

The download cable LDM-USB-Blaster is connected to USB port of a personal computer and allows:



- to carry out configuration a family of FPGA, making in accordance with the technology of SRAM: Stratix IV, Stratix III, Stratix II, Stratix GX, Stratix, Cyclone V, Cyclone IV, Cyclone III, Cyclone II, Cyclone, APEX II, APEX 20K, ACEX 1K, FLEX 10K, Mercury, Arria GX and Arria II GX.
- to provide with programming a family of CPLD, making in accordance with the technology of EEPROM: MAX V, MAX II, MAX 7000 and MAX 3000.
- to produce programming of configurative chips EPC2, EPC4, EPC8, EPC16, EPCS1, EPCS4, EPCS16, EPCS64 and EPCS128.



Fig. 1. General view of the download cable USB-Blaster

LDM-USB-Blaster supports a wide range of logic levels of power from 1,5 to 5 V. It carries out a quick way of intersystem programming. It is supported downloading data directly from the design environment Quartus II. USB-

Blaster has a power from USB port. An additional source of power is not required. Dimensions LxWxH : 71x41x23 mm.

Download modes

Table 1

Download modes of USB-Blaster

Mode	Description
JTAG	Programming and configuring all devices of the company Altera supported software Quartus II, excluding FLEX 6000 and serial devices of configuring EPCS
Passive Serial	Configuring all devices of the company Altera supported software Quartus II, excluding: MAX 3000, MAX 7000, MAX II, EPC and EPCS
Active Serial	Programming one of the serial devices of configuring: EPCS1, EPCS4, EPCS16, EPCS64 or EPCS128

Flowchart USB-Blaster is shown in the Fig. 2. All lines of the interface 10-contacts connector have series resistors with the resistance of 10 Ohm.

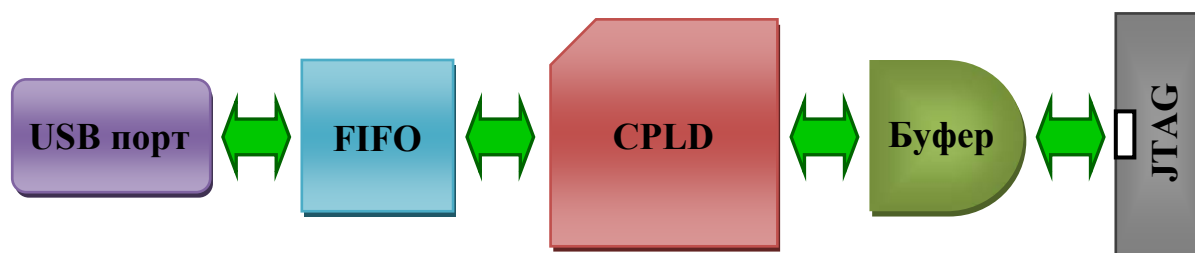


Fig. 2. Flowchart of USB-Blaster

The view of 10-contact connector is shown in the Fig. 3, the allocation of its contacts is shown in the Table 2.

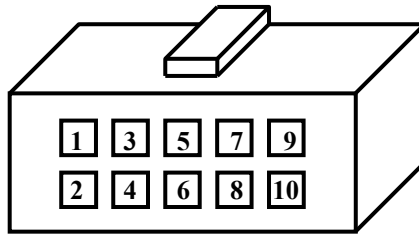


Fig. 3. The view of 10-contact connector of USB-Blaster

Table 2

Outputs designation of the 10-contact connector of USB-Blaster
in different working modes

