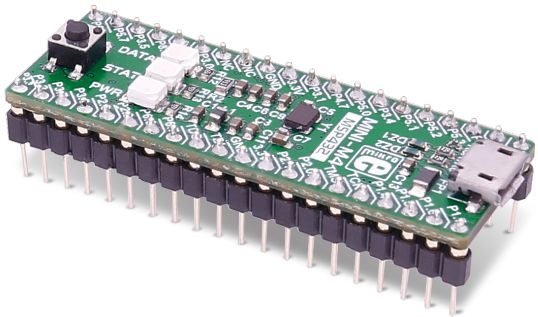


MINI-M4™

development board for MSP432

The whole MSP432 development board fitted in DIP40 form factor, containing powerful MSP432P401R microcontroller.

MINI ARM

MikroElektronika
DEVELOPMENT TOOLS | COMPILERS | BOOKS

TO OUR VALUED CUSTOMERS

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

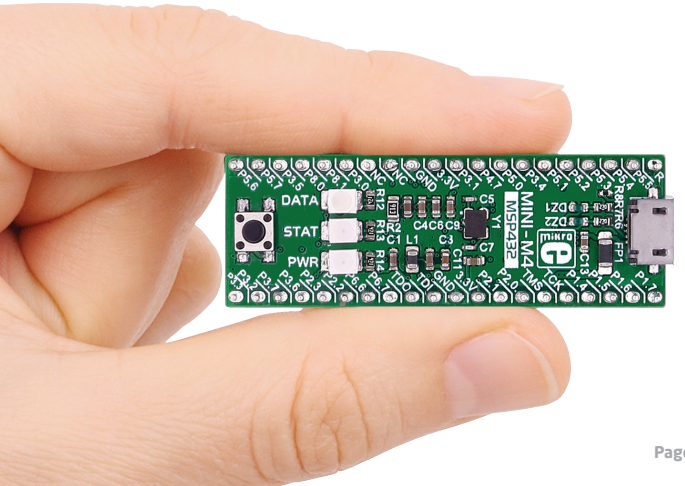
The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

Nebojsa Matic
General Manager

Table of Contents

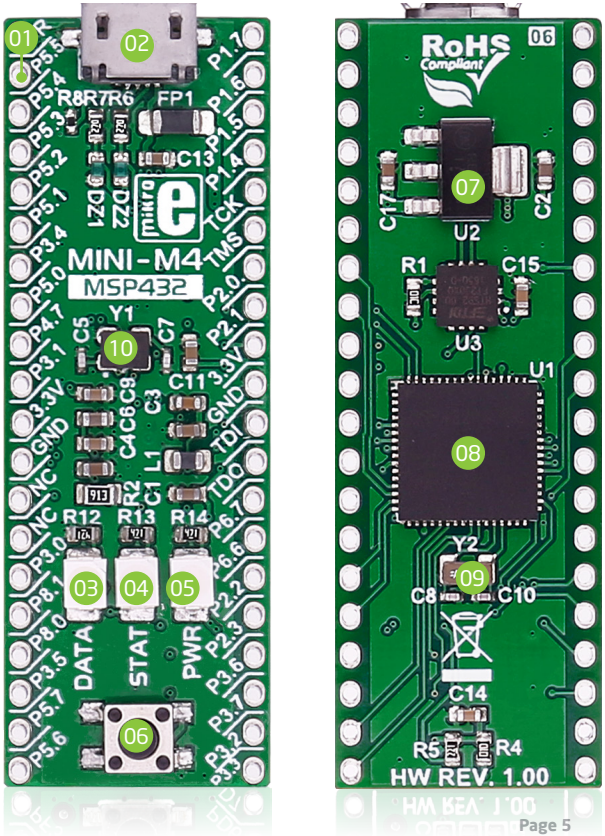
Introduction to MINI-M4 for MSP432

Miniature and powerful development tool designed to work as stand alone device or as MCU card in DIP40 socket. MINI-M4 for MSP432 is pre programmed with USB UART Bootloader so it is not necessary to have external programmer. If there is need for external programmers (mikroProg™ or ST-LINK V2) attach it to MINI-M4 for STM32 via pads marked with TCK/SWC, TMS/SWD, INT0, INT1.



