

# Eclipse Z7: Zynq-7000 SoC Development Board with SYZYGY- compatible Expansion

## Eclipse Z7 Options:

SKU: 410-393	Eclipse Z7: Just the board
SKU: 471-036	Eclipse Z7 bundled with a Zmod DAC and Zmod ADC
SKU: 471-036-2	Eclipse Z7 bundled with two Zmod DACs
SKU: 471-036-1	Eclipse Z7 bundled with two Zmod ADCs

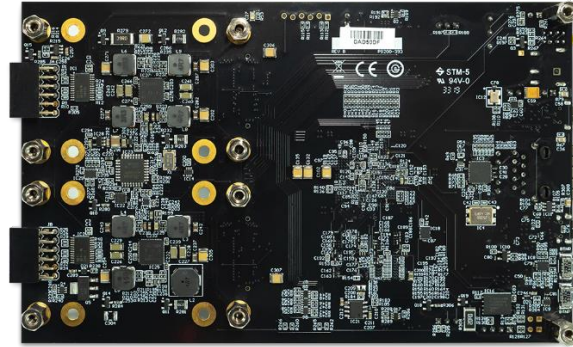
The Eclipse Z7 product image, displayed at an angle.



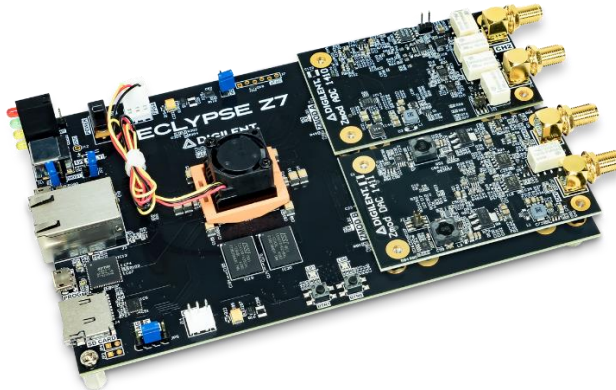
Top view product image of the Eclipse Z7.



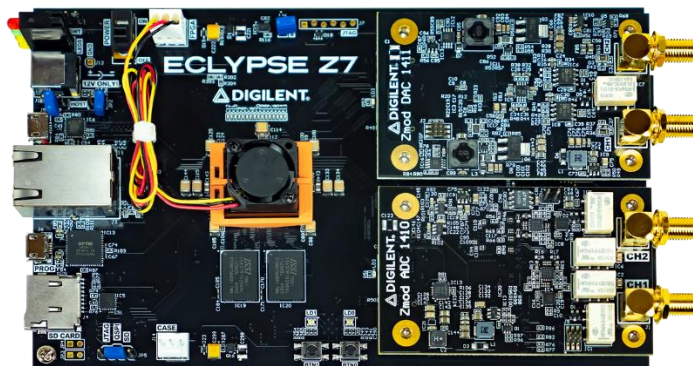
Bottom view product image of the Eclipse Z7.



Product image of the Eclipse Z7, populated with the Zmod ADC and Zmod DAC. Please note: Zmods are only included in the bundle options.



Top view product image of the Eclipse Z7, populated with the Zmod ADC and Zmod DAC. Please note: Zmods are only included in the bundle options.



## Overview

The Eclipse Z7 is Digilent's newest FPGA/SoC development board, specifically designed to enable the rapid prototyping and development of embedded measurement systems. Featuring high-speed Zmod ports for modular expansion, a Xilinx Zynq®-7020 SoC plus software API from Digilent, the Eclipse Z7 is fast, flexible and shortens the time it takes for engineers and researchers to develop innovative and powerful new high-speed instrumentation, control, and measurement systems for edge-computing, medical, and communications applications. Eclipse Z7 is the first host board of the Eclipse Platform.

### Zmod Expansion

Zmod is Digilent's new expansion solution using the open-source **SYZYG** standard from Opal Kelly. Faster than the Pmod Standard and more compact and cost-effective than FMC, Zmods improve the customizability options for high-speed I/O. Plug in your application specific Zmods and get up and running in hours or days, instead of weeks or months. Two Zmods are being released alongside the Eclipse Z7, the Zmod ADC 1410 and Zmod DAC 1411, both with 100 MSPS, 14-bit converters, with more planned in the future.

### Eclipse Platform Software

The Eclipse Z7 is a component of the Eclipse Platform, which pairs Digilent's open software API with Digilent's novel Eclipse hardware. Petalinux is supported out of the box, and pre-built Linux images are accompanied by the API for bulk data transfer. This system allows users to plug in their Zmods of choice and get started prototyping new high-speed measurement, instrumentation and control systems without directly interfacing with the FPGA until desired. With this system, embedded Linux developers can leverage the power of FPGA without possessing hardware expertise. Currently, C and C++ are supported, with plans to add support for other programming languages in the future.

### Features

#### Zynq-7000 APSoC (XC7Z020-1CLG484C)

- 667 MHz dual-core Cortex-A9 processor
- DDR3L memory controller with 8 DMA channels and 4 High Performance AXI3 Slave ports
- High-bandwidth peripheral controllers: 1G Ethernet, USB 2.0, SDIO
- Low-bandwidth peripheral controllers: SPI, UART, CAN, I2C
- Programmable from JTAG, Quad-SPI flash, and microSD

	<p>card</p> <ul style="list-style-type: none"> <li>• Programmable logic equivalent to Artix-7 FPGA</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 1 GiB DDR3L with 32-bit bus @ 1066 MT/s</li> <li>• 16 MB Quad-SPI Flash with factory programmed 128-bit random number and 48-bit globally unique EUI-48/64™ compatible identifier</li> <li>• microSD card slot</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>• Powered from external 12V 5A supply</li> <li>• Platform MCU for configuration of adjustable power supplies and temperature management</li> </ul>
<b>USB and Ethernet</b>	<ul style="list-style-type: none"> <li>• Gigabit Ethernet PHY</li> <li>• USB-JTAG programming circuitry</li> <li>• USB-UART bridge</li> <li>• USB micro AB port with USB 2.0 PHY with Host/Device/OTG capabilities</li> </ul>
<b>Zmod Ports</b>	<ul style="list-style-type: none"> <li>• 2 ports following the <a href="#">SYZYGY Standard</a> interface specification</li> <li>• Compatible with a variety of SYZYGY pods, allowing for a wide variety of applications</li> <li>• Dedicated differential clocks for input and output</li> <li>• 8 differential I/Os per port</li> <li>• 16 single-ended I/Os per port</li> <li>• DNA interfaces connected to Platform MCU allowing for various auto-negotiated power supply configurations</li> </ul>
<b>Pmod Ports</b>	<ul style="list-style-type: none"> <li>• 2 twelve-pin ports for a total of 16 FPGA-connected I/Os</li> <li>• High speed voltage translation and protection circuitry</li> </ul>
<b>User GPIO</b>	<ul style="list-style-type: none"> <li>• 2 push-buttons</li> <li>• 2 RGB LEDs</li> </ul>

<p>What's Included:</p>	<ul style="list-style-type: none"><li>• Eclipse Z7 Development Board</li><li>• FPGA fan</li><li>• USB A to Micro B programming cable</li><li>• USB A to Micro A cable</li><li>• 12V 5A power supply</li><li>• Digilent custom packaging</li><li>• <b>Additional contents depend on the option choice:</b><ul style="list-style-type: none"><li>• Adding one Zmod ADC and one Zmod DAC</li><li>• Adding two Zmod DACs</li><li>• Adding two Zmod ADCs</li></ul></li></ul>
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