EB020 – Installation Instructions.

32-bit Systems – WIN2000, XP, Vista 32, Win7 32

Detailed below are the 3 steps needed to get up and running with the CPLD board. This 3 step process needs to be completed only once and then the drivers should all be loaded and ready.

Step 1 - Installing the driver for the EB020 CPLD board.

Step 2 – Add or modify the LPT driver for use with the USB EB020 board Step 2 has two options – Only one of these needs to be done depending on your PC.

- a) PCs without a LPT port onboard their motherboard
- b) PCs with a LPT port onboard their motherboard

Step 3 - Install the Altera Quartus II Software

64-bit Systems

The kernel driver that allows the Quartus software to talk to the LPT subsystem will not work for Windows x64 based systems. To get around this problem you can either use a 32-bit operating system or use a virtual machine such as Sun's VirtualBox to load a 32-bit operating system inside your 64-bit OS. We are currently investigating ways around having to do this.

1) EB020 USB Driver

Make sure that J3 pf the EB020 has a jumper in the PSU position Insert a USB cable between the EB020 and your PC. Plug in the PSU and switch on. Switch on the EB020 The USB LED should light indicating a connection On the 'Found New Hardware Wizard' screen select Install from specific location (Advanced)



Click next

Tick the box next to include this location in the search and then click Browse

Found New Hardware Wizard			
Please choose your search and installation options.			
Search for the best driver in these locations.			
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.			
Search removable media (floppy, CD-ROM)			
✓ Include this location in the search:			
Biowse			
O Don't search. I will choose the driver to install.			
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.			
< <u>B</u> ack <u>N</u> ext > Cancel			

Locate the EB020 driver and click OK Click Next Click Continue Anyway Configure the port address to 3BCh (956, LPT1 1985) Configure the enhancement mode to ECP

Click Next



Click Finish

2a) Quartus LPT Driver - PC Motherboard does 'not' have a parallel port.

XP ONLY

Click on the start menu and select control panel. Click switch to classic view. Double click the Add Hardware icon

VISTA / WIN7 ONLY

Click the start menu, then right click Computer and select properties. Click the Device manager link on the left of the window. Select an item in the device manager. Click the Action menu and select Add legacy hardware.

ALL



Click Next Select Yes, I have connected the hardware



Click Next.

Scroll down to the bottom of the list and select Add a new device

Add Hardware Wizard	
The following hardware is already installed on your computer	
From the list below, select an installed hardware device, then click Next to check properties or troubleshoot a problem you might be having.	
To add hardware not shown in the list, click "Add a new hardware device."	
Installed hardware:	
🕰 USB Root Hub	
🚓 USB Root Hub	
🚓 USB Root Hub	
🚭 USB Composite Device	
😪 USB Printing Support	
Add a new hardware device	
< <u>B</u> ack <u>N</u> ext > 0	Cancel

Click Next Select Install the hardware that I select manually



Click Next Select Ports (COM & LPT)

Add Hardware Wizard	
From the list below, select the type of hardware you are installing	
If you do not see the hardware category you want, click Show All Devices.	
Common <u>h</u> ardware types:	
 Ports (COM & LPT) Printers SCSI and RAID controllers Sound, video and game controllers System devices Tape drives Virtual Null Modem Windows Portable Devices 	
< <u>B</u> ack <u>N</u> ext >	Cancel

Click Next

Under the standard ports types header select the ECP Printer Port

Add Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturer Model [Standard port types] Cyclades Corporation haftmann#software IVT Corporation IVT Corporation Multiport Communications Port Matrix Multimedia Ltd IVT Printer Port
This driver is digitally signed. Have Disk Tell me why driver signing is important
< <u>B</u> ack <u>N</u> ext> Cancel

Click Next

Add Hardware Wizard			
The wizard is ready to install your hardw	are		
Hardware to install:			
ECP Printer Port			
To start installing your new hardware, click N	lext.		
	< <u>B</u> ack	<u>N</u> ext >	Cancel

Click Next Click Finish

Click on Start and select Control Panel Double click the System icon Click on the hardware tab and then open device manager Open the heading Ports (COM & LPT) You should now have at least two entries (ECP Port and CPLD device). Double click the ECP Printer Port and click the port settings tab

ECP Printer Port (LPT3) Properties	<u>?</u> ×
General Port Settings Driver Details Resources	
Filter Resource Method	- 11
O <u>I</u> ry not to use an interrupt	
⊙ Never use an interrupt	
○ <u>U</u> se any interrupt assigned to the port	
✓ Enable legacy Plug and Play detection	
LPT Port Number:	
OK Can	cel

Change the LPT port number to LPT1 or LPT2 depending on your configuration and then enable legacy plug and play detection

Next click on the resources tab and click the 'Set configuration manually' button.

Highlight the I/O range list item

Un-tick the box saying use automatic settings.

ECP Printer Port (LPT3) Properties	? ×
General Port Settings Driver Details Resources	
ECP Printer Port (LPT3)	
<u>Resource settings:</u>	
Resource type Setting	
I/O Range ?	
	_
Setting pased on: Basic configuration 0000	<u> </u>
Use automatic settings <u>Change Setting</u> .	
Conflicting device list:	
No conflicts.	×
OK Car	ncel

Click the change settings button Type in the following '03BC – 03BE' into the value field.