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 MSP432P401RIRGC microcontroller
09 32.768kHz Crystal oscillator
10 48 MHz Crystal oscillator



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

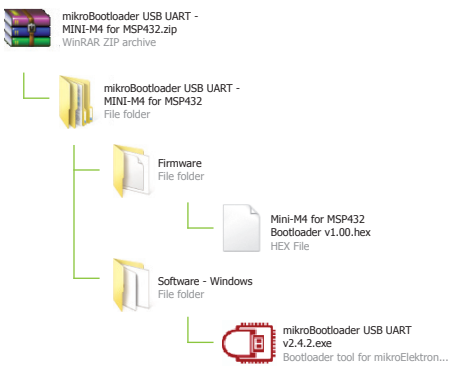
~6g (0.013 lbs)

1. Programming with mikroBootloader

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

https://download.mikroe.com/examples/starter-boards/mini/msp432/mini-m4-msp432-bootloader-v242.zip

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



step 1 - Connecting MINI-M4

Figure 1-1: USB UART mikroBootloader

01 To start, connect the USB cable, or if already connected press the **Reset** button on your MINI-M4 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

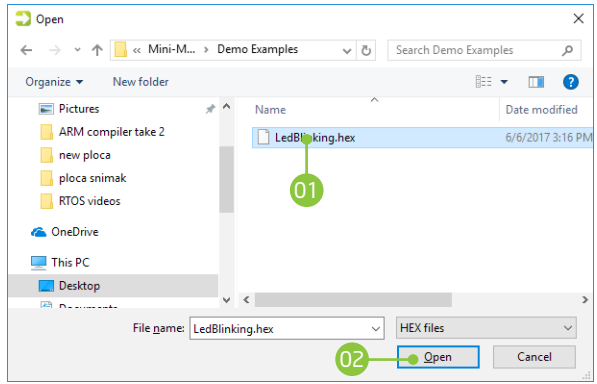


Figure 1-3: Selecting HEX

01 Select .HEX file using open dialog window.

02 Click **Open**.

step 4 - Uploading .HEX file

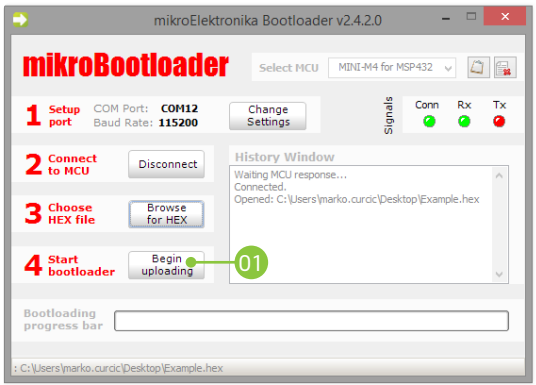


Figure 1-4: Begin uploading

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

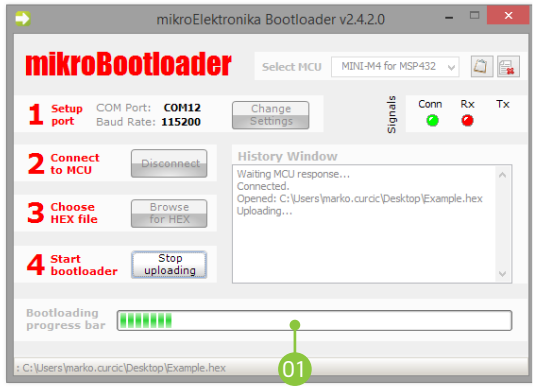


Figure 1-5: Progress bar

01 You can monitor .HEX file uploading via progress bar

step 5 - Finish upload

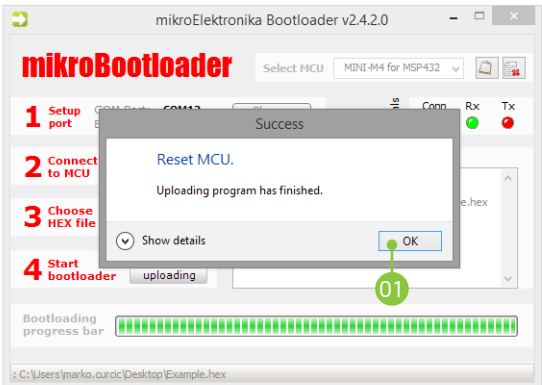
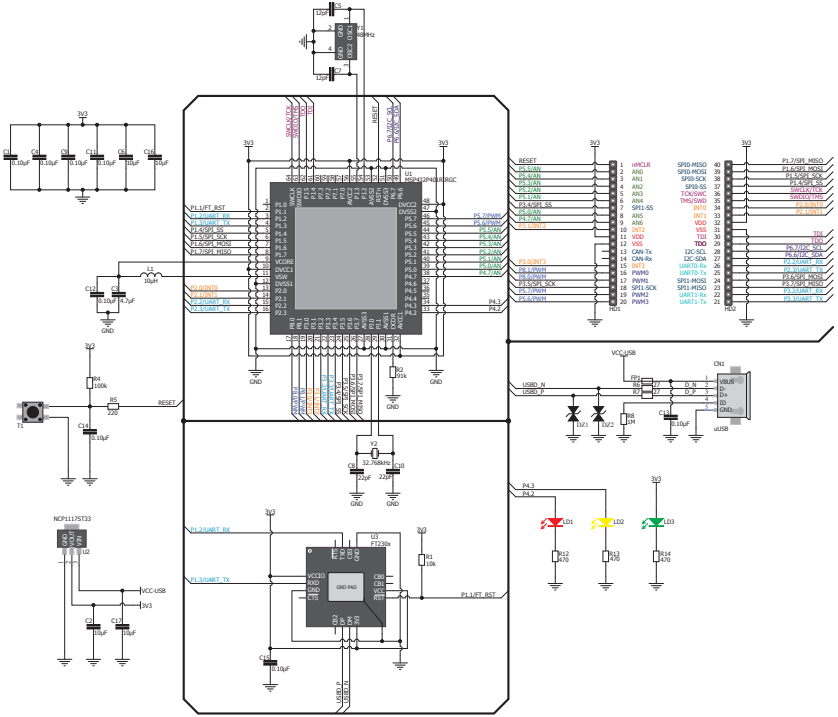