Output	Active Serial		Passive Serial		JTAG	
	Designation	Description	Designation	Description	Designation	Description
1	DCLK	Clock signal	DCLK	Clock signal	TCK	Clock signal
2	GND	General description "Earth"	GND	General description "Earth"	GND	General description "Earth"
3	CONF_DON E	Configuration status control	CONF_DON E	Configuration status control	TDO	Data output
4	VCC	Reverence voltage	VCC	Reverence voltage	VCC	Reverence voltage
5	nCONFIG	Configuration status control	nCONFIG	Configuration status control	TMS	Control of the final automatic machine JTAG
6	nCE	Device mode	-	Does not use	-	Does not use
7	DATAOUT	Data output	nSTATUS	Configuration status	-	Does not use
8	nCS	Device selection	-	Does not use	-	Does not use
9	ASDI	Data input	DATA0	Data input	TDI	Data input
10	GND	General description "Earth"	GND	General description "Earth"	GND	General description "Earth"

Output 4 (VCC) of 10-contact cable of USB-Blaster should be connected to certain level of voltage depending on the group of programming and configuring devices of the company Altera (Table 3).

Table 3

The required level of output voltage of VCC USB-Blaster

A family of devices	The level of output voltage VCC
MAX II	According to voltage requirements V_{CCIO} Bank 1
MAX 7000S	5 V
MAX 7000AE, MAX 3000A	3,3 V
MAX 7000B	2,5 V
Arria II GX	According to voltage requirements V_{CCPD} or V_{CCIO} Bank 8C
Stratix III, Stratix IV	According to voltage requirements V_{CCPGM} or V_{CCPD}
Cyclone III	According to voltage requirements V_{CCA} or V_{CCIO}
Stratix II, Stratix, Stratix II GX, Stratix GX, Arria GX	According to voltage requirements V_{CCSEL}
Cyclone II, Cyclone, APEX II, APEX 20K, Mercury	According to voltage requirements V_{CCIO}
FLEX 10K, FLEX 8000, FLEX 6000	5 V
FLEX 10KE	2,5 V
FLEX 10KA FLEX6000A	3,3 V
EPC2	5 B or 3,3 V
EPC4, EPC8, EPC16	3,3 V
EPCS1, EPCS4, EPCS16, EPCS64, EPCS128	3,3 V

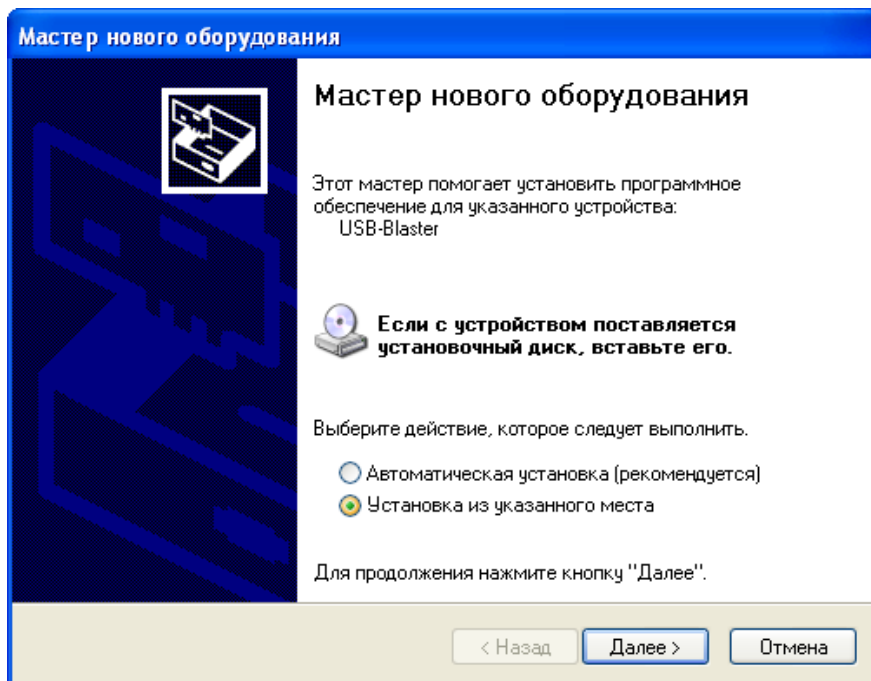
For proper operation of the USB-Blaster it is necessary to install the driver when you first connect to your computer. Download cable is compatible with a standard driver Altera, which is located in the system design catalogue of Quartus at: \drivers\usb-blaster. The driver is also available on the website Altera: www.altera.com/support/software/drivers and on the disk CD-R, bundled to the USB-Blaster (catalogue «DRV usb-blaster»).

