Getting F4PGA

This section describes how to install F4PGA and set up a fully working environment to later build example designs.

Prerequisites

To be able to follow through this tutorial, install the following software:

Ubuntu | Debian | CentOS | Fedora

```
apt update -y
apt install -y git wget xz-utils
```

Next, clone the F4PGA examples repository and enter it:

```
git clone https://github.com/chipsalliance/f4pga-examples
cd f4pga-examples
```

Toolchain installation

Now we are able to install the F4PGA toolchain. This procedure is divided into three steps:

- installing the Conda package manager,
- choosing an installation directory,
- downloading the architecture definitions and installing the toolchain.

Conda

Download Conda installer script into the f4pga-examples directory:

```
wget https://repo.continuum.io/miniconda/Miniconda3-latest-Linux-x86_64.sh -O conda_installer.sh
```

Choose the install directory

The install directory can either be in your home directory such as `~/opt/f4pga` or in a system directory such as `/opt/f4pga`. If you choose a system directory, you will need root permission to perform the installation, and so you will need to add some `sudo` commands to the instructions below.

```
export F4PGA_INSTALL_DIR=~/opt/f4pga
```

Setup and download assets

Select your target FPGA family:

Artix-7 | EOS S3

```
export FPGA_FAM=xc7
```

Next, setup Conda and your system's environment, and download architecture definitions:

Note

The `*-install-*` package is required regardless of the target device, but you can avoid installing the `*-xc7*_test-*` or `ql-*` packages for architectures that you don't need.

v: latest

```
bash conda_installer.sh -u -b -p
$F4PGA_INSTALL_DIR/$FPGA_FAM/conda;
source "$F4PGA_INSTALL_DIR/$FPGA_FAM/conda/etc/profile.d/conda.sh";
conda env create -f $FPGA_FAM/environment.yml
```

Artix-7 EOS S3

```
export F4PGA_PACKAGES='install-xc7 xc7a50t_test xc7a100t_test
xc7a200t_test xc7z010_test'
```

```
mkdir -p $F4PGA_INSTALL_DIR/$FPGA_FAM

F4PGA_TIMESTAMP='20220907-210059'
F4PGA_HASH='66a976d'

for PKG in $F4PGA_PACKAGES; do
  wget -qO- https://storage.googleapis.com/symbiflow-arch-
defs/artifacts/prod/foss-fpga-tools/symbiflow-arch-
defs/continuous/install/${F4PGA_TIMESTAMP}/symbiflow-arch-
defs-${PKG}-${F4PGA_HASH}.tar.xz | tar -xJC
$F4PGA_INSTALL_DIR/${FPGA_FAM}
done
```

If the above commands exited without errors, you have successfully installed and configured your working environment.

Important

With the toolchain installed, you are ready to build the example designs! Examples are provided in separated directories:

- Subdir xc7 [https://github.com/chipsalliance/f4pga-examples/blob/master/xc7] for the Artix-7 devices
- Subdir eos-s3 [https://github.com/chipsalliance/f4pga-examples/blob/master/eos-s3] for the EOS S3 devices

v: latest

Hint

Sometimes it may be preferable to get the latest versions of the tools before the pinned versions in this repository are updated. Latest versions *are not guaranteed to be bug free*, but they enable users to take advantage of fixes. See Bumping/overriding specific tools [https://f4pga.readthedocs.io/en/latest/getting-started.html#gettingstarted-toolchaininstallation-conda-bumping].