# ZX Evolution. Firmware update manual

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www.nedopc.com

## **1** Description

Boot loader can update peripheral microcontrollers (ATMEGA128) flash memory.

Peripheral microcontrollers flash memory content FPGA configuration and program for controller (base configuration of ZX Evolution).

User can update base configuration (firmware) manually.

Official configuration locate in NedoPC site (<u>www.nedopc.com</u>). But user can to use alternate configuration from other developers.

Boot loader can update configuration (firmware) with two different way:

- from SD memory card;
- via null-modem cable from other computer.

### 2 Update from SD memory card

- 1. File with configuration (ZXEVO\_FW.BIN) write to root directory of SD memory card. Memory card must be formatted FAT12, FAT16 or FAT32. Insert SD memory card to SD holder on ZX Evolution.
- 2. Hold pressed soft reset button (hold shorted soft reset contacts on board) and switch on power to ZX Evolution or press on few time hard reset button (short on few time hard reset contacts).

Configuration will update in some seconds.

Updating process is not indicated on display. Errors is signaled by PWR LED (VD6) and beeper. Number of beeps according to next errors:

- 1 SD memory card not detected;
- 2 error on reading sector on SD memory card;
- 3 supported file system not found on SD memory card;
- 4 file with configuration not found on SD memory card;
- 5 file with configuration is bad.

#### **3** Update via null-modem cable from other computer

- 1. RS232 connector of ZX Evolution connect via null-modem cable to other computer. Run terminal program on other computer (speed 115200, without parity checking, 8 bit, 2 stop-bit, without CTS).
- 2. Hold pressed soft reset button (hold shorted soft reset contacts on board) and switch on power to ZX Evolution or press on few time hard reset button (short on few time hard reset contacts).
- 3. After receiving message «Try update from RS-232...» send file with configuration (ZXEVO\_FW.BIN) via X-Modem-CRC protocol.

Can used simple null-modem cable (only three wires):

X1			X2
Name	#	#	Name
RXD	2	2	RXD
TXD	3	3	TXD
GND	5	5	GND



X1, X2 - D-Sub9F

#### 4 Example: Update configuration via null-modem cable from HyperTerminal program

RS232 connector of ZX Evolution connect via null-modem cable to PC computer.

1. Start HyperTerminal program on PC.



If HyperTerminal started first time than it view next dialogs.



Set checkbox and press "Yes".

Set area code (if area code not set and terminal start than dialog views again).

Location Information	? 🔀	
	Before you can make any phone or modem connections, Windows needs the following information about your current location. What country/region are you in now? United States	
K	What area <u>c</u> ode (or city code) are you in now? 910 If you need to specify a carrier code, what is it?	
	If you dial a number to access an <u>o</u> utside line, what is it?	
	The phone system at this location uses:	
	● <u>I</u> one dialing ○ <u>P</u> ulse dialing	
	OK Cancel	

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2. Set the name for connection. Connection settings will saved by this name.

Connection Description	?×
New Connection	
Enter a name and choose an icon for the connection:	
Name:	
ZXEVO update	
Icon:	
	>
OK Ca	ncel

3. Select port.

Connect To	? 🛛		
쵫 zxevo	upload		
Enter details for the phone number that you want to dial:			
Country/region:	United States (1)		
Ar <u>e</u> a code:	910		
<u>P</u> hone number:			
Co <u>n</u> nect using:	СОМ1		
	OK Cancel		

4. Set port settings as in picture.

COM3 Properties 🛛 🖓 🗙			
Port Settings			
Bits per second: 115200			
Data bits: 8			
Parity: None			
Stop bits: 1			
Elow control: None			
<u>R</u> estore Defaults			
OK Cancel Apply			

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5. Hold pressed soft reset button (hold shorted soft reset contacts on board) and switch on power to ZX Evolution or press on few time hard reset button (short on few time hard reset contacts).

🍓 ZXEVO upload -	HyperTerminal		×
File Edit View Call	Transfer Help		
D 2 (2000) boot: ZXEVOAURBoot Main: ZXEVOAURBoot Main: ZXEVOAURBoot SUB error: Bord not Try update from SD SD error: Bord not Try update from RS Now, start file tr	Send File Receive File Capture Text Send Text File Capture to Printer tourst ton -card -card -card -card -card	CRC protocol	>
			-
Sends a file to the remot	e system		:

6. Select file with configuration (ZXEVO\_FW.BIN), set protocol «X-Modem» and press button "Send".

Send File	?X
Folder: C:\	
<u>F</u> ilename:	
C:\zxevo_fw.bin	Browse
Protocol:	
Xmodem	✓
	Send Close Cancel

Warning: If not send file during one minute than ZX Evolution exit from update mode and start current configuration.

Transfer take some seconds.

Xmodem file send for ZXEVO upload			
Sending:	C:\zxevo_fw.bin		
Packet:	67 Error checking: CRC		
Retries:	0 Total retries: 0		
Last error:			
File:	6K of 38K		
Elapsed:	00:00:02 Remaining: Throughput:		
	Cancel <u>c</u> ps/bps		

If configuration updated successfully than string with it name and version is shown. Computer start up with new configuration.

🍣 ZXEVO upload - HyperTerminal	
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp	
boot: ZXEvoAURBoot 28.03.2010 main: ZXEvo 4M 23.10.2010 beta Set temporary configuration Try update from SD-card SD error: Card not found Try update from RS-232 Recheck flash Ok! main: ZXEvo 4M 12.11.2010 beta	
Connected 0:16:29 ANSIW 115200 8-N-1 SCROLL CAPS NUM	Capture 🔐