished and wait for 5 seconds. Board will automatically reset and your new program will execute.

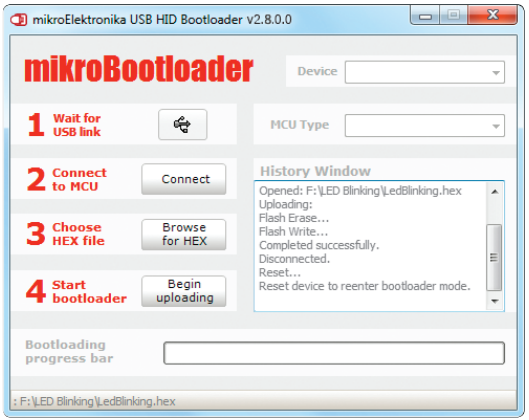
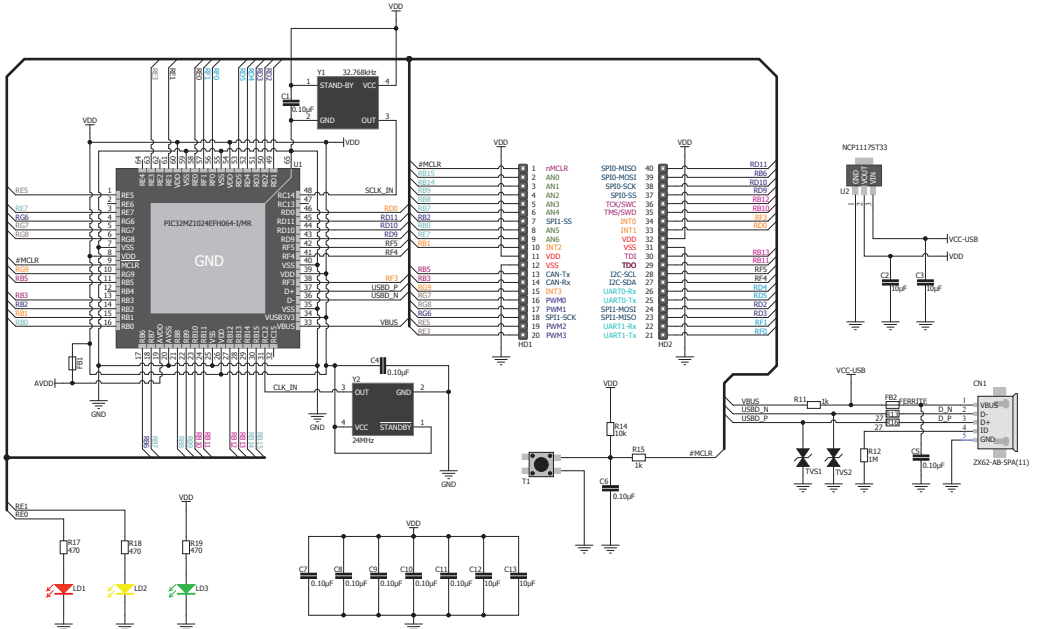
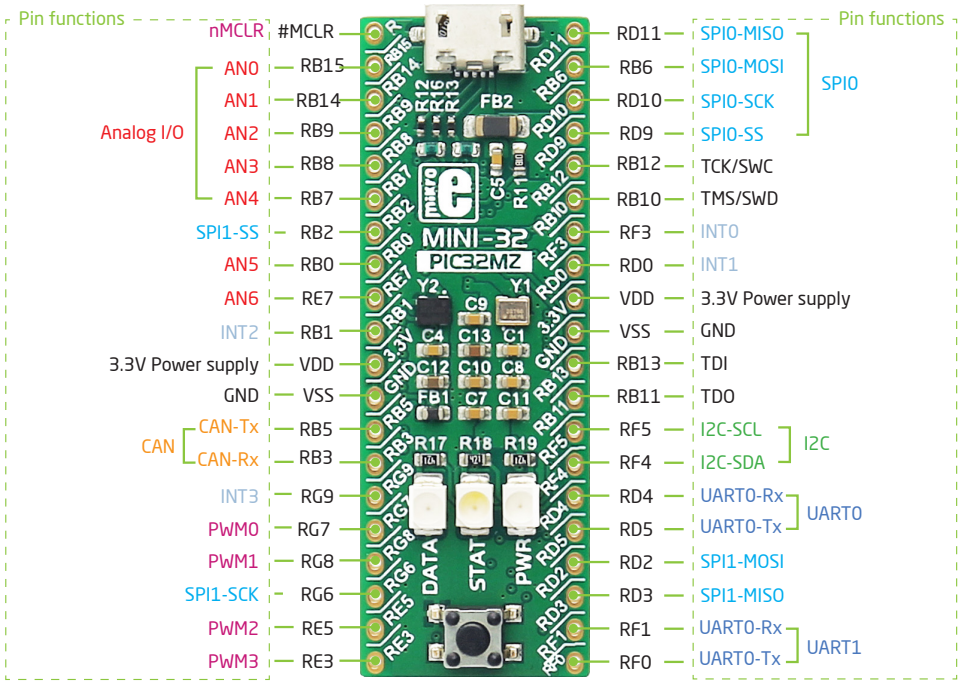