Installing the driver USB-Blaster for Windows 2000 and Windows XP

To install the driver, complete the following steps:

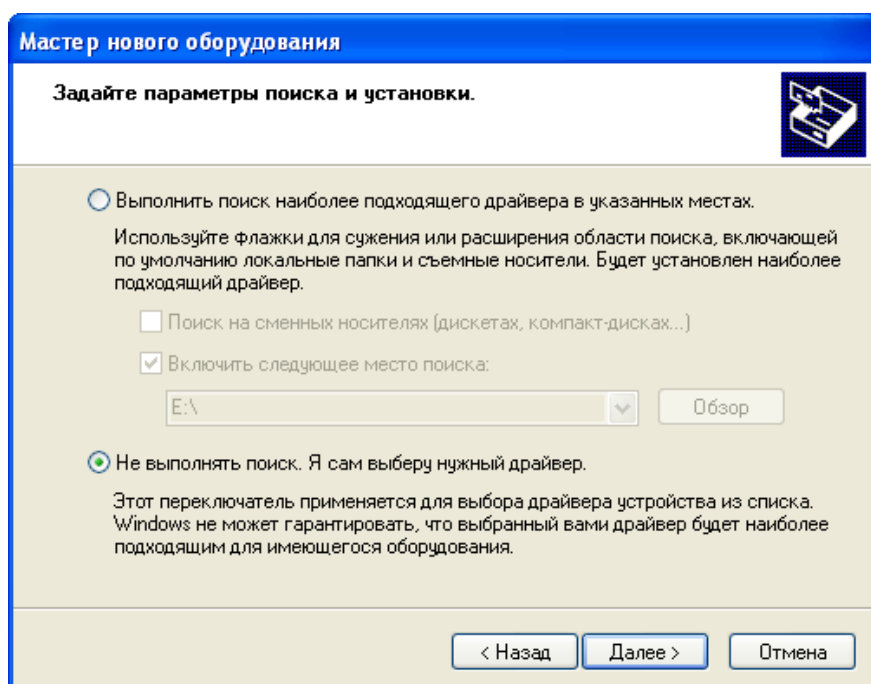
1. Connect the USB-Blaster to the computer.

2. In the window «New hardware wizard» during the search request of drivers on the Internet, click the flag «No, not at this time» and the button «Next». Specify the flag «Install from a list or specific location» and press the button «Next».

