XMEGA Ready BOARD[™]

All MikroElektronika's development systems represent irreplaceable tools for programming and developing microcontroller-based devices. Carefully chosen components and the use of machines of the last generation for mounting and testing thereof are the best guarantee of high reliability of our devices. Due to simple design, a large number of add-on modules and ready to use examples, all our users, regardless of their experience, have the possibility to develop their projects in a fast and efficient way. Manual

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XMEGA Ready Board

The XMEGA-Ready Board is a complete solution for fast and simple development of embedded applications by using a new Atmel® ATxmega128A1 device connected to 8Mhz oscillator.

Key features:

- Bootloader program loaded into the ATxmega128A1 microcontroller;
- USB-UART communication;
- 7-23V AC or 9-32V DC power supply.



Figure 1: XMEGA Ready Board

Appliance:

The XMEGA Ready Board represents a miniature development system which can be used as a stand-alone device. Due to its preloaded bootloader program and 8-bit (32 MIPS) MCU it is ideal for low-cost experimenting and final product design.

Power supply:

For connection with a power supply source the XMEGA Ready Board uses a screw terminal CN5. The power supply voltage level can vary from 7-23V AC and from 9-32V DC. When programming the MCU via bootloader it is necessary to connect the board to a PC via a USB cable and to connect external power supply as well, Figure 2.

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Figure 2: XMEGA Ready Board connected to power supply and PC via USB cable

For easy access to the pins of the MCU supplied on the XMEGA Ready Board you can use pads. Every pad is clearly marked with a pin name to which it is connected to. You can also provide the board with additional components by placing them on the proto area.

To connect the XMEGA Ready Board to a PC it is necessary to connect the USB port on the PC to a USB connector CN7 via a USB cable. When connection is established the PC will communicate with FTDI chip which is connected to MCU pins PC2 and PC3. These pins are used for serial UART communication.

The CN3 (PDI) connector is used for programming/debugging via the PDI interface. The CN6 (JTAG) connector is used for programming/debugging via the JTAG interface.



Figure 3: XMEGA Ready Board connection schematic

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MCU programming:

In order to program the MCU via bootloader it is necessary to place jumpers J1 and J2. By doing so connection between the FTDI chip and the MCU will be enabled. If you want to use MCU pins which are used for programming (PC2 and PC3) as I/O you should remove jumpers J1 and J2.

To enable MCU programming it is necessary to install the mikroBootloader program on your PC. Follow the steps below for program installation and MCU programming.

STEP 1: mikroBootloader program

To download the mikroBootloader program visit: http://www.mikroe.com/eng/products/view/579/xmega-ready-board/ After the mikroBootloader file is downloaded extract it from archive:



After extracting the archive in the Software - Windows folder double click on the mikrobootloader icon.

🔿 mikroXMEGA and XMEGA-Ready Bootloader 📃 🗖 🔀				
mikroBootloader	Select MCU	AVR XM	1EGA	~
Setup port COM Port: Baud Rate: 115200 Ch	ange le un ttings so	Conn 🥥	Rx 🎱	Tx @
2 Connect Connect	listory Window			~
3 Choose Browse for HEX				
4 Start Begin bootloader uploading				~
Bootloading progress bar		s	how Ac	tivity
\xmegaready_mikroc_examples_v100\mikroC PRC	for AVR\ATxmega1	28A1 Exan	nples\LE[D Blinking

STEP 2: Connecting the development system to a PC

The ATxmega128A1 microcontroller is programmed via the bootloader program stored in the microcontroller memory. Connect the development system to a PC via a USB connector CN7. Power the board via a screw terminal CN5.

After connection is established the PC will detect a new hardware and start looking for drivers. If you don't have drivers for FTDI chip installed download them from: http://www.ftdichip.com/

STEP 3: Program settings

mikroXMEGA and XMEGA-Ready mikroBootloade	Bootloader Select MCU AVR XMEG	GA V
1 Setup COM Port: COM7 Baud Rate: 115200	Change 중ettings 중	Rx Tx O Click on the Change Settings button
2 Connect Connect	Setup Settings	Select the COM port on the PC that the
3 Choose Browse for HEX	Baud rate 0	development system is connected to
4 Start Begin bootloader uploading	Data bits 8 Stop bits 1 Parity None Flow control Software	
: No files opened.	OK 4 Canc	Click on the OK button



STEP 4: Connecting



STEP 5: Browsing for .hex file

3 Choose HEX file	Brows for HE	e Connected	ponse	Click on	the Browse for HEX button
Open Look in:	Project		🕜 🧿 🖻 📴 🛄 -	? 🗙	
My Recent Documents	DEMO.hex				Choose a .hex file you want to load into the microcontroller
Desktop					
My Documents					
My Computer					
	File name:	Uart	~	Open 🔶	Click on the Open button
My Network	Files of type:	HEX files	*	Cancel	

STEP 6: Uploading the .hex file into the microcontroller



STEP 7: Resetting the microcontroller

3 Choo	se Browse Opened; C:\Project\Uart.hex Success		After uploading the .hex file into the microcontroller, it is necessary to reset the development system by pressing the RESET button.
4 Start	Reset MCU. Uploading program has finished.	>	After that, the microcontroller on the development system has been programmed and ready for use.
Bootload progress : C:\Project\Ua	Show details	Activity	Click on the OK button



Figure 4: XMEGA Ready Board dimensions

Firmware

If bootloader is erased by accident it is possible to write it into the microcontroller with the JTAGICE programmer. To do so it is necessary to connect the JTAGICE programmer to the development system and to install the appropriate program on your PC. Also it is necessary to connect power supply via screw terminal CN5. The Bootloader .hex code is located in the Firmware folder.

NOTE: DO NOT try to upload the bootloader .hex file via mikroBootloader software because you can damage the bootloader program which is already loaded into the microcontroller memory.



Figure 5: XMEGA Ready Board connected to the AVR JTAGICE mkll programmer



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 www.mikroe.com/en/support

If you have any questions, comments or business proposals, do not hesitate to contact us at office@mikroe.com