

# 10 Steps to Intel MAX 10 FPGA Designs: A Starter's Guide



## Step 1: What Are Intel MAX 10 FPGAs?

Intel® MAX® 10 FPGAs are single-chip, non-volatile low-cost programmable logic devices (PLDs) designed to integrate the optimal set of system components. Highlights include internal dual configuration flash, user flash memory, instant-on, integrated analog-to-digital converters (ADCs), and support for the Nios® II soft-core processor.

MAX 10 FPGAs are the ideal solution for system management, I/O expansion, industrial, automotive, and consumer applications. Learn more about MAX 10 FPGAs from the [MAX 10 FPGA web page](#).

## Step 2: MAX 10 FPGA Family Overview

Download the [Intel FPGA MAX 10 FPGAs Product Table](#) for all the resource and packaging options.

Take a look at some of the resource information for the MAX 10 FPGA in Table 1.

## Step 3: Hardware to Develop and Test On

To develop, test, and validate your application some hardware is needed. A great low-cost and general purpose MAX 10 development board is the [DE10-Lite from Terasic](#) (Figure 1)

[Check out](#) other development boards.

## Step 4: Documentation

You can find the complete suite of documentation for the MAX 10 family from the [MAX 10 FPGA Support Page](#).

**Table 1.** MAX 10 FPGA Resources

Device Resources	2K - 50K logic elements (LEs)
Onboard ADCs	0 to 2
Packages	3mm <sup>2</sup> through to 27mm <sup>2</sup>
User I/O Pins	27 to 500
User Flash Memory	12KB - 736KB

**Figure 1.** DE10 Lite Development Board



## Step 5: Registration

To access the required design tools and technical support, you need to have a myAltera account. If you do not have an account, you can easily [register](#) for one.

## Step 6: Tools

To create, compile, debug, and program your FPGA design for the MAX 10 FPGA, you need the Intel Quartus® Prime design software. You can download the Quartus Prime Lite Edition software for free from the [Download Center](#). You are advised to always download the latest version.

Take note that the download will also include the Nios II Embedded Design Suite (EDS) and a version of ModelSim\* that you can use for debugging your designs for free.

Ensure you select the correct OS for the machine you plan to run the tools on (Windows\* or Linux\*). [Find more information](#) on the supported OS and system requirements for each version of the tool.

After completing the download, you should have an executable file (e.g. QuartusSetup-xxx-windows.exe). Run the file and follow the prompts to install the Quartus Prime design software and all the supporting tools. After this completes, you should have a Quartus Prime design software icon on your desktop that you can start running the tool from.

Need more help with downloading and installing the tools? Check out the "Intel FPGA Youtube 10Steps".

## Step 7: Licenses

None required!

## Step 8: Tutorials

Check out various tutorials catered for new users and experienced FPGA designers alike from the [Training web page](#).

If you are new to FPGAs, you are encouraged to take the [Become an FPGA Designer in 4 Hours](#) online course.

## Step 9: Examples

The MAX 10 FPGA is supported by a large number of design examples spanning a wide variety of application areas. Check out the [Design Store](#).

## Step 10: Support

To get support, log-in to your [myAltera account](#) and file a Service Request. One of our technical support representatives will be in touch.

You can also get useful resources from our [Support](#) web page.