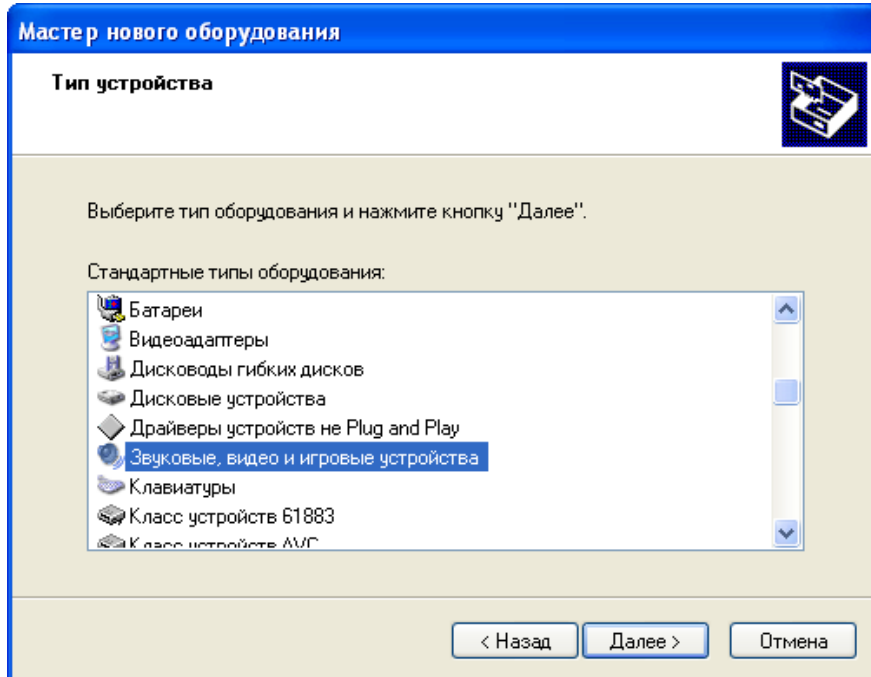


3. Choose the point «Do not search. I will choose the driver by myself».

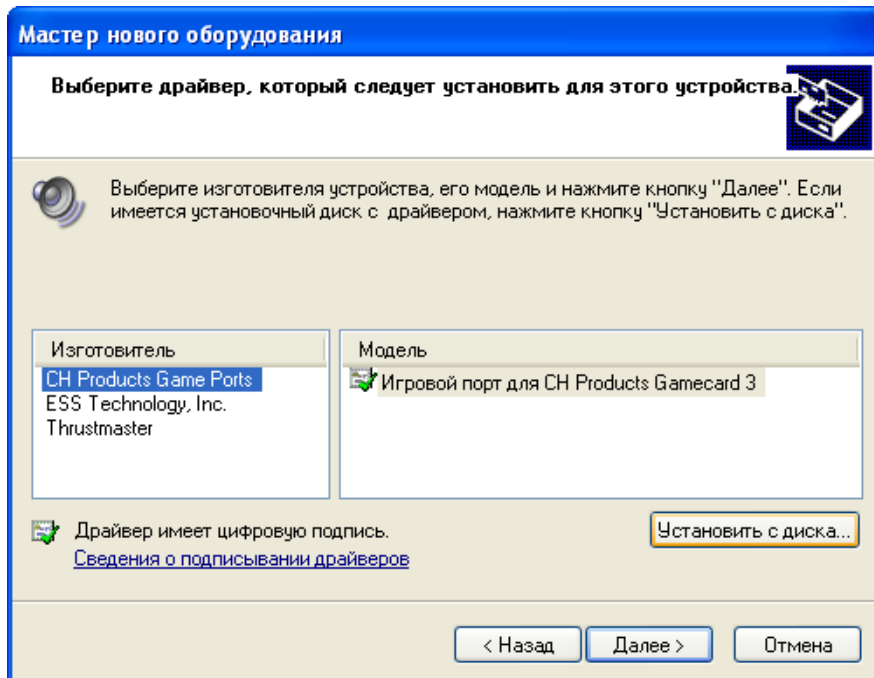
Press the button «Next»

