



USB CPLD Development System User Manual

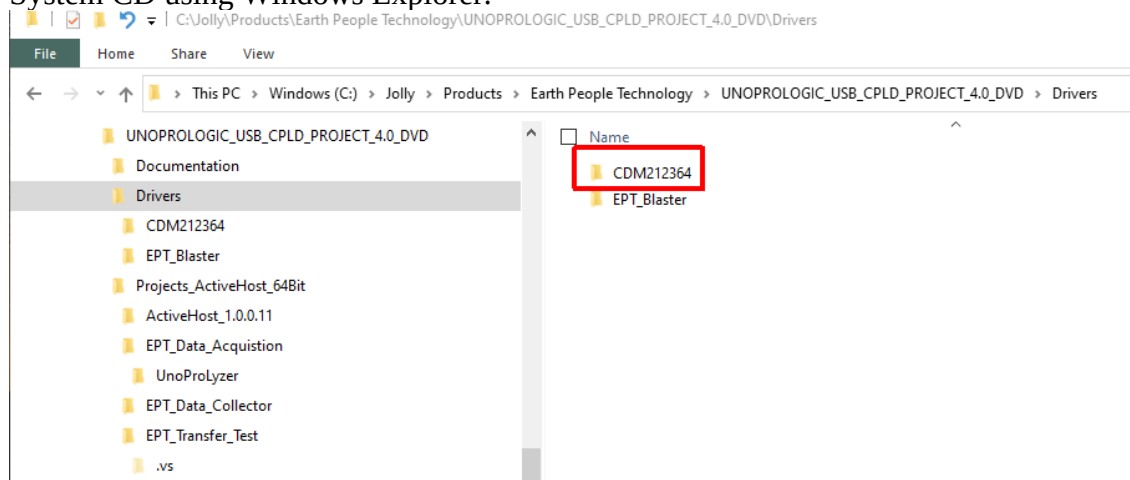
1 EPT Drivers

The UnoProLogic Development system requires drivers for any interaction between PC and the board. The communication between the two consists of programming the CPLD and data transfer. In both cases, the USB Driver is required. This will allow Windows to recognize the USB Chip and setup a pathway for Windows to communicate with the USB hardware.

1.1 USB Driver

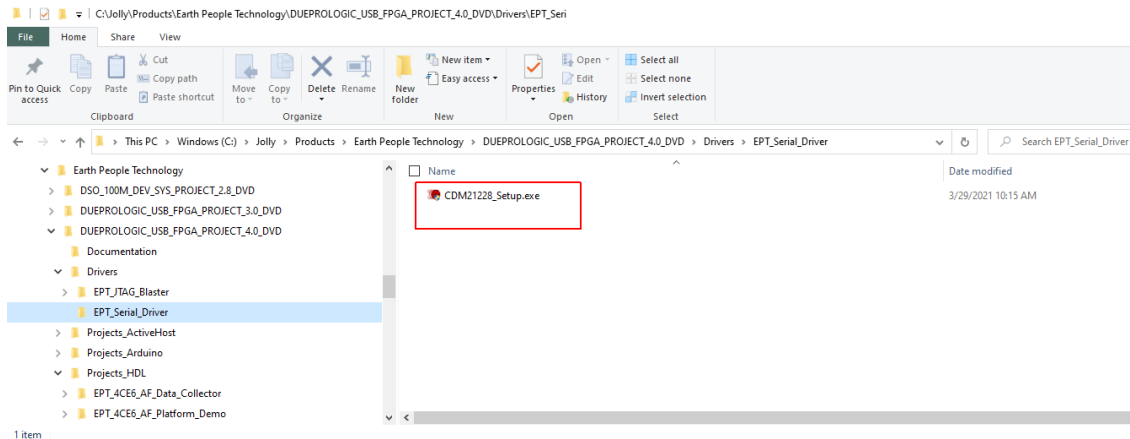
The UnoProLogic uses an FTDI FT2232H USB to Serial chip. This chip provides the USB interface to the PC and the serial/FIFO interface to the CPLD. The FT2232H requires the use of the EPT USB driver. To install the driver onto your PC, use the CDM212xxx Folder. The installation of the FTDI 2.12.28 driver is easily accomplished by double clicking the CDM21228_Setup.exe.

Locate the CDM212xxx folder in the Drivers folder of the UnoProLogic Development System CD using Windows Explorer.



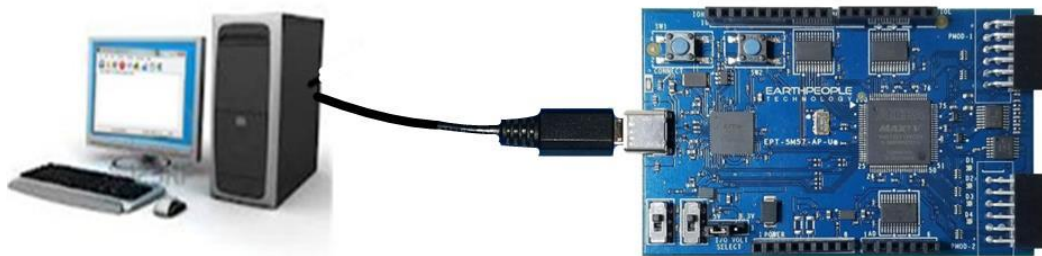


USB CPLD Development System User Manual



Double click on the *.exe file and select the default settings when the software tool queries the user.

Plug in the UnoProLogic device into an available USB port.

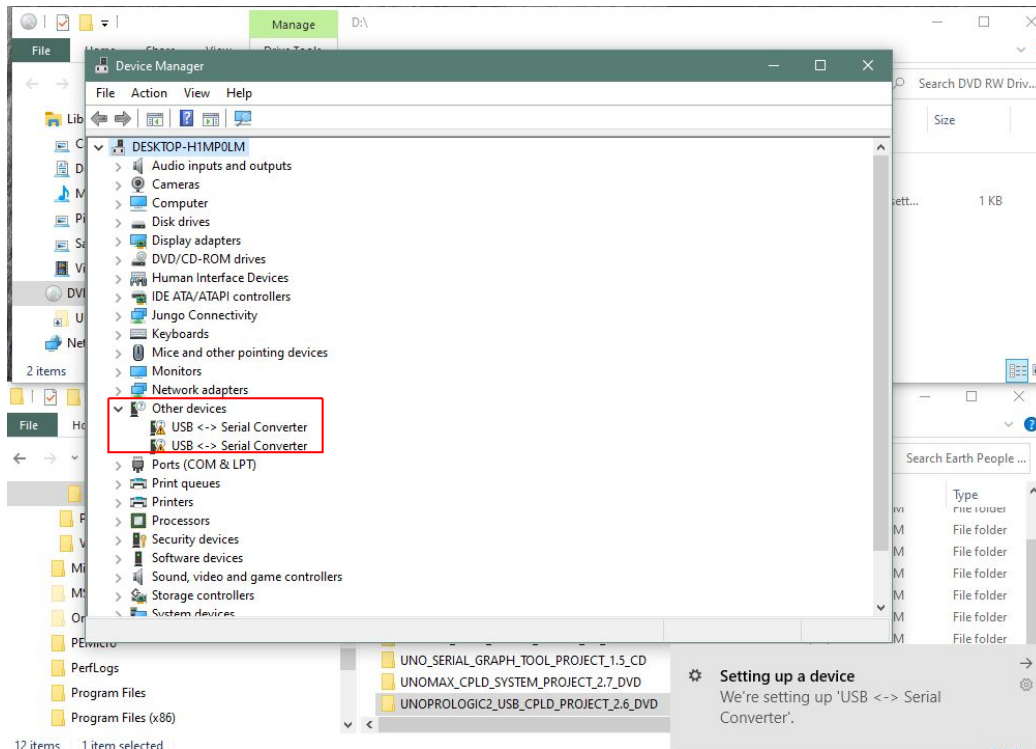


Windows will attempt to locate a driver for the USB device. When it does not find one, it will report an error, “Device driver software was not successfully installed”. Ignore this error.

If Windows cannot load a driver for the DPL, a notification window will inform the user that the driver load has failed for the device.

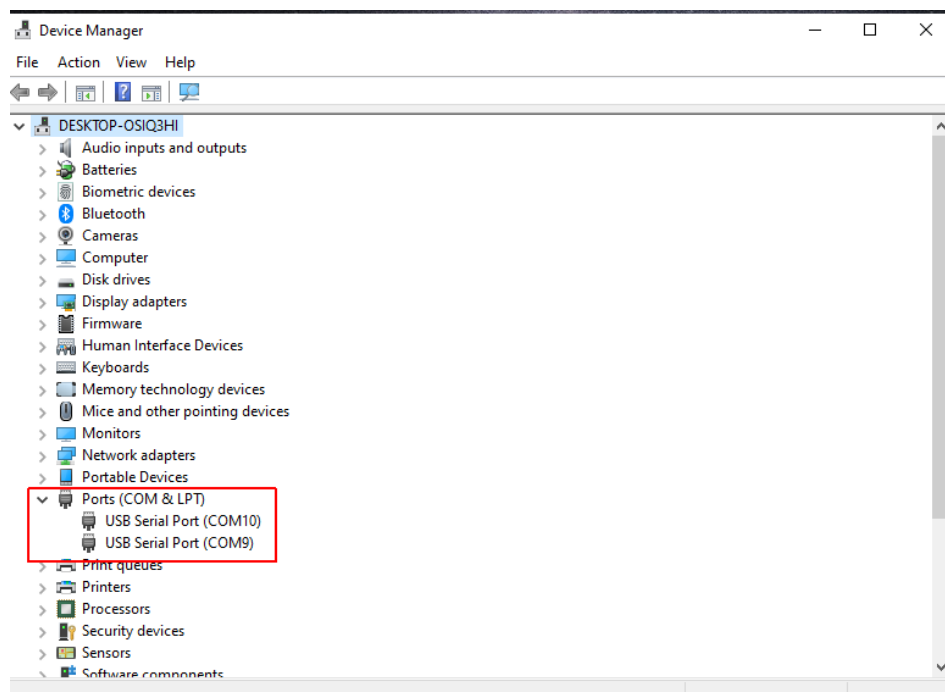


USB CPLD Development System User Manual



If the driver is successfully installed, Windows will inform the user. The user can check Device Manager to ensure the correct driver was installed for the UnoProLogic. The UnoProLogic will show up as two COM Ports under the “Ports (COM & LPT)” under the Device Manager.

