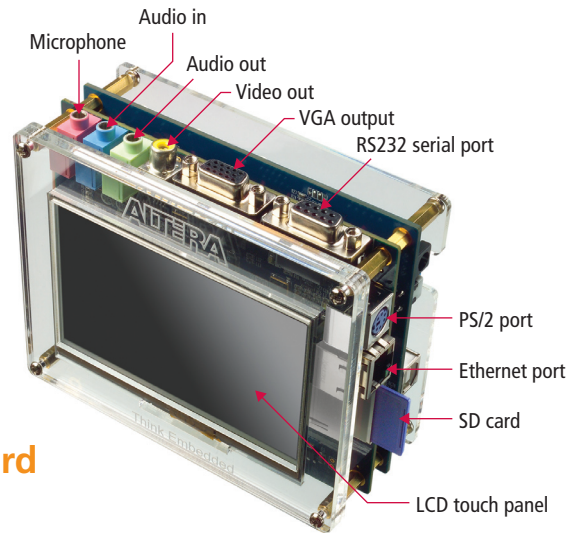




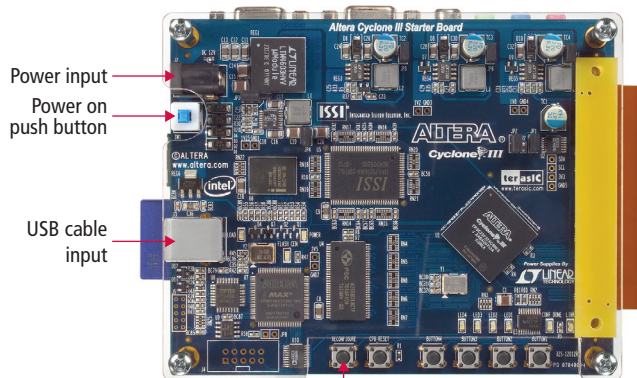
## Nios II Embedded Evaluation Kit, Cyclone III Edition

# Quick start guide

The Nios® II Evaluation Kit, Cyclone III Edition is a first-class, low-cost evaluation platform for embedded developers. The kit includes the Nios II EDS, a complete design suite for all your embedded development needs. The software tutorials and examples in this kit come with full source code showing applications such as a picture viewer, a web server, C-to-hardware (C2H) acceleration and graphics.



### Cyclone® III FPGA base board + touch-panel LCD daughter card



Press RECONFIGURE to return to Application Selector

## What's in the box?

- Cyclone III Starter Board
  - Cyclone III EP3C25F324 FPGA, 25,000 logic elements (LEs)
  - Embedded USB-Blaster™ circuitry for FPGA configuration
  - 32 Mbytes DDR SDRAM
  - 1 Mbyte synchronous SRAM
  - 16 Mbytes Intel P30/P33 Flash
- LCD daughter card
  - 800 X 480 touch-screen LCD display
  - 24-bit CD-quality audio coder/decoder (CODEC) with line-in, line-out, and mic-in jacks
  - Ethernet 10/100 Mbps
  - VGA output
  - Composite video input
  - PS2 connector
  - RS-232 connector
- Cables and accessories
  - SD Card and USB to SD Card adaptor
  - Type A-B USB cable
  - One serial cable (RS-232), PS/2 mouse/keyboard connectors
  - 12-V power supply, international power cords
  - Ethernet (RJ-45) cable (7 ft.), Ethernet crossover adapter
- Nios® II evaluation kit CD-ROM (with software tutorials and examples)
- Altera Complete Design Suite DVD with the Nios II Embedded Design Suite (EDS) and Quartus® II design software

## Install the design software

The Nios II Embedded Evaluation Kit, Cyclone III Edition User Guide will guide you through the steps to:

1. Install the following software from the accompanying DVD or from the Altera® web page: [www.altera.com/download](http://www.altera.com/download)

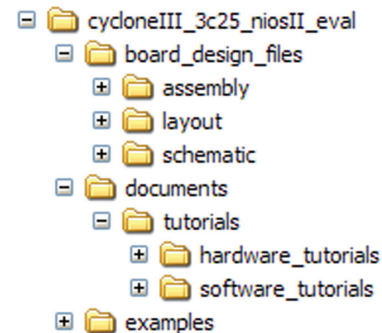
Install ALL of the following:

- Quartus II software version 7.2 or later
  - Nios II EDS, version 7.2 or later
  - Altera MegaCore® IP Library, version 7.2
2. Obtain a license file
  3. Install USB Blaster driver software
  4. Install tutorials and examples from the Nios II evaluation kit CD ROM

By default these files will be installed to:

`/altera/72/kits/cycloneIII_3c25_niosII_eval`

### Directory structure



### Installed directory contents

Directory name	Description of contents
board_design_files	Schematic, assembly, bill of materials.
documents	Kit documentation, user guides, tutorials
examples	Source code for example applications

## Perform power-on test

As you unpack the box you will notice that there is no USB Blaster. The USB circuitry is on the board.

1. Plug the supplied 12-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 blue power switch.
4. Out of the box you should observe that the application selector appears on the LCD screen.

## Launch demo applications

You can launch the demo applications included in the Nios II Embedded Evaluation Kit, Cyclone III Edition using the touch panel.

1. The first time the kit is powered on, it will default to the application selector.
2. Scroll through the available applications using the touch-screen LCD display. Touch to select the application and press “LOAD” to launch it.
3. When you are done viewing the application press “RECONFIGURE” push button to return to the application selector.

For more details, refer to the *Nios II Embedded Evaluation Kit, Cyclone III Edition User Guide*.

## Evaluate the software development tools

The Nios II EDS is a complete design suite for all your embedded development needs.

Additionally, the Nios II EDS includes a developer’s license for third-party software.

### Nios II EDS

Component	Description
Nios II Integrated Development Environment (IDE)	Includes text editor, compiler, debugger and flash programmer
Micrium’s MicroC-OS II RTOS	Evaluation version for real-time operating system
NicheStack TCP/IP Network Stack - Nios II Edition	Evaluation version of commercial grade network stack
El Camino SD Card Controller	Evaluation version of SD Card Controller
Nios II C2H compiler	Evaluation version of ANSI C-to-Hardware acceleration compiler

## Create my first software application

Take the *My First Nios II Software Tutorial* located in the `<install_directory>\kits\cycloneIII_3c25_niosII_eval\documents\tutorials\software_tutorials` directory

### Learning resources

Additional learning resources	Learning goal
<i>My First FPGA</i> —hardware tutorial (located in the <code>&lt;install_directory&gt;\kits\cycloneIII_3c25_niosII_eval\documents\hardware_tutorials</code> directory)	Create an FPGA hardware design
Training* <ul style="list-style-type: none"> <li>• Developing Software for Nios II Processor</li> <li>• Using the Nios II Software</li> </ul>	Learn how to use the software
Literature* <ul style="list-style-type: none"> <li>• Nios II Software Developer’s Handbook</li> <li>• Nios II Processor Handbook</li> <li>• Software and hardware tutorials and application notes</li> </ul> Design Examples* <ul style="list-style-type: none"> <li>• Source code provided for design examples</li> </ul>	Develop applications using Nios II processors

\*Access resources at [www.altera.com/embedded](http://www.altera.com/embedded)



## Download more designs

New designs for the Nios II Embedded Evaluation Kit, Cyclone III Edition are available and can be downloaded from the Nios II Embedded Evaluation Kit, Cyclone III Edition web page:

[www.altera.com/nios2eval](http://www.altera.com/nios2eval).

Refer to the *Nios II Embedded Evaluation Kit, Cyclone III Edition User Guide* to learn how to download new designs to your kit.

## Learn more about the Nios II Embedded Evaluation Kit, Cyclone III Edition

Learn more in the *Nios II Embedded Evaluation Kit, Cyclone III Edition User Guide*, including how to:

- Develop applications for the evaluation kit
- Add your own designs to the evaluation kit
- Add your own pictures to the picture viewer demo
- Update your evaluation kit with new applications available online
- Recover the factory image

## Related links

- Nios II Embedded Evaluation Kit, Cyclone III Edition web page  
[www.altera.com/nios2eval](http://www.altera.com/nios2eval)
- Altera Nios II embedded processor web page  
[www.altera.com/embedded](http://www.altera.com/embedded)
- Nios Forum  
[www.niosforum.com](http://www.niosforum.com)
- Nios Wiki  
[nioswiki.jot.com/ExampleDesigns](http://nioswiki.jot.com/ExampleDesigns)



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