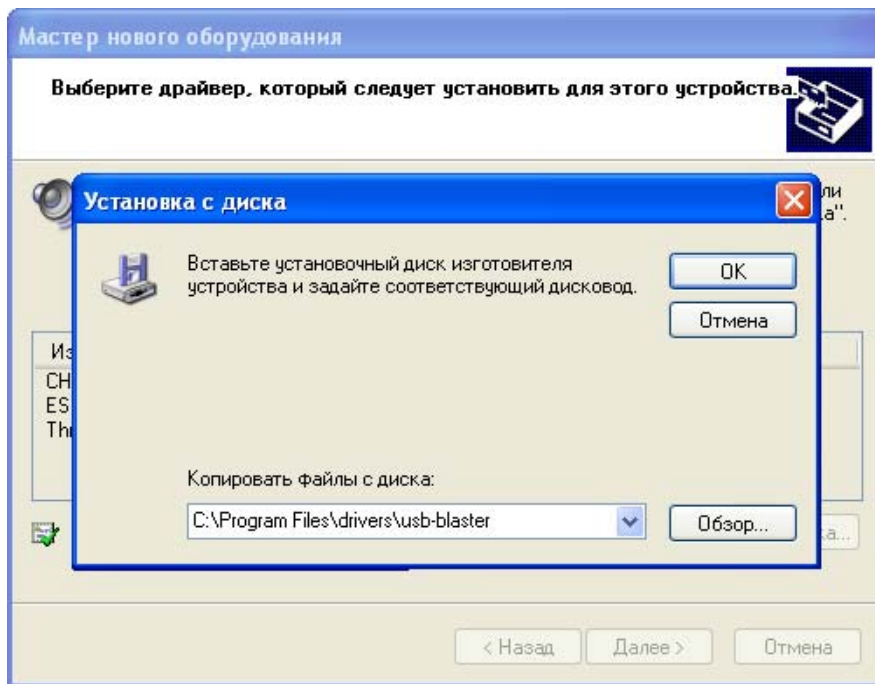


4. Choose «Sound, video and game controllers» and press the button «Next».

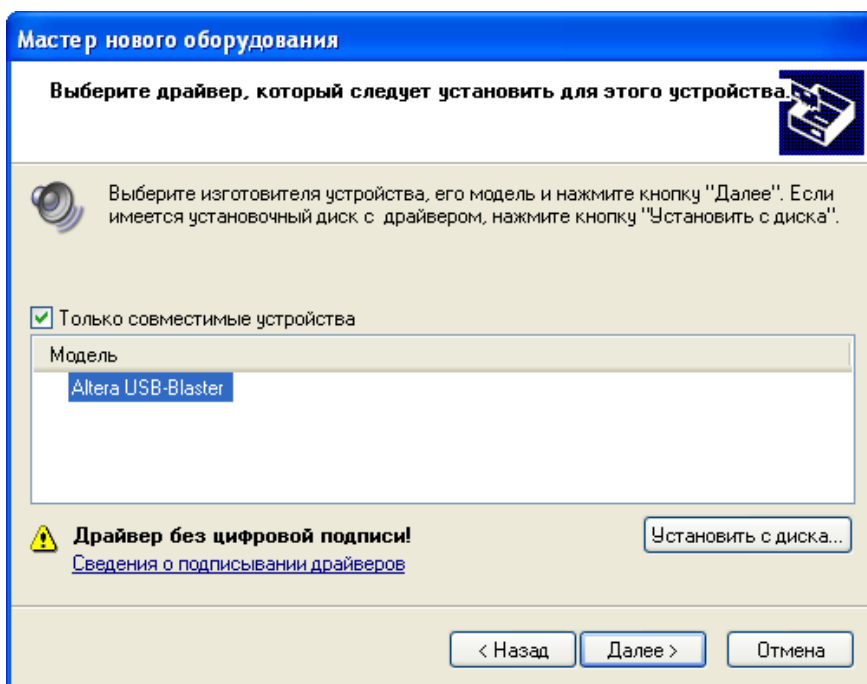


5. Choose «Install from the disk» and find the location of the driver on your system: \ < direction Quartus II > \drivers\usb-blaster. Press the button «OK».

