Mikromedia plus for FT90x

From MikroElektonika Documentation

mikromedia+ for FT90x is a compact development system which allows development of devices with multimedia contents. The central part of the system is a 32-bit 100-pin FT900 microcontroller. mikromedia+ for FT900 features lots of onboard modules such as stereo MP3 codec, 4.3'' TFT 480x272 touch screen display, port expander, accelerometer, microSD card slot, buzzer, IR receiver, RGB LED diode, PIN photodiode, temperature sensor, 2.4GHz RF transceiver, Ethernet transceiver, 8 Mbit flash memory, Li-Polimer battery charger etc. The board also contains MINI-B USB connector, power screw terminals, 2x5 mikroProg™ connector, two 1x26 connection pads, ON/OFF switch and other. It comes pre-programmed with USB HID bootloader, but can also be programmed with mikroProg™ for FT90x external programmer. mikromedia is compact and slim, and perfectly fits in the palm of your hand, which makes it a convenient platform for mobile and other multimedia devices.

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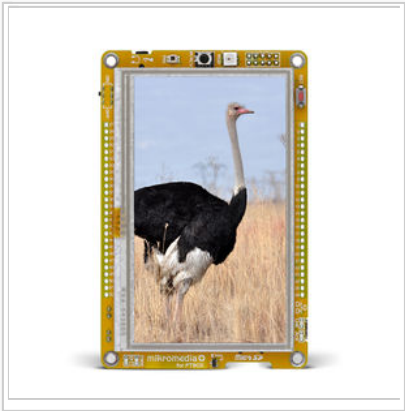
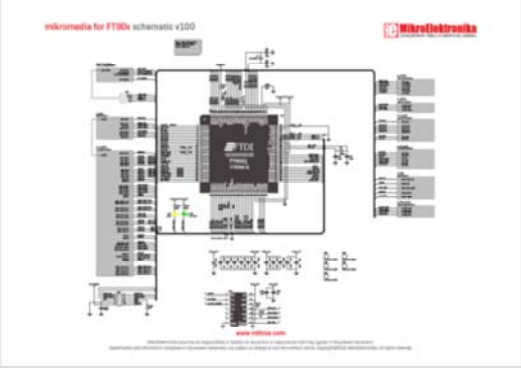
mikromedia for FT90x



mikromedia for FT90x

IC/Module	FT900 (http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT900_1_2_3.pdf)
Interface	1x 26 pinout on board edges
Power supply	3.3V, 5V
Website	www.mikroe.com/mikromedia/plus/ft90x/ (http://www.mikroe.com/mikromedia/plus/ft90x/)

Schematic



Schematic also available as printable PDF (http://cdn-docs.mikroe.com/images/6/61/Mikromedia_for_FT90x_schematic.pdf)

MCU specs

mikromedia plus for FT90x development tool comes with the FT900Q microcontroller. This 32-bit FT32 Core high performance microcontroller executes instructions from Shadow RAM, achieving true zero wait states at up to 100mHz, resulting in 310 DMIPS of performance.

- 310 DMIPS/ 100mHz, 32-bit FT32 Core
- 256kB Flash memory
- 64kb Data memory
- 256kB Shadow program memory
- 67 I/O pins
- SPI, I2C, I2S, A/D, UART, Eternet, DAC, CAN, SD
- 16-bit, 32-bit Digital Timers
- Camera parallel interface
- RTCC, one wire debugger, etc

Programming

The microcontroller can be programmed in two ways:

1) Using USB HID mikroBootloader, 2) Using external mikroProg™ for FT90x programmer.

Programming with mikroBootloader

You can program the microcontroller with a bootloader which is preprogrammed by default.

To transfer .hex file from a PC to MCU you need bootloader software (mikroBootloader USB HID) which can be downloaded from:

http://www.mikroe.com/mikromedia/plus/ft90x/

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

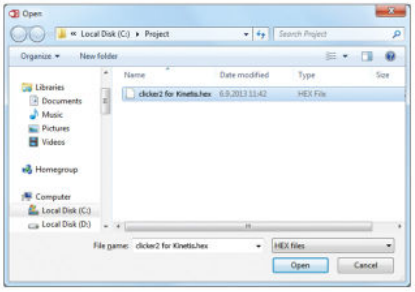
step 1 – Connecting mikromedia plus for FT90x

To start, connect the USB cable, or if already connected press the Reset button on your mikromedia plus for FT90x. Click the Connect button within 5s to enter the bootloader mode, otherwise existing microcontroller program will execute.

step 2 – Browsing for .HEX file

Click the Browse for HEX button and from a pop-up window choose the .HEX file which will be uploaded to MCU memory.

step 3 – Selecting .HEX file



Select .HEX file using open dialog window.

Click the Open button.

step 4 – Uploading .HEX file

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

Progress bar enables you to monitor .HEX file uploading.

step 5 – Finish upload

Click OK button after the uploading process is finished. Press Reset button on mikromedia plus for FT90x board and wait for 5 seconds. Your program will run automatically.

Programming with mikroProg™ programmer

The microcontroller can be programmed with external mikroProg™ for FT90x programmer and mikroProg Suite™ for FT90x software. The external programmer is connected to the development system via 2x5 JTAG connector.

mikroProg™ is a fast USB 2.0 programmer with hardware debugger support. Outstanding performance, easy operation and elegant design are its key features.

mikroProg Suite™ for FT90x has an intuitive interface and programming technology. First, download the software from MikroElektronika's webpage. (http://www.mikroe.com/downloads/get/2216/mikroprog_suite_for_ft90x_drivers.zip)

After downloading, extract the package and double click the executable setup file, to start the installation.

Click the Detect MCU button in order to recognize the device ID. Click the Read button to read the entire microcontroller memory. You can click the Save button to save it to the target HEX file.

If you want to write the HEX file into the microcontroller, first make sure to load the target HEX file using the Load button. Then click the Write button to begin programming. Click the Erase button to clear the microcontroller memory.

Resources

- mikromedia plus for FT90x landing page (http://www.mikroe.com/mikromedia/plus/ft90x/)

- mikroProg for FT90x drivers download (http://www.mikroe.com/downloads/get/2216/mikroprog_suite_for_ft90x_drivers.zip)

- USB HID bootloader for mikromedia plus for Ft90x (http://www.mikroe.com/downloads/get/2651/mikromedia-plus-ft90x-examples.zip)

- mikromedia for FT90x Learn article (http://learn.mikroe.com/multimedia-ftdi-new-mikromedia-ft900/)