Figure 1-7: mikroBootloader ready for next job

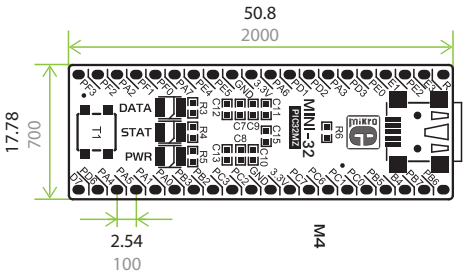
2. Schematic


PIC32MZ1024EFH064-I/MR
GND
U1
Y1
32.768kHz
STAND-BY
VCC
GND
OUT
C1
0.10µF
VDD
Y2
24MHz
STANDBY
C4
0.10µF
CLK_IN
SCLK_IN
VBUS
USBD_P
USBD_N
AVDD
FB1
HD1
HD2
#MCLR
nMCLR
SPI0-MISO
SPI0-MOSI
SPI0-SCK
SPI0-SS
TCK/SWC
TMS/SWD
I2C-SCL
I2C-SDA
UART0-Rx
UART0-Tx
SPI1-MOSI
SPI1-MISO
UART1-Rx
UART1-Tx
CAN-Tx
CAN-Rx
PWM0
PWM1
PWM2
PWM3
NCP1117ST33
U2
VCC-USB
C2
10µF
C3
10µF
CN1
ZX62-AB-5PA(11)
FB2
FERRITE
R11
1k
R12
1M
R14
10k
R15
1k
C5
0.10µF
C6
0.10µF
T1
TVS1
TVS2
R17
470
R18
470
R19
470
LD1
LD2
LD3
C7
0.10µF
C8
0.10µF
C9
0.10µF
C10
0.10µF
C11
0.10µF
C12
10µF
C13
10µF

3. Pinout


Pin functions
nMCLR
#MCLR
AN0
RB15
AN1
RB14
Analog I/O
AN2
RB9
AN3
RB8
AN4
RB7
SPI1-SS
RB2
AN5
RB0
AN6
RE7
INT2
RB1
3.3V Power supply
VDD
GND
VSS
CAN
CAN-Tx
RB5
CAN-Rx
RB3
INT3
RG9
PWM0
RG7
PWM1
RG8
SPI1-SCK
RG6
PWM2
RE5
PWM3
RE3
MINI-32
PIC32MZ
FB2
FB1
Y2
Y1
C9
C4
C13
C1
C12
C10
C8
C7
C11
R17
R18
R19
DATA
STAT
PWR
RD11
RB6
RD10
RD9
RB12
RB10
RF3
RD0
VDD
VSS
RB13
RB11
RF5
RF4
RD4
RD5
RD2
RD3
RF1
RF0
Pin functions
SPI0-MISO
SPI0-MOSI
SPI0-SCK
SPI0-SS
SPI0
TCK/SWC
TMS/SWD
INT0
INT1
3.3V Power supply
GND
TDI
TDO
I2C-SCL
I2C-SDA
I2C
UART0-Rx
UART0-Tx
UART0
SPI1-MOSI
SPI1-MISO
UART0-Rx
UART0-Tx
UART1
Analog Lines
Interrupt Lines
SPI Lines
I2C Lines
UART lines
CAN lines
PWM lines

4. Dimensions



Notes:

Notes:

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