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Running a RISC-V Processor on the Arty A7

The Arty A7-100T contains a Xilinx XC7A100T FPGA which is the largest FPGA available for the Arty A7 and is ideal for deployment of softcore processors. These processors can be either proprietary or open source. One of the most popular open source processors is the RISC-V. This tutorial covers building a RISC-V processor, specifically the SiFive Freedom E310. This guide steps through the process of loading the Freedom E310 onto an Arty A7, and programming it using the Arduino IDE.

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Topics include:

- Getting Started
- Building the RISC-V
- Programming the Hardware
- Generating Software

What do you need for this project?

- Arty A7-100T
- Olimex ARM-USB-TINY-H USB Programmer
- Vivado 2017.1 – Webpack Edition
- Arduino Development Environment
- 10 Flying leads to connect between the programmer and one of the Arty's Pmod connectors, which is connected to the JTAG Test Access Port of the processor
- A Linux development or virtual machine is needed to compile the processor, generate the bitstream and upload applications to the processor.

Walk through the tutorial at https://reference.digilentinc.com/reference/programmable-logic/arty-a7/arty_a7_100_risc_v/start to create the RISC-V based application