USB CPLD Development System User Manual



When this is complete, the drivers are installed and the UnoProLogic can be used for programming and USB data transfers.

1.2 JTAG DLL Insert to Quartus Prime Lite

The JTAG DLL Insert to Quartus Prime Lite allows the Programmer Tool under Quartus to recognize the UnoProLogic. The UnoProLogic can then be selected and perform programming of the CPLD. The file, `jtag_hw_mbftdi_blaster.dll` must be placed into the folder that hosts the `jtag_server` for Quartus.

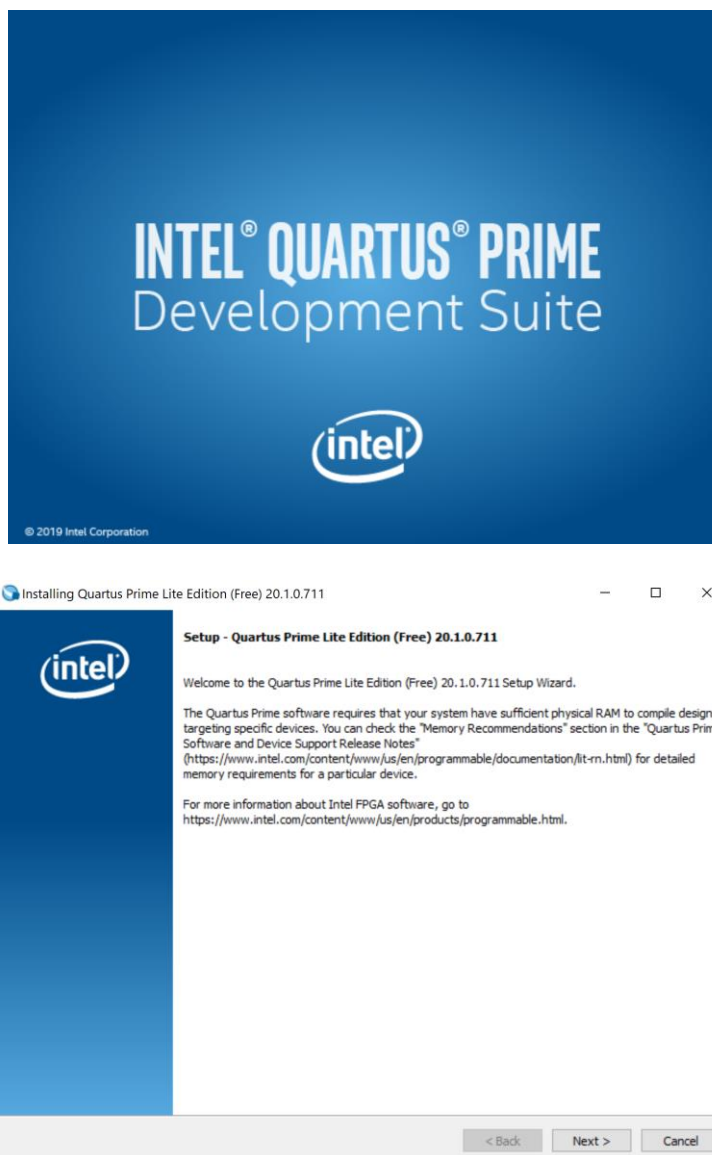
1.2.1 Installing Quartus

You can download the Quartus Prime Lite by following the directions in the Section Downloading Quartus.

If you don't need to download Quartus, double click on the `QuartusLiteSetup-xxx.xxx.xxx-windows.exe` (the xxx is the build number of the file, it is subject to change). The Quartus Prime Web Edition will start the installation process.



USB CPLD Development System User Manual



When the install shield window pops up click “Yes” or if needed, enter the administrator password for the users PC. Click “Ok”

Next, skip the “Download Quartus” section. Go down to the “Quartus Installer” section to complete the Quartus installation.



USB CPLD Development System User Manual

1.2.2 Downloading Quartus

The first thing to do in order build a project in Quartus is to download and install the application. You can find the latest version of Quartus at:

[Intel FPGA Quartus Prime Lite](#)

You will first need to apply for an account with Intel. Then use your login and password to access the download site. Click on the Download Windows Version.

The screenshot shows the Intel website's download center for FPGAs. The top navigation bar includes links for Products, Solutions, and Support, along with the Intel logo, language selection (USA (English)), and a Sign In button. The main heading is "Download Center for FPGAs". On the left, a sidebar lists various software categories: Design Software, Embedded Software, Archives, Licensing, Programming Software, Drivers, Board System Design, Board Layout and Test, and Legacy Software. The main content area is titled "Quartus Prime Lite Edition" and provides release information (June 2020, v20.1). It includes dropdown menus to select the edition (Lite) and release (20.1). Below this, it specifies the operating system (Windows or Linux). A yellow information box at the bottom contains two green checkmarks: one stating that Version 20.1 includes functional and security updates, and another stating that Version 20.1 is subject to removal from the web when support for all devices is obsolete.

The next page will require you to sign into your “myAltera” account. If you do not have one, follow the directions under the box, “Don’t have an account?”



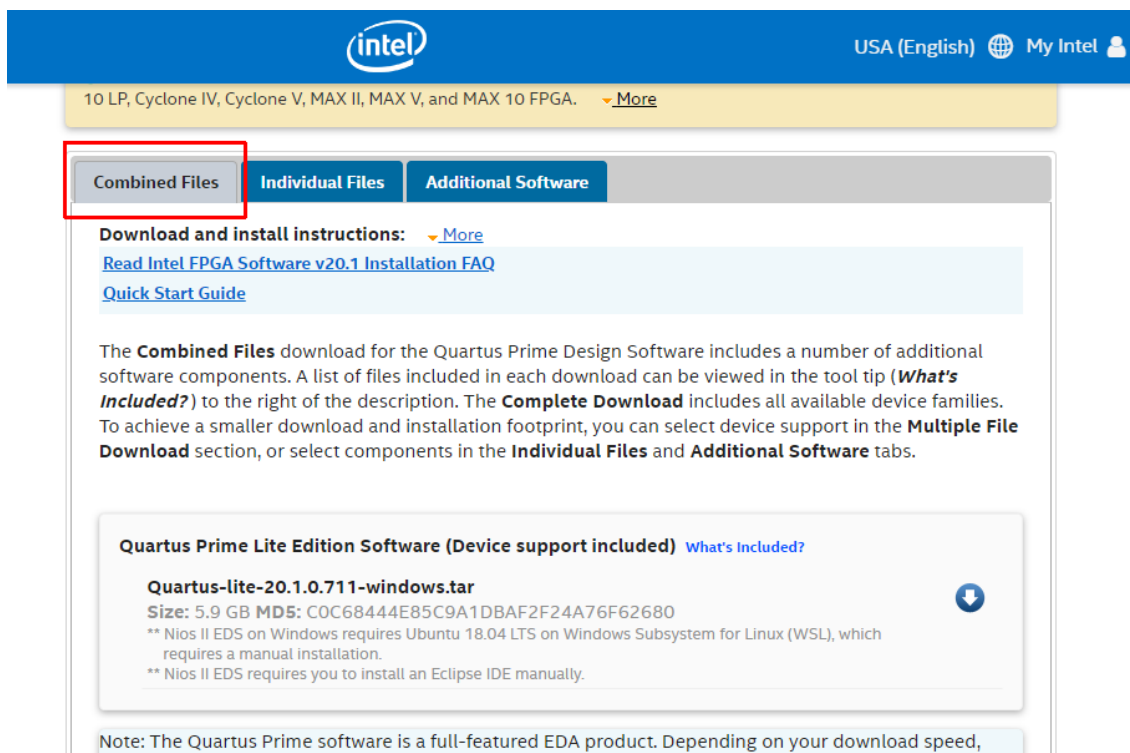
USB CPLD Development System User Manual

A screenshot of the Intel Sign In page. The page has a blue header with the Intel logo on the left and "USA (English)" with a globe icon, "Sign In" with a user icon, and a search icon on the right. The main content area is dark gray. On the left, there's a sidebar with "Edition" and "Downloads" (with Windows and Linux icons). The right side contains the sign-in form: a "Username" field, a "Password" field, a "Sign In" button, and a "Remember me" checkbox. Below the button, there are links for "Forgot your Intel username or password?", "Do you work for Intel? Sign in here.", and "Don't have an Intel account? Sign up here for a basic account." At the bottom, there's a section about "Intel Design Software, Version 20.1" with links to "technical recommendations" and "subscribe".

