Basys 3 Artix-7 FPGA Trainer Board: Recommended for Introductory Users

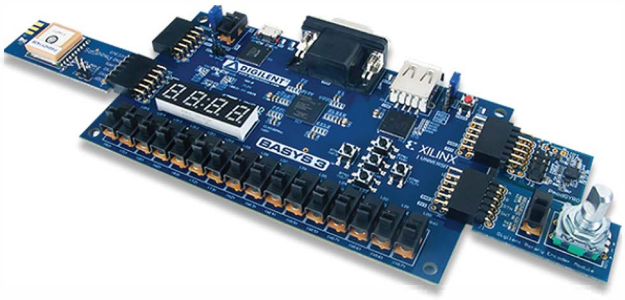
Features the Xilinx Artix-7 FPGA: XC7A35T-1CPG236C

- 33,280 logic cells in 5200 slices (each slice contains four 6-input LUTs and 8 flip-flops)
- 1,800 Kbits of fast block RAM
- Five clock management tiles, each with a phase-locked loop (PLL)
- 90 DSP slices
- Internal clock speeds exceeding 450 MHz
- On-chip analog-to-digital converter (XADC)
- Digilent USB-JTAG port for FPGA programming and communication
- Serial Flash
- USB-UART Bridge
- 12-bit VGA output
- USB HID Host for mice, keyboards and memory sticks
- 16 user switches
- 16 user LEDs
- 5 user pushbuttons
- 4-digit 7-segment display
- 4 Pmod ports: 3 Standard 12-pin Pmod ports, 1 dual purpose XADC signal / standard Pmod port

Basys 3	
Artix-7 FPGA Trainer Board	
Features	
• On-chip analog-to-digital converter	
Key Specifications	
FPGA Part #	XC7A35T-1CPG236C
Logic Cells	33,280 in 5200 slices
Block RAM	1,800 Kbits
DSP Slices	90
Internal clock	450 MHz+
Connectivity and Onboard I/O	
Pmod Connectors	3
Switches	16
Buttons	5
User LED	16
7-Seg Display	4-Digit
VGA	12-bit
USB	HID Host (KB/Mouse/Mass Storage)
Electrical	
Power	USB 5v (Pins)
Logic Level	3.3v
Physical	
Width	2.8 in
Length	4.8 in
Design Resources	
Mechanical Drawing	DXF
Product Compliance	
HTC	8471500150
ECCN	5A992.c
EMC Disclaimer	PDF

Overview

The Basys 3 board is a complete, ready-to-use digital circuit development platform based on the latest Artix-7™ Field Programmable Gate Array (FPGA) from Xilinx. With its high-capacity FPGA (Xilinx part number XC7A35T-1CPG236C), low overall cost, and collection of USB, VGA, and other ports, the Basys 3 can host designs ranging from introductory combinational circuits to complex sequential circuits like embedded processors and controllers. It includes enough switches, LEDs and other I/O devices to allow a large number designs to be completed without the need for any additional hardware, and enough uncommitted FPGA I/O pins to allow designs to be expanded using Digilent Pmods or other custom boards and circuits.



The Basys 3 can be programmed with Digilent's Adept software. Digilent Adept is a unique and powerful solution which allows you to communicate with Digilent system boards and a wide assortment of logic devices. Find out more about Adept here.

To create and modify designs for your Basys 3, you can use Xilinx's Vivado Design Suite. Vivado is a software designed for the synthesis and analysis of HDL designs. The Basys 3 is supported by the free WebPACK edition of the Vivado Design Suite.

Note: Xilinx software tools are not available for download in some countries. Prior to purchasing the Basys 3, please check the supporting software's availability, as it is required for the board's use.