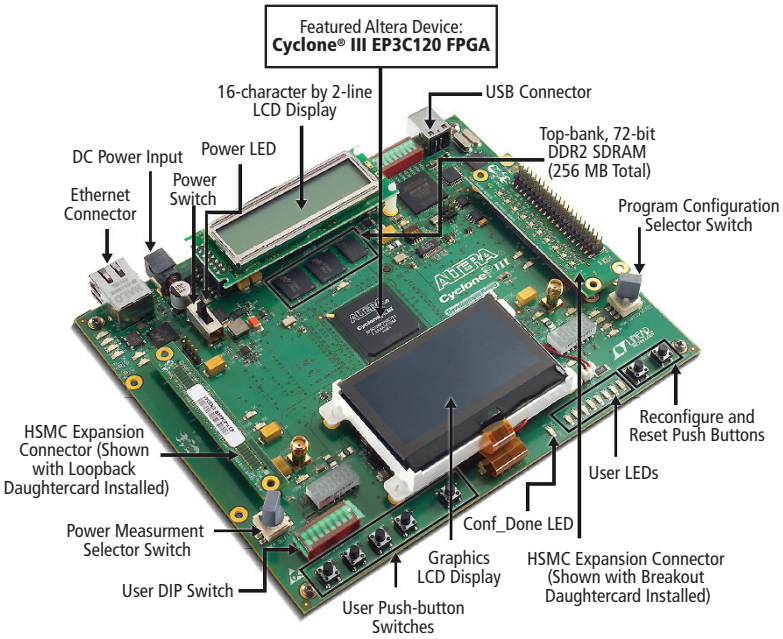
Cyclone III Development Kit

Quick Start Guide

Cyclone III EP3C120 Development Board



What's in the Box

- Cyclone III EP3C120 development board
- 16-V power supply, with US, UK, and EU power cables
- USB cable, type A-B
- On-board embedded USB-Blaster™
- High-speed mezzanine card (HSMC) daughtercards (loopback, breakout)
- Printed literature

Also on this Board

- SRAM (8 MB)
- Flash (64 MB)
- Bottom-bank 72-bit DDR2

Experienced users can go directly to **www.altera.com/products/devkits/altera/kit-cyc3.html** to download the development kit installer. You can order the Quartus® II software DVD and the Development Kit Installations DVD from the Literature section of the Altera® website at **www.altera.com/literature/lit-index.html**.

Installing the Software

1. Download and install the Quartus II Web Edition software by performing the following steps:

   a. Go to the following Altera webpage and download the Quartus II Web Edition Software: **www.altera.com/download**

   b. Follow the online instructions to complete the installation process for the Web Edition version of the software.

If you have difficulty during installation, refer to "Installing the Quartus II Software" in the Quartus II Installation and Licensing for PCs manual found at **www.altera.com/literature/manual/quartus_install.pdf**.

The Quartus II software is the primary FPGA development tool used to create, compile, and download FPGA designs used with this kit. The Cyclone III Development Kit has the EP3C120 device and requires Quartus II software version v7.2 or later in order to properly compile and generate FPGA programming files.

Additionally, you may want to install the Nios® II Embedded Design Suite package also found in the Altera Complete Design Suite. The Nios II soft-core embedded processor runs on Altera FPGAs. Some of the designs included in this kit use the Nios II processor.

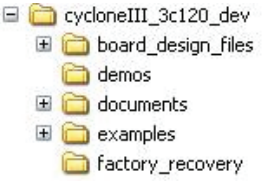
2. Go to the following Altera webpage to download the development kit installer of the Cyclone III Development Kit and install it to your computer: **www.altera.com/products/devkits/altera/kit-cyc3.html**

3. Install the USB-Blaster driver software as explained in the Cyclone III EP3C120 Development Kit User Guide.

What Gets Installed

The Cyclone III Development Kit installation program creates a directory structure for the installed files (Table 1–1). By default, these files will get installed to: \altera\<version number>\kits\cycloneIII_3C120_dev

Directory Structure



The table below lists the file directory names and a description of their contents.

Table 1-1. Installed Directory Contents

Directory Name	Description of Contents
board_design_files	Contains schematic, layout, assembly, and bill of material board design files. Use these files as a starting point for a new prototype board design.
documents	Contains the development kit documentation.
examples	Contains the sample design files for the Cyclone III Development Kit.

Additionally, a menu option is added to the Windows Start menu (Programs >Altera > Cyclone III 3C120 Development Kit). From this menu, quick-links are created from which you can quickly open the documents shown below:

- Quick Start Guide
- My First FPGA Tutorial
- My First Nios II Software Tutorial
- Cyclone III EP3C120 Development Kit User Guide
- Cyclone III EP3C120 Development Board Reference Manual

Power-on Test

A simple power-on test can be done at any time.

1. Plug the supplied 16-V DC power supply into an AC power outlet (100 V – 240 V), and then connect this power supply to the development board.
2. Connect the development board to your computer using the supplied USB cable.
3. Turn on the development board power by pressing the power switch SW1. You should observe the following:
   a. The power LED is on and the Conf_Done LED is on.
   b. The eight user LEDs are "counting down" in binary.

Featured Altera Device

This kit features the Cyclone III EP3C120 FPGA FlipChip ball-grid array (BGA), 780-pin package.

For a detailed device specification, please see the Cyclone III device handbook: **www.altera.com/literature/hb/cyc3/cyc3_ciii5v1.pdf**

The device is also available for purchase via the Altera eStore: **www.altera.com/buy/buy-index.html**.

Ready to Learn More?

User Guide

As a next step, read the Cyclone III EP3C120 Development Kit User Guide.

This document contains a more detailed description of the following operations:

- Reviewing and running a power-measurement example design
- How to program the FPGA configuration files to the on-board flash device

Additional Examples

Download additional reference designs or example designs from the Altera website.

- Listed by products:

  www.altera.com/end-markets/refdesigns/ref-index.jsp

  www.altera.com/support/examples/exm-index.html

- Nios II Integrated Development Environment (IDE) for using the Nios II standard design:

  www.altera.com/products/ip/processors/nios2/tools/ide/ni2-ide.html

Literature and Training Material

Find additional information on training and tutorials on these web pages:

- **www.altera.com/literature/lit-index.html**
- **www.altera.com/education/univ/unv-index.html**
- **www.altera.com/education/univ/materials/manual/unv-lab-manual.html**
- **https://mysupport.altera.com/etraining/**

Support

- Technical support: **www.altera.com/mysupport**
- User forum: **www.alteraforum.com**

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L01-43494-01