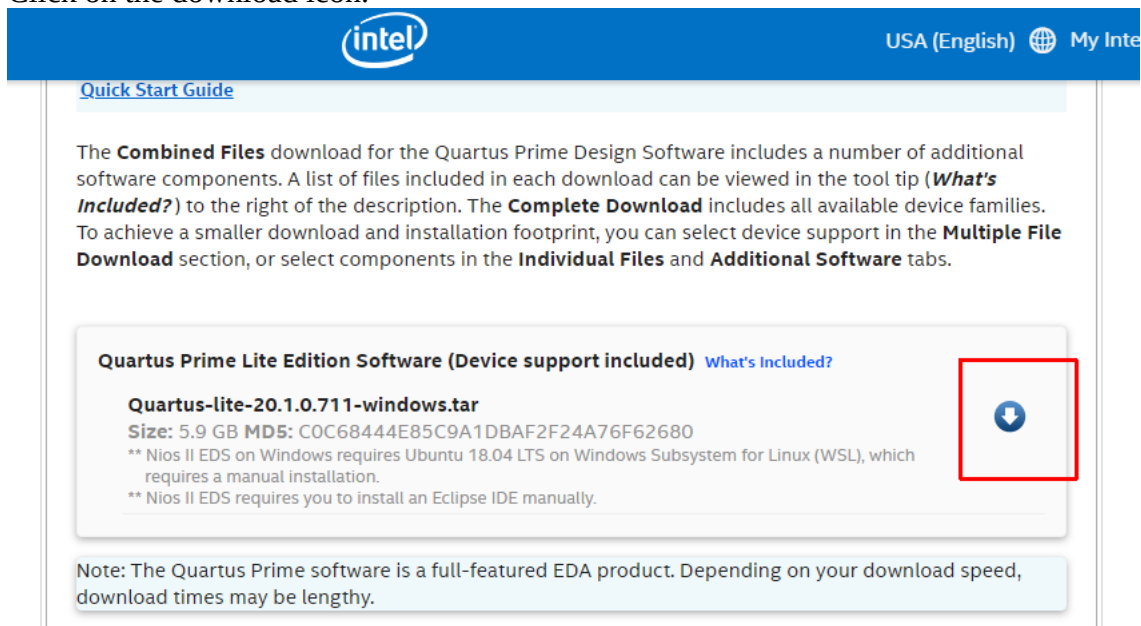
Once you have created your myAltera account, enter the User Name and Password. The next window will ask you to allow pop ups so that the file download can proceed.



USB CPLD Development System User Manual

This screenshot shows the Intel Quartus Prime download page. At the top is the Intel logo and navigation links for "USA (English)", "My Intel", and a user icon. Below this is a yellow banner for "10 LP, Cyclone IV, Cyclone V, MAX II, MAX V, and MAX 10 FPGA." with a "More" link. The main content area has three tabs: "Combined Files" (highlighted with a red box), "Individual Files", and "Additional Software". Under the "Combined Files" tab, there are links for "Download and install instructions:", "Read Intel FPGA Software v20.1 Installation FAQ", and "Quick Start Guide". A paragraph explains that the "Combined Files" download includes additional software components and that the "Complete Download" includes all available device families. Below this is a section for "Quartus Prime Lite Edition Software (Device support included)" with a "What's Included?" link. It lists the file "Quartus-lite-20.1.0.711-windows.tar" with a size of 5.9 GB and a MD5 hash. A download icon (a blue circle with a white arrow) is visible next to the file name. At the bottom, a note states: "Note: The Quartus Prime software is a full-featured EDA product. Depending on your download speed,".

Click on the download icon.

This screenshot is similar to the one above, showing the Intel Quartus Prime download page. It includes the Intel logo, navigation links, and the yellow banner for "10 LP, Cyclone IV, Cyclone V, MAX II, MAX V, and MAX 10 FPGA." The "Combined Files" tab is selected. The text and links are the same as in the previous screenshot. However, the download icon (a blue circle with a white arrow) next to the file "Quartus-lite-20.1.0.711-windows.tar" is now highlighted with a red box. The note at the bottom is also present: "Note: The Quartus Prime software is a full-featured EDA product. Depending on your download speed, download times may be lengthy."



USB CPLD Development System User Manual

This will start the download.

The image shows a screenshot of the Intel Quartus Prime Lite Edition Software download page. The page has a blue header with the Intel logo and navigation links for Products, Solutions, and Support. The main content area is white and contains a description of the software components, a list of files included in the download, and a note about the download times. A download progress bar is visible at the bottom left, showing the file name "Quartus-lite-20.1.0.71...t..." and the progress "0.0/5.9 GB, 32 mins left".

Products Solutions Support

The **Combined Files** download for the Quartus software components. A list of files included in **Included?**) to the right of the description. The To achieve a smaller download and installation **Download** section, or select components in the

Quartus Prime Lite Edition Software (Device

Quartus-lite-20.1.0.711-windows.tar
Size: 5.9 GB MD5: C0C68444E85C9A1DB
** Nios II EDS on Windows requires Ubuntu 18.04 requires a manual installation.
** Nios II EDS requires you to install an Eclipse IDE

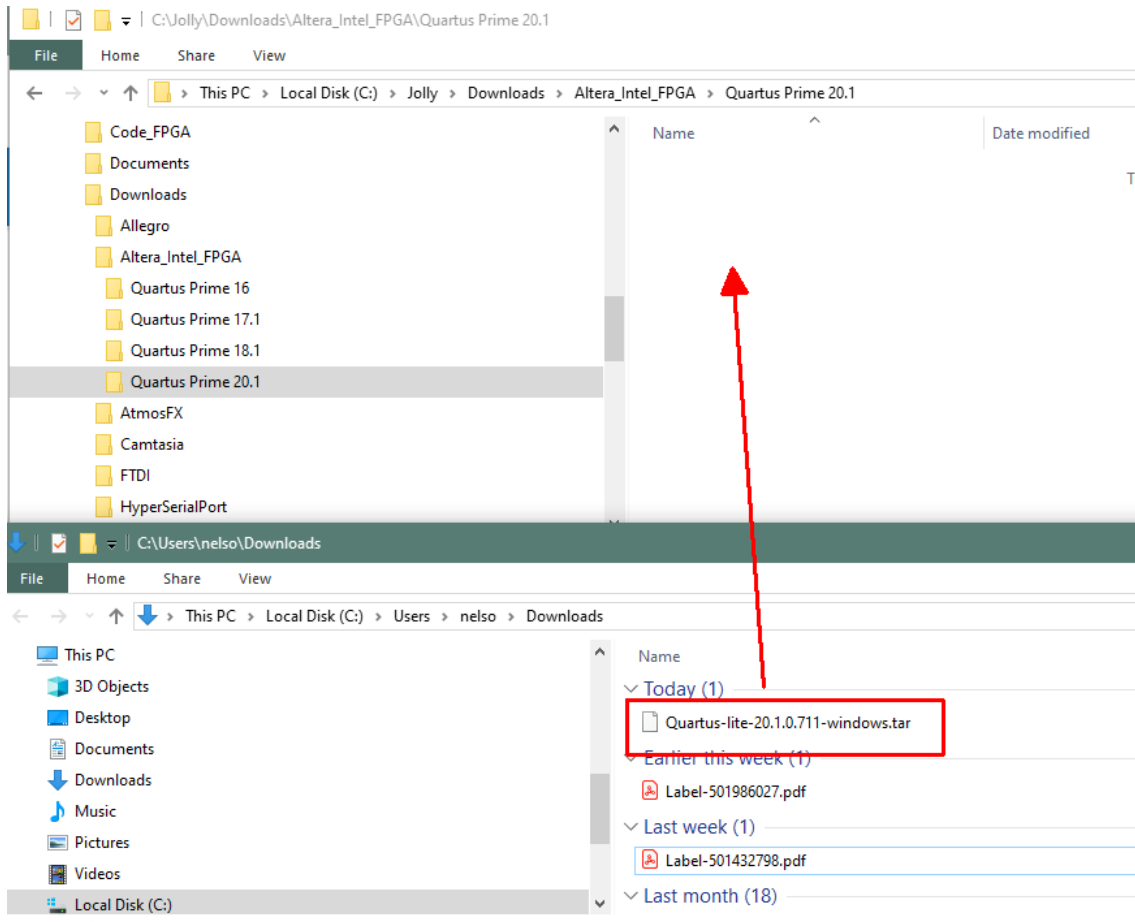
Note: The Quartus Prime software is a full-featured download times may be lengthy.

► System Requirements
► Documentation Links
► Software Support

Quartus-lite-20.1.0.71...t...
0.0/5.9 GB, 32 mins left

The file is 5.9 GB, so this could take a couple of hours depending on your internet connection. When download is complete, store the *.tar file in a directory on your PC.

