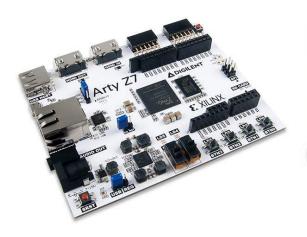# Arty Z7: APSoC Zynq-7000 Development Board for Makers and Hobbyists

Arty Z7: APSoC Zynq-7000 Development Board for Makers and Hobbyists**Product Description**

Digilent recommends the Arty Z7-20 with SDSoC voucher for those interested in video processing applications. Vivado Design Suite voucher not included - Vivado Design Suite Edition is available for free download (Vivado WebPACK).

The Arty Z7 is a ready-to-use development platform designed around the Zynq-7000™ All Programmable System-on-Chip (AP SoC) from Xilinx. The Zynq-7000 architecture tightly integrates a dual-core, 650 MHz ARM Cortex-A9 processor with Xilinx 7-series Field Programmable Gate Array (FPGA) logic. This pairing grants the ability to surround a powerful processor with a unique set of software defined peripherals and controllers, tailored by you for whatever application is being conquered. The design process is very straightforward and provides a systematic path between defining your custom peripheral set and bringing it's functionality up to a Linux OS running on the processor. Digilent provides a number of materials and resources for the Arty Z7 that will get you up and running with this process quickly.

Features:

Arty Z7 comes in two FPGA variants: Arty Z7-10 features Xilinx XC7Z010-1CLG400C. Arty Z7-20 features the larger Xilinx XC7Z020-1CLG400C. Arty Z7 has the features listed below:

	Arty Z7-10	**Arty Z7-20**
FPGA part	XC7Z010-1CLG400C	XC7Z020-1CLG400C
1 MSPS On-chip ADC	Yes	Yes
Processor	Dual ARM Cortex A9	Dual ARM Cortex A9
Look-up Tables (LUTs)	17,600	53,200
Flip-flops	35,200	106,400
Block RAM	270 KB	630 KB
Clock Management Tiles	2	4
Available Shield I/O	26	49
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- ZYNQ Processor
  - 650MHz dual-core Cortex-A9 processor
  - DDR3 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 controller: SPI, UART, CAN, I2C
  - Programmable from JTAG, Quad-SPI flash, and microSD card (Micro USB cable **not included**).
  - Programmable logic equivalent to Artix-7 FPGA
- Memory
  - 512MB DDR3 with 16-bit bus @ 1050Mbps
  - 16MB Quad-SPI Flash with factory programmed 48-bit globally unique EUI-48/64™ compatible identifier
  - microSD slot
- Power
  - Powered from USB or any 7V-15V external power source
- USB and Ethernet
  - Gigabit Ethernet PHY
  - USB-JTAG Programming circuitry
  - USB-UART bridge
  - USB OTG PHY (supports host only)
- Audio and Video
  - HDMI sink port (input)
  - HDMI source port (output)
  - PWM driven mono audio output with 3.5mm jack
- Switches, Push-buttons, and LEDs
  - 4 push-buttons
  - 2 slide switches
  - 4 LEDs
  - 2 RGB LEDs
- Expansion Connectors
  - Two standard Pmod ports
    - 16 Total FPGA I/O
  - Arduino/chipKIT Shield connector
    - Up to 49 Total FPGA I/O (see table above)
    - 6 Single-ended 0-3.3V Analog inputs to XADC
    - 4 Differential 0-1.0V Analog inputs to XADC

What's Included
- Arty Board Zynq 7000 APSoC: choose between the Arty Z7-10 and Arty Z7-20 (Micro USB cable **not included**).
- Digilent cardboard packaging with protective foam