Edit Input/Output Range ?	×
Enter the input/output range you would like to set for this device.	
You may either enter a specific range and the nearest valid range will be automatically selected, or you may select a range using the up and down arrows.	!
This resource is assigned to the following child device(s):	
Value: 0378 - 037F	
Unknown	
OK Cancel	

Click OK Close Device manager.

Vista / WIN7 ONLY

Click start and type the following into the search bar without the quotes "GPEDIT.msc" Click User Configuration -> Administrative Templates -> System -> Driver Installation Double click the item "Code signing for device drivers" Select the Disabled tick box and click ok

ALL

Restart your PC.

2b) Quartus LPT Driver - Motherboard has a parallel port.

Click on Start and select Control Panel Double click the System icon Click on the hardware tab and then open device manager Open the heading Ports (COM & LPT) You should now have at least two entries (ECP Port and CPLD device). Double click the ECP Printer Port and click the port settings tab

ECP Printer Port (LPT3) Properties	? ×
General Port Settings Driver Details Resources	
Filter Resource Method	
C Iry not to use an interrupt	
Never use an interrupt	
○ <u>U</u> se any interrupt assigned to the port	
Image: Enable legacy Plug and Play detection	
LPT Port Number:	
ОК	Cancel

Change the LPT port number to LPT1 and then enable legacy plug and play detection Next click on the resources tab and take note of the resources used. In the example below the resource starting address is 0378. Click OK.

ECP Printer Port (LPT1) Properties	? ×
General Port Settings Driver Details Resources	
ECP Printer Port (LPT1)	
Resource settings:	
Resource type Setting	Ĩ .
1/0 Range 0378 - 037F	
I/O Range 0778 - 077F	
Setting based on: Current configuration]
Use automatic settings]
Conflicting device list:	
No conflicts.	
OK Canc	el

Back in device manager double click the Matrix CPLD device and select the emulation tab

Select the emulated port address that matches the resource starting address from above.

Matrix Multimedia CPLD (LPT3) Properties	? ×
General Emulation Statistics Driver Details	
Emulated port address: 378h (888, LPT1)	•
LPT enhancement mode: SPP	-
Trapping method for IN and OUT instructions	- 11
Debug register trap	
(catches all flavours of IN and OUT instructions)	
<u>READ_PORT_UCHAR / WRITE_PORT_UCHAR redirect</u> (<i>laster, more stable</i>)	
Performance options	
 Use write-back for OUT instructions (Concatenate multiple OUT instructions to one USB packet) 	
Send packet after that timeout value: 200 ms	
Read-back local copy of output registers More precisely	
(return last-written value on IN instruction; does not work when outputs are driven [low] by external hardware)	
	ancel

Click OK.

Vista / WIN7 ONLY

Click start and type the following into the search bar without the quotes "GPEDIT.msc" Click User Configuration -> Administrative Templates -> System -> Driver Installation Double click the item "Code signing for device drivers" Select the Disabled tick box and click ok

ALL

Restart your PC.

3. Installing Quartus Software (internet enabled computer)

- 1) Insert "CPLD Programming CD"
- 2) Run Quartus software installing program
 - Either from the autostart pop-up window OR from the start menu enter the RUN command Find the file
 - R from the start menu enter the RUN command Find the file
 - D:\Quartusexe\quartusii_30_web_edition_single.exe
- 3) Navigate through the installation program Once installation is complete
- 4) Open Quartus Software
- 5) A licence Error pop-up window may occur
 - a) Check the box for "request up-date licence from web"
 - b) Navigate through the licence pages
 - c) Send the .dat license file to your email
 - d) Save the .dat license file from your email onto your PC
 - e) Load the .dat file into the Quartus license manager
- 6) Enter programming software in Quartus

Tools -> Programmer

a. Click on the "Hardware" button

Hardware... ByteBlasterMV

- b. Click on the "Add Hardware" button
- c. Select "ByteBlaster MV or Byteblaster II"
- d. Select which port this is on it is normally defaulted to LPT1 this should be correct
- e. Click "OK"
- f. Highlight the ByteBlaster and press the "Select Hardware" as shown below
- g. Click "Close"

Hardware Setup			X
Hardware Settings JTAG Sett	ings re setup to use wh	en programming devi	ices. This programming
hardware setup applies only to Currently selected hardware: Available hardware items: Hardware ByteBlaster	o the current progra No Hardware Server Local	mmer window.	Select Hardware Add Hardware Remove Hardware
			Close

If byteblaster port says kernel mode driver not installed then check your device manager for device related issues and check that the resources for the Matrix CPLD match the resources for the onboard or dummy ECP parallel port. Also check your driver signing setting has been disabled.

The Quartus software can sometimes become stuck in a loop when you try to run it on Vista or WIN7. To get around this bug you should follow the steps below.

Right click Quartus shortcut and select Properties. Click the Compatibility tab. Under Privileges – select the item run this program as administrator. Click OK.