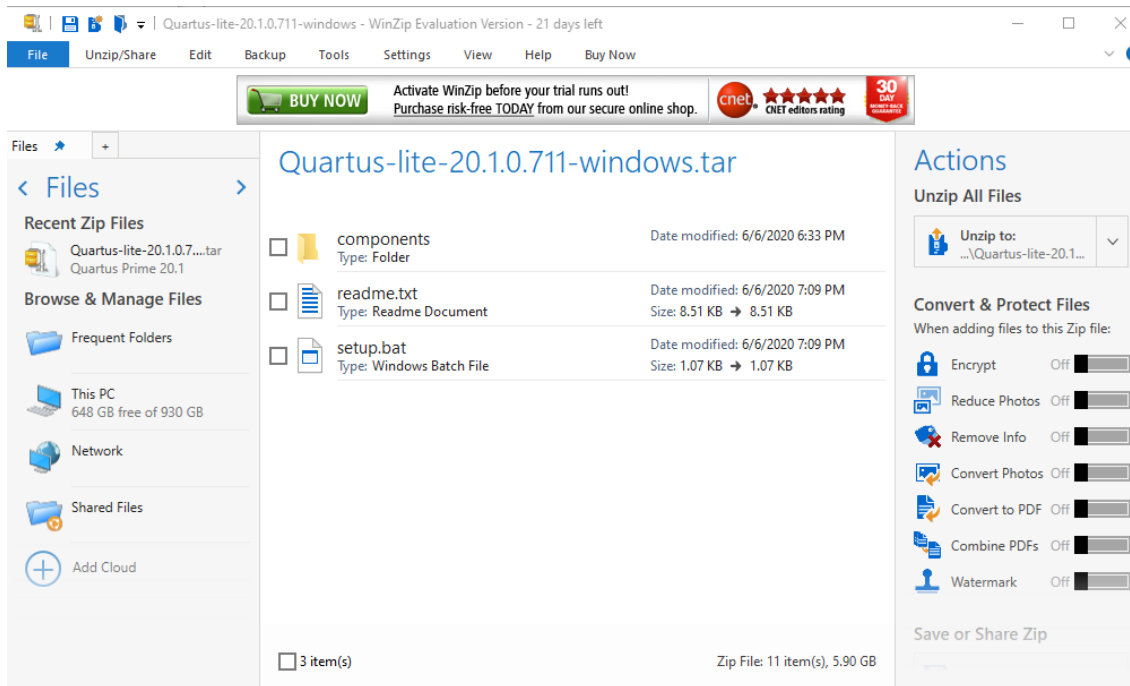
USB CPLD Development System User Manual



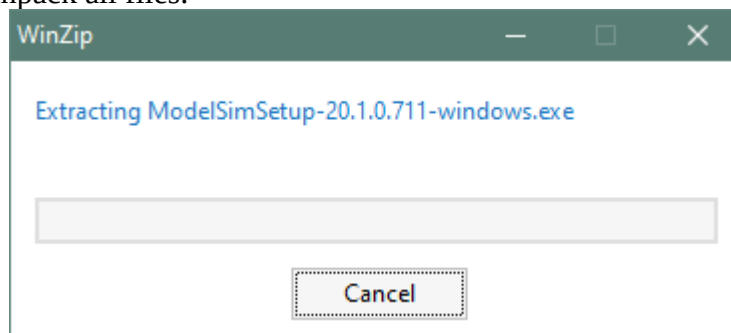
Use a tool such as WinZip to Extract the *.tar file.



USB CPLD Development System User Manual



The tool will unpack all files.

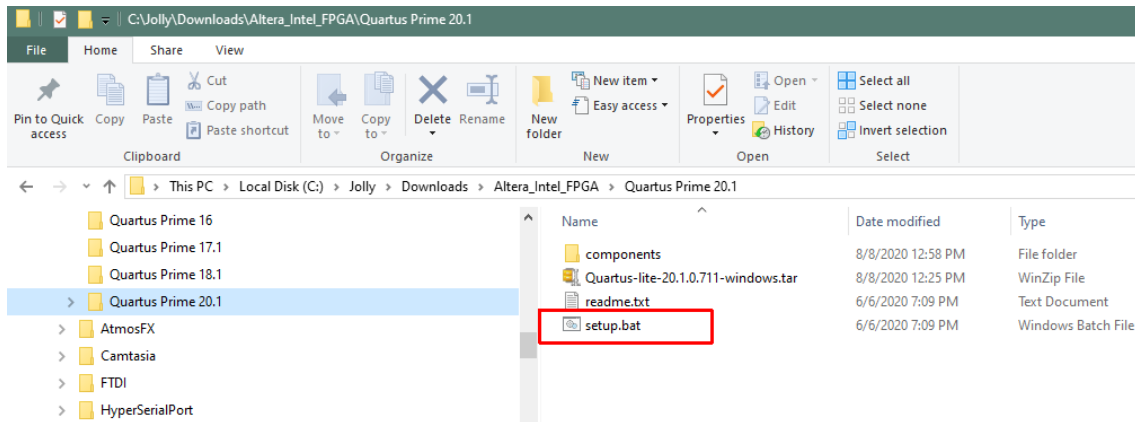


1.2.3 Quartus Installer

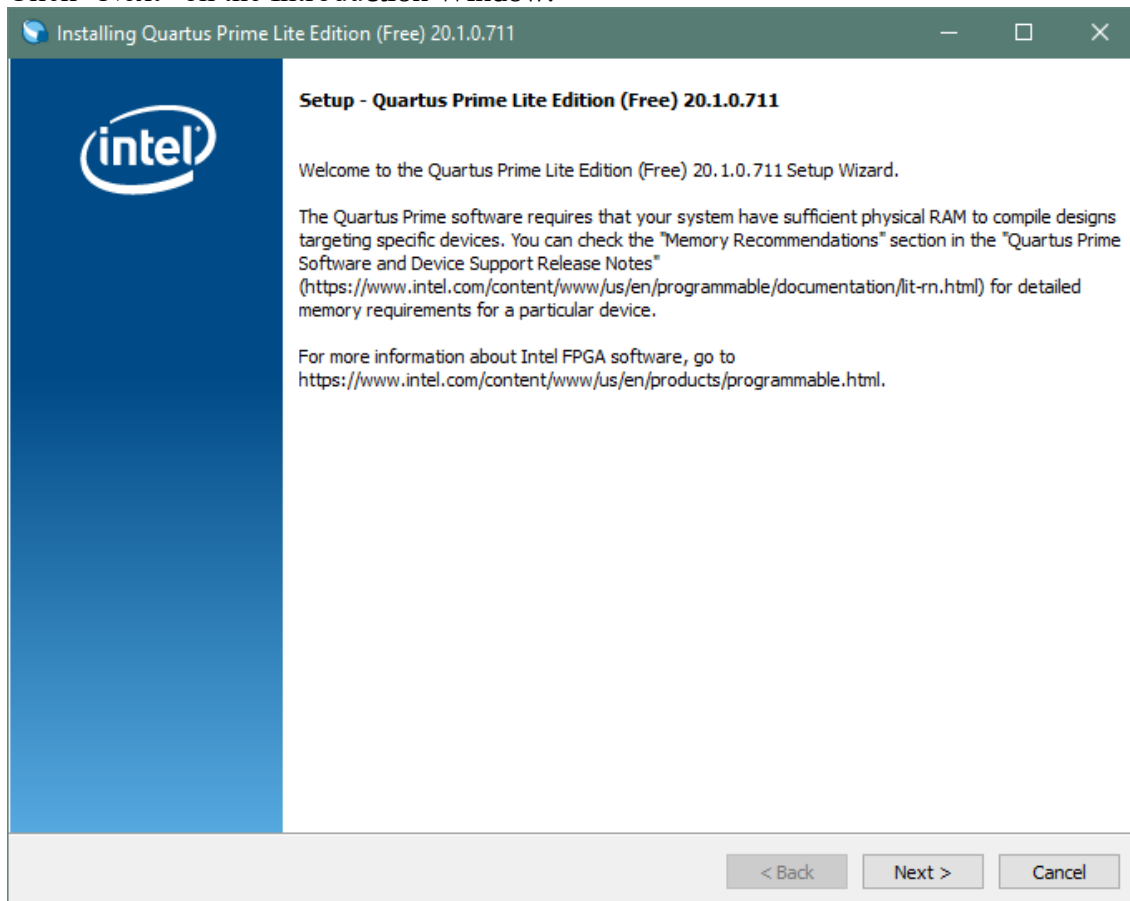
When the unpacking finishes from the previous section, double click the setup.bat file in the download folder.



USB CPLD Development System User Manual



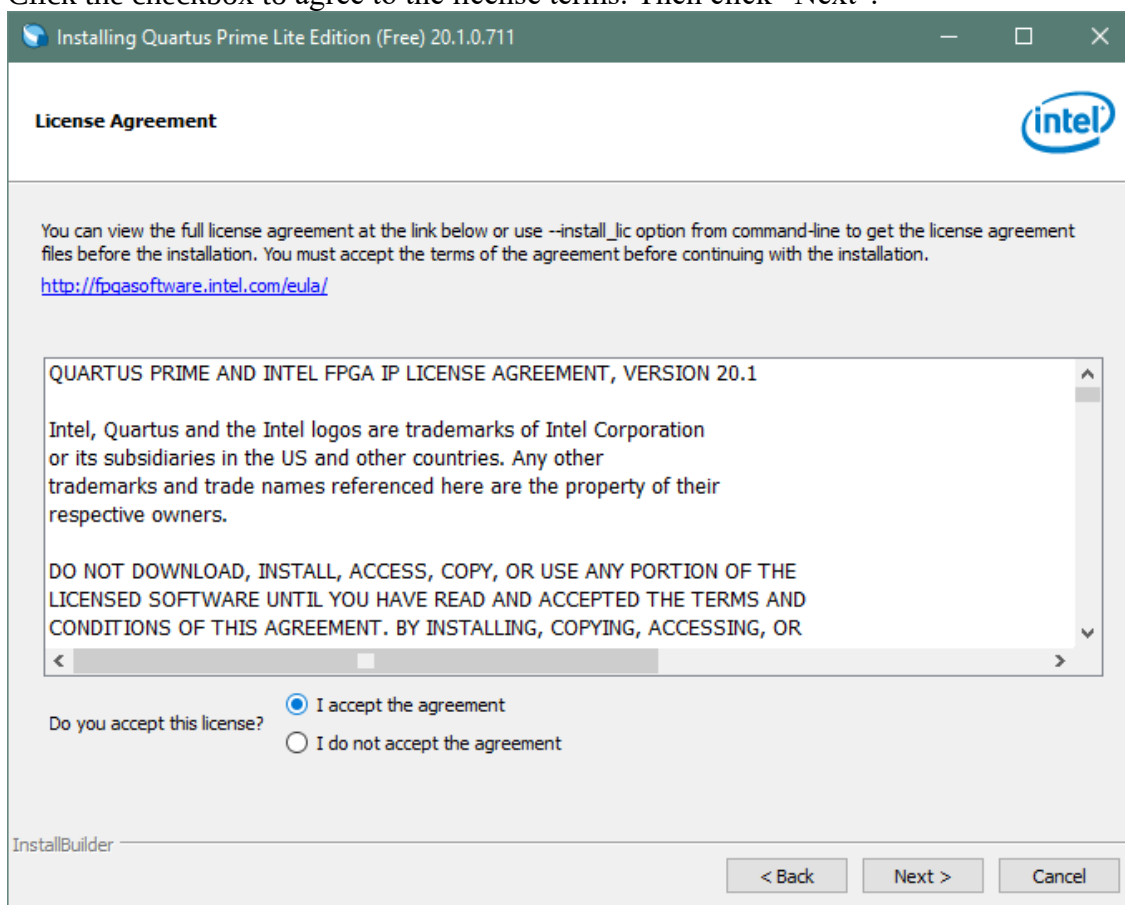
Click “Next” on the Introduction Window.