Figure 1-6: Restarting MCU

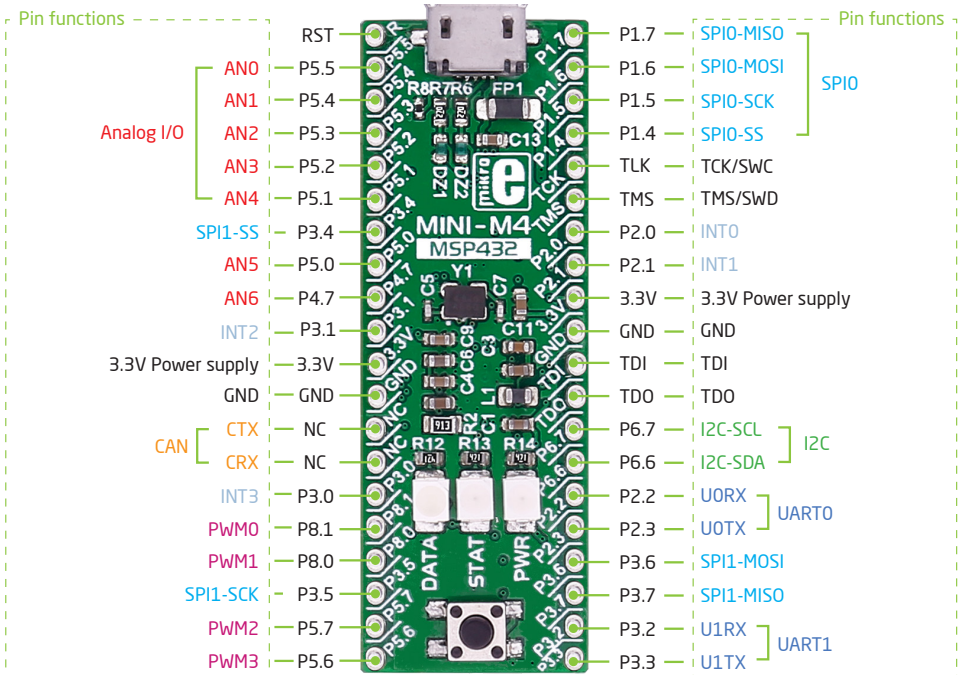
Figure 1-7: mikroBootloader ready for next job

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

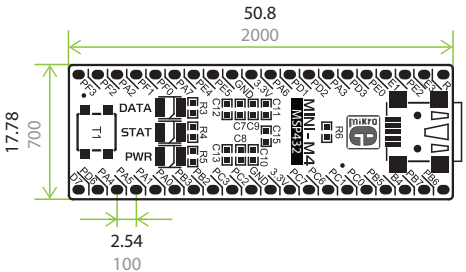
2. Schematic



3. Pinout


Pin functions
RST
AN0
AN1
AN2
AN3
AN4
Analog I/O
SPI1-SS
AN5
AN6
INT2
3.3V Power supply
GND
CTX
CAN
CRX
INT3
PWM0
PWM1
SPI1-SCK
PWM2
PWM3
P5.5
P5.4
P5.3
P5.2
P5.1
P3.4
P5.0
P4.7
P3.1
3.3V
GND
NC
NC
P3.0
P8.1
P8.0
P3.5
P5.7
P5.6
MINI-M4
MSP432
P1.7
P1.6
P1.5
P1.4
TLK
TMS
P2.0
P2.1
3.3V
GND
TDI
TDO
P6.7
P6.6
P2.2
P2.3
P3.6
P3.7
P3.2
P3.3
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
U0RX
U0TX
UART0
SPI1-MOSI
SPI1-MISO
U1RX
U1TX
UART1
Analog Lines
Interrupt Lines
SPI Lines
I2C Lines
UART lines
CAN lines
PWM lines

4. Dimensions



Notes:

Notes:

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, the MikroElektronika logo, mikroC™, mikroBasic™, mikroPascal™, MINI™, EasyMX PRO™, mikroBUS™, click™ boards, mikroProg™, 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 website at www.mikroe.com
If you are experiencing some problems with any of our products or just need additional information, please place your ticket at helpdesk.mikroe.com
If you have any questions, comments or business proposals, do not hesitate to contact us at office@mikroe.com

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331