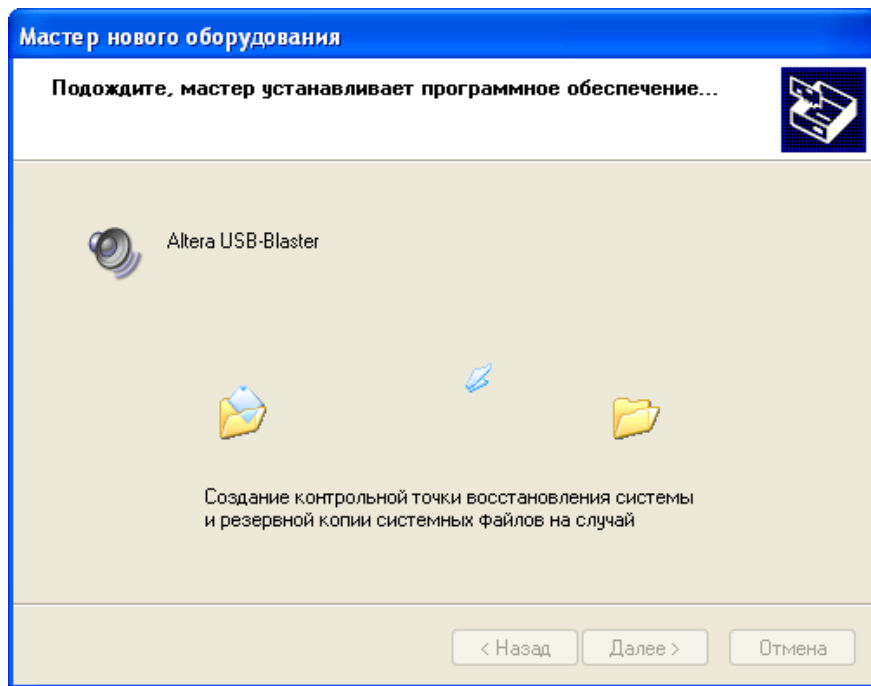




6. Choose «Altera USB-Blaster» and press the button «Next».

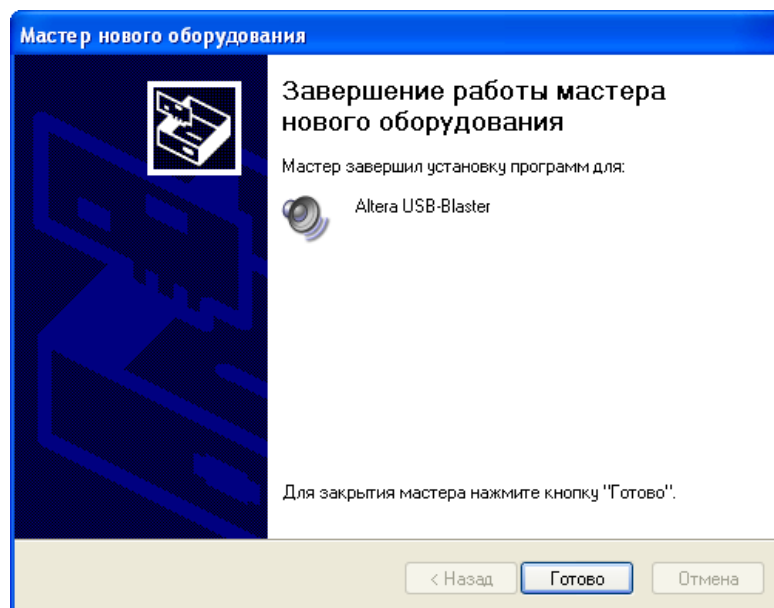


7. Press «Next» to install the driver.



8. Press «Continue», If you see a installers warning.

9. Press the button «Ready» in the window «Completing the work of new hardware wizard».



10. Restart the system.

Installing the driver USB-Blaster for OS Windows Vista

To install the driver, complete the following steps:

1. Connect the USB-Blaster to the computer.
2. In the window «New hardware wizard» press «Find and install the driver».
3. In the window «New hardware Found» - USB-Blaster - press «I don't have a disk. Show me another options to continue».
4. Press «Search the driver on the computer».
5. Press the button «Review» and find the location of the driver on your system: \ < direction Quartus II > \drivers\usb-blaster. Press the button «OK».
6. Press the button «Next» to install the driver.
7. If you see a installers warning, press the button «Install this driver».
8. Press the button «Close», when the installing the driver will be completed.
9. Restart the system.

Packaging arrangements:

- The download module LDM USB-Blaster + MiniUSB cable + cable JTAG;
- Description of the download cable;
- Examples of projects for Quartus II Web Edition Software;
- Description of the family of FPGA Altera.