USB CPLD Development System User Manual

Click the checkbox to agree to the license terms. Then click “Next”.

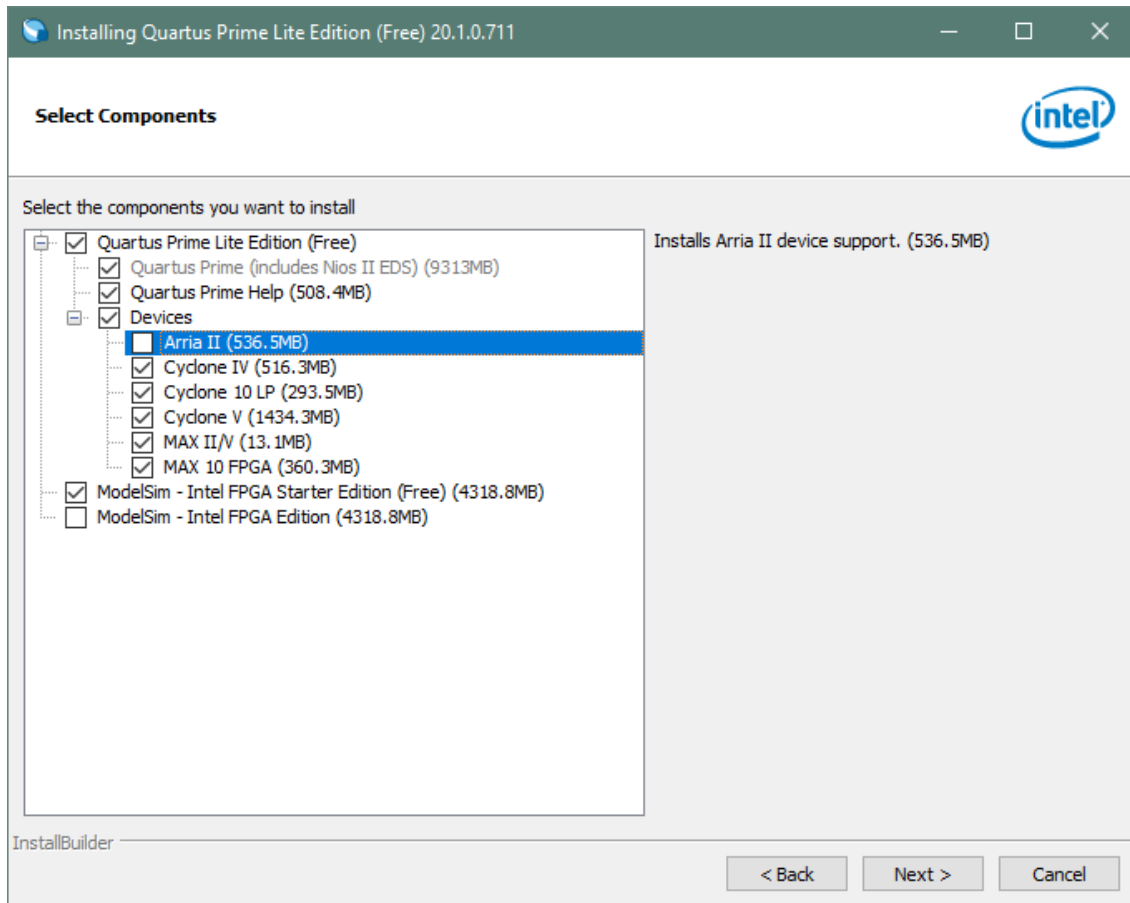


Click “Next” and accept the defaults.

At the Select Products Window, de-select the Quartus Prime Subscription Edition by clicking on its check box so that the box is not checked. Then click on the check box by the Quartus Prime Web Edition (Free).



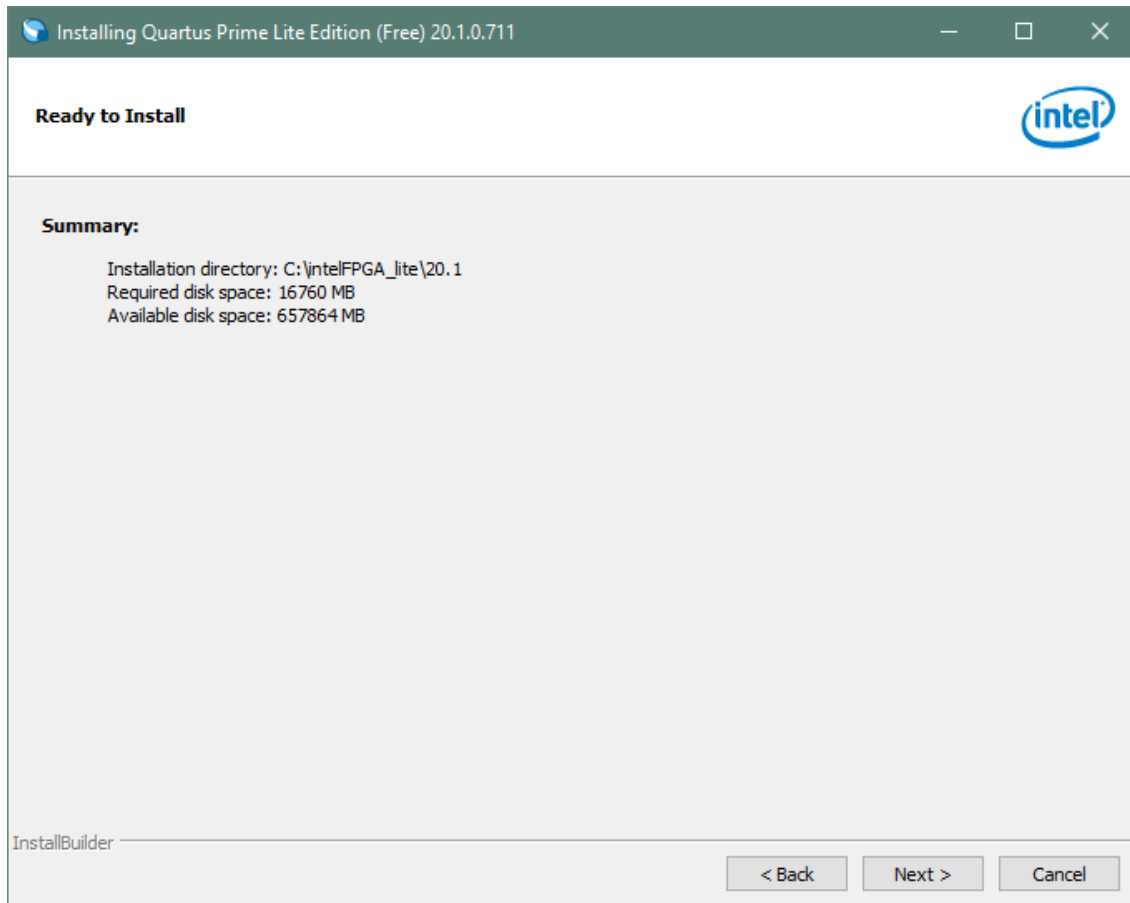
USB CPLD Development System User Manual



Click “Next” to accept the defaults



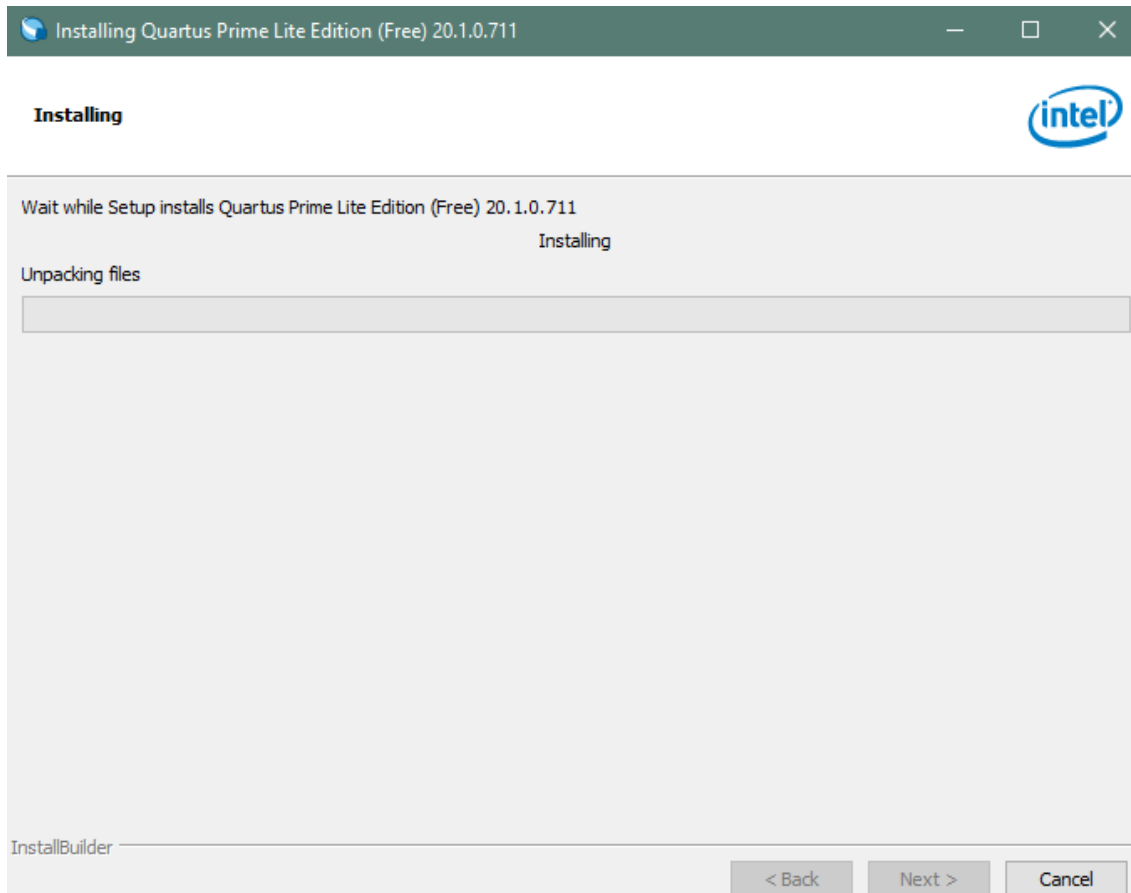
USB CPLD Development System User Manual



Click “Next” to accept the defaults



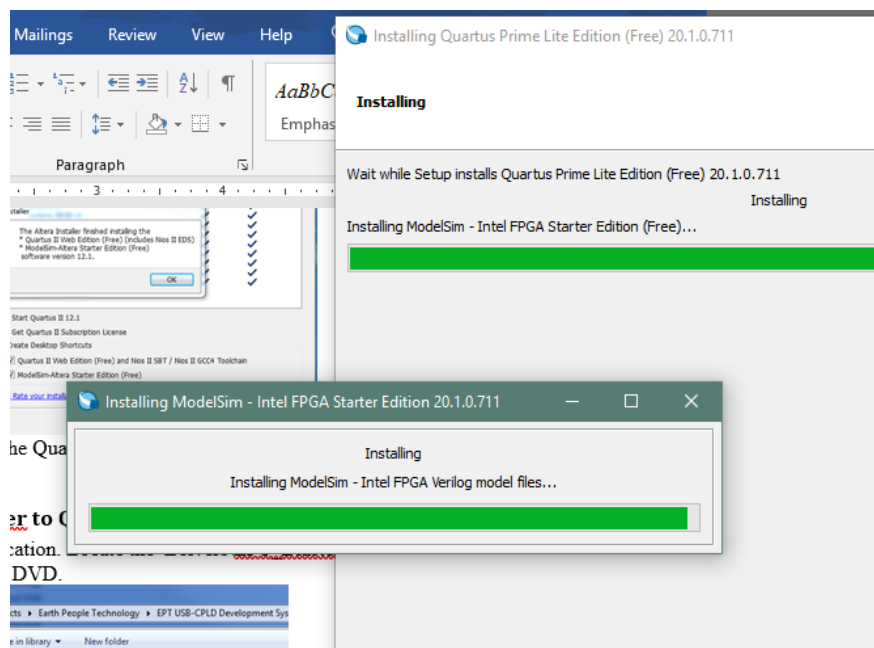
USB CPLD Development System User Manual



Wait for the installation to complete.

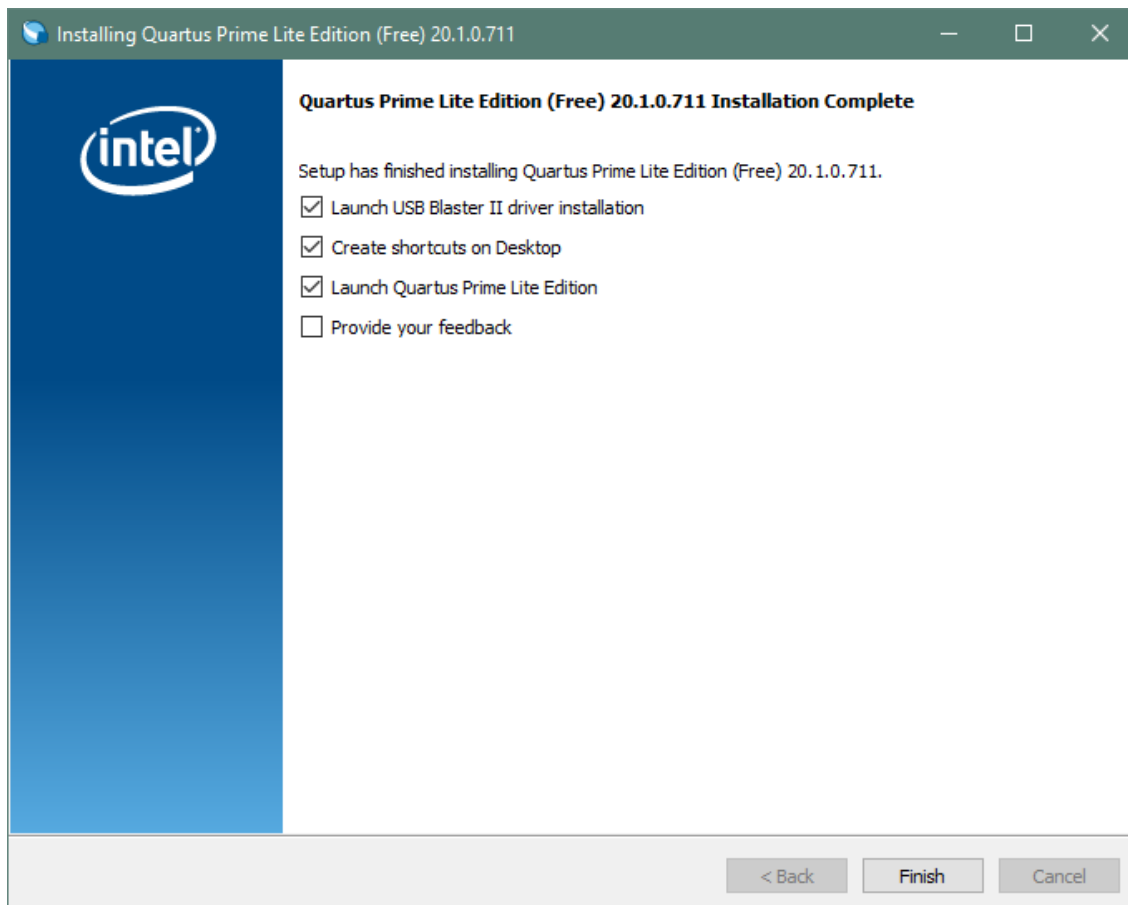


USB CPLD Development System User Manual





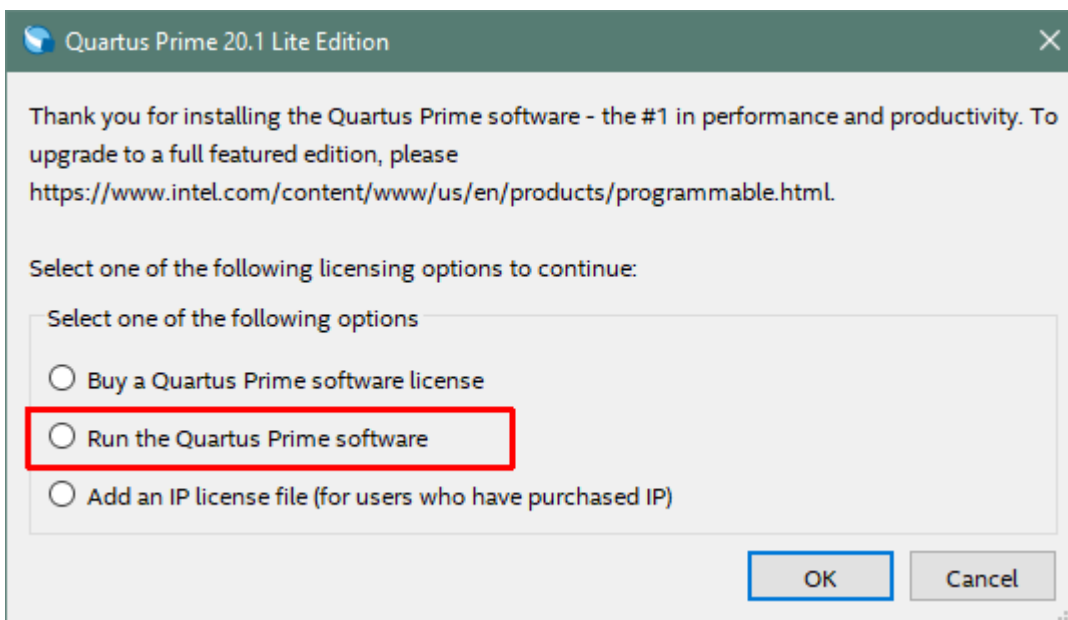
USB CPLD Development System User Manual



Click “Ok”, then click “Finish”. The Quartus Prime is now installed and ready to be used.

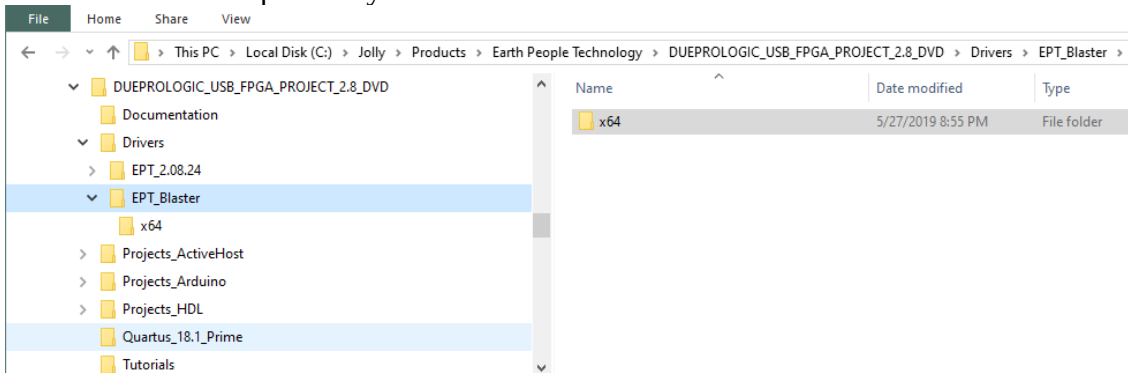


USB CPLD Development System User Manual



1.2.4 Adding the EPT_Blaster to Quartus Prime

Close out the Quartus Prime application. Locate the \Drivers\EPT_Blaster folder on the EPT FPGA Development System DVD.



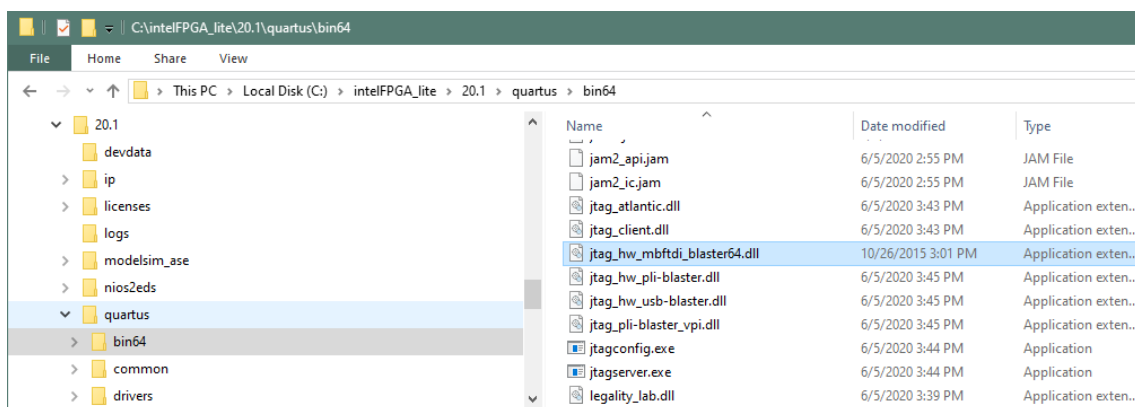
Follow these directions:

1. Open the C:\.\.\UNOPROLOGIC_USB_CPLD_PROJECT_x.x_DVD \Drivers\EPT_Blaster\x64 folder.
2. Select the file "jtag_hw_mbftdi_blaster.dll" and copy it.
3. Browse over to C:\intelFPGA_lite\xx.x\quartus\bin64.
4. Right click in the folder and select Paste



USB CPLD Development System User Manual

5. Click Ok.
6. Open the Quartus Prime application.



The DLL is installed and the JTAG server should recognize it. Go to the section “Programming the FPGA” of this manual for testing of the programming. If the driver is not found in the Programmer Tool->Hardware Setup box, see the JTAG DLL Insert to Quartus Prime Troubleshooting Guide.

1.3 Active Host Application DLL

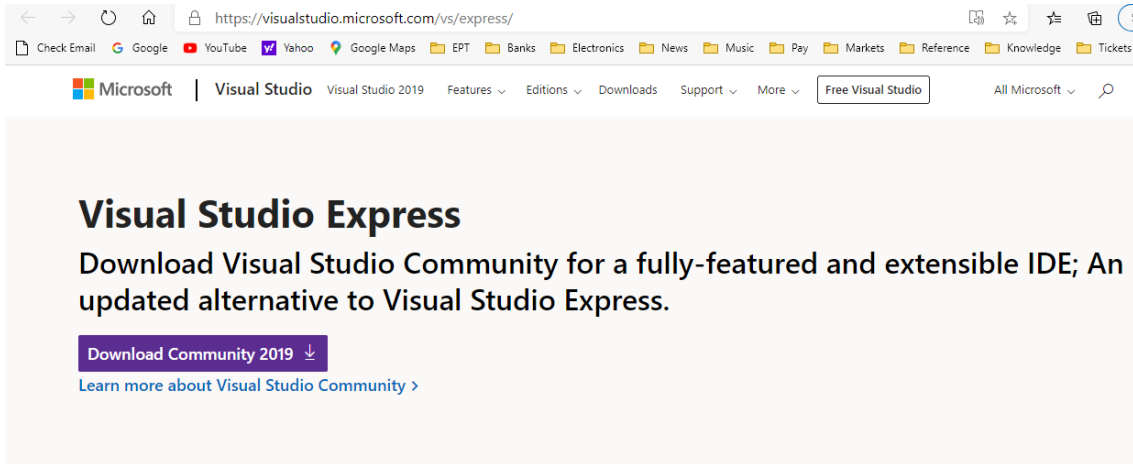
Download the latest version of Microsoft Visual C# Express environment from Microsoft. It's a free download.

<https://visualstudio.microsoft.com/vs/express/>

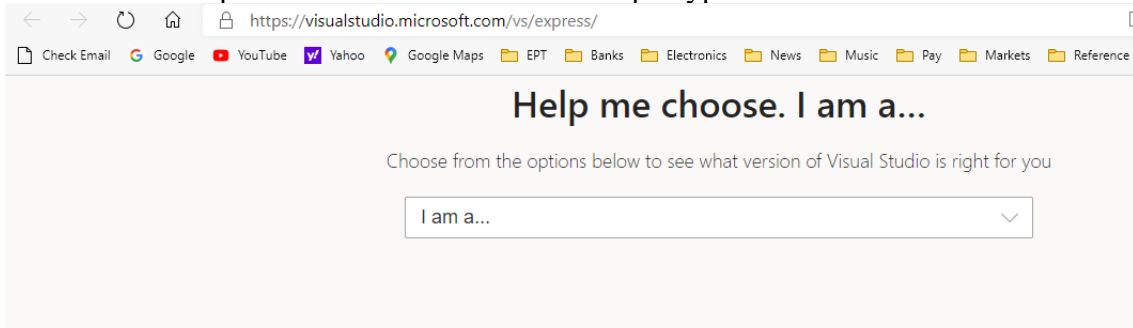
Go to the website and click on the “+” icon next to the Visual C# Express.



USB CPLD Development System User Manual



Click on the “Express 20xx for Windows Desktop” hypertext.



Still want Visual Studio Express?

[Express 2017 for Windows Desktop](#)

Supports building managed and native desktop applications.*

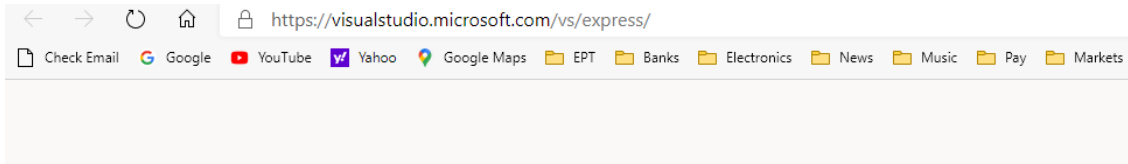
[Express 2015 for Windows Desktop](#)

Supports the creation of desktop applications for Windows.

The download manager file will download the “WDExpress.exe” file.



USB CPLD Development System User Manual



Still want Visual Studio Express?

[Express 2017 for Windows Desktop](#)

Supports building managed and native desktop applications.*

[Express 2015 for Windows Desktop](#)

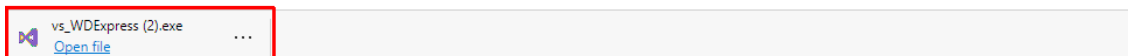
Supports the creation of desktop applications for Windows.

[Express 2015 for Web](#)

Create standards-based, responsive websites, web APIs, or real-time online experiences using ASP.NET.

[Express 2015 for Windows 10](#)

Provides the core tools for building compelling, innovative apps for Universal Windows Platform. Windows is required.



Right click on the WDEpress.exe.



USB CPLD Development System User Manual

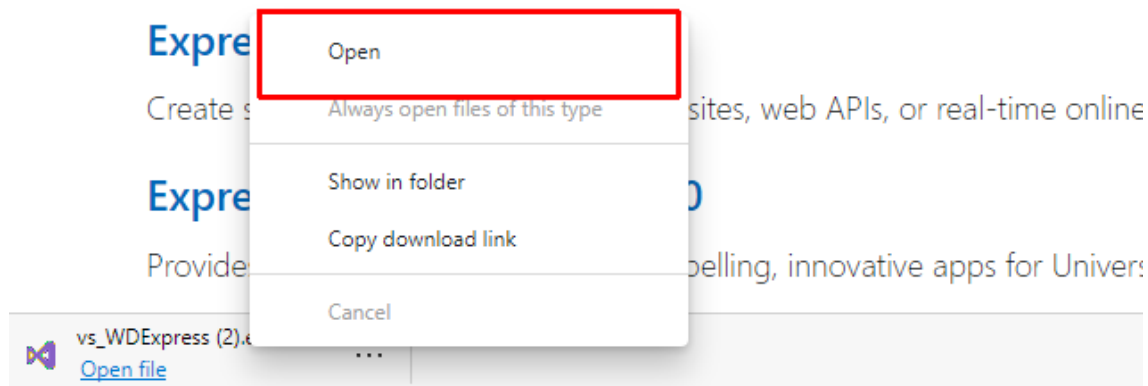
Still want Visual Studio Express?

[Express 2017 for Windows Desktop](#)

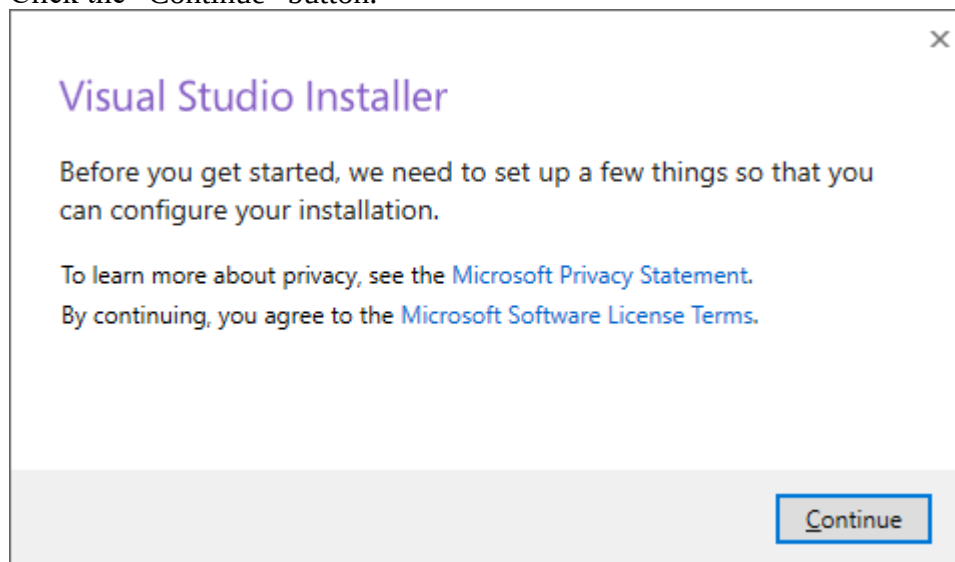
Supports building managed and native desktop applications.*

[Express 2015 for Windows Desktop](#)

Supports the creation of desktop applications for Windows.



Click the “Continue” button.



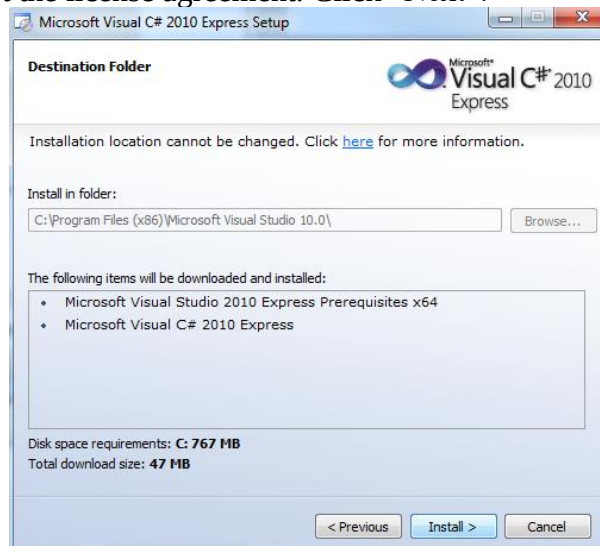
Next, follow the on screen windows and accept the default answers.



USB CPLD Development System User Manual



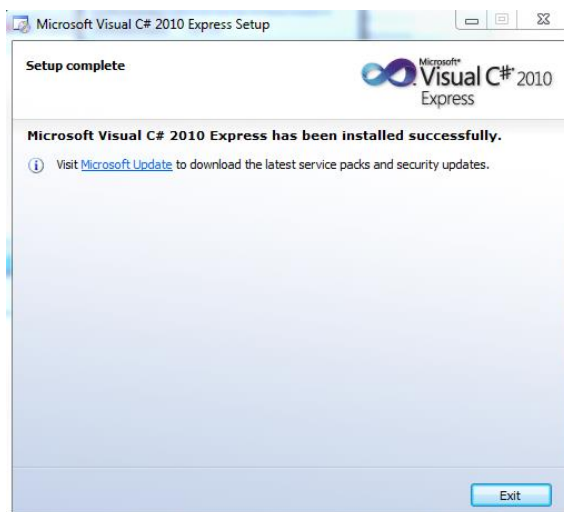
Click “Next”, accept the license agreement. Click “Next”.



Visual C# 2010 Express will install. This may take up to twenty minutes depending on your internet connection.

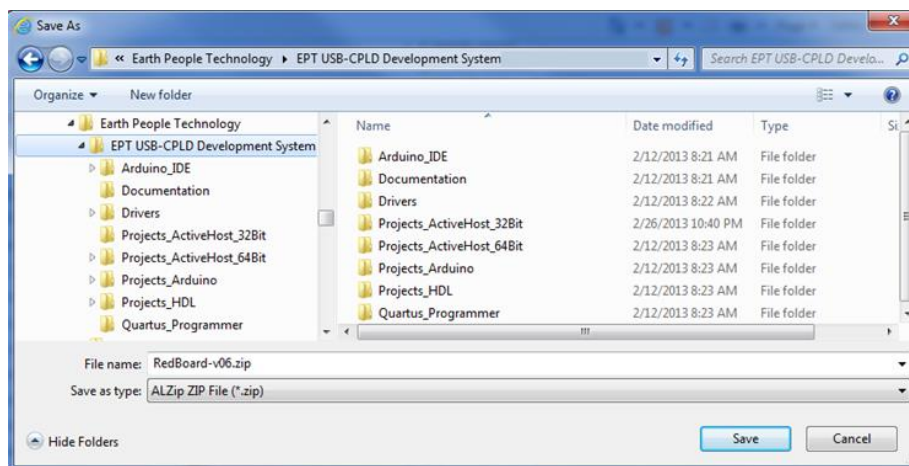


USB CPLD Development System User Manual



The installed successfully window will be displayed when Visual C# Express is ready to use.

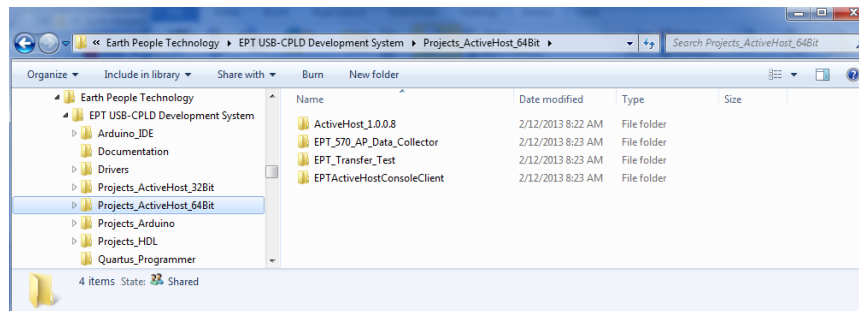
To use the Active Host Application Software, the Active Host DLL and the ftd2xx DLL must be included in the Microsoft Visual project. The Active Host Application Software will allow the user to create a custom applications on the PC using the EndTerms to perform Triggers and Data Transfer to/from the UnoProLogic. The methods and parameters of the Active Host DLL are explained in the Active Host Application section. Locate the \Projects_ActiveHost_64Bit and \Projects_ActiveHost_32Bit folders on the UnoProLogic Development System CD.



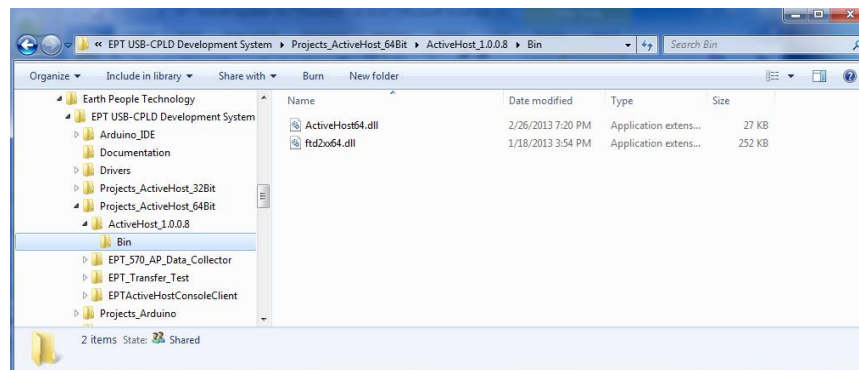


USB CPLD Development System User Manual

Locate the Projects_ActiveHost_64Bit in the UnoProLogic Development System using Windows Explorer.



Locate the Projects_ActiveHost_64Bit \ActiveHost_1.0.0.8\Bin folder and copy the ActiveHost64.dll and the ftd2xx64.dll.



Save the DLL's in the bin\x64\Release folder of the user project under the Microsoft C# Express project. See the Active Host Application section of the UnoProLogic Development System User Manuals for instructions on how to add the dll to the Microsoft C# Express project.



USB CPLD Development System User Manual

