

Yocto's main components are BitBake , OpenEmbedded , and Poky .

- BitBake is a python based make-like build tool specialized in cross compilation, although not limited to that. BitBake is inspired by Portage, Gentoo's package management system. BitBake uses recipes , which are metadata files with information about the packages to be built.
- OpenEmbedded is a cross-compilation and build-automation framework focused on creating Linux distributions for embedded devices, adopted by the Yocto Project in 2011. OpenEmbedded modularizes BitBake recipes in form of layers . Each layer is called meta-layername .
- Poky is the reference distribution of the Yocto Project. It contains the OpenEmbedded Build System (BitBake and OpenEmbedded Core) as well as a set of metadata to get you started building your own distro.

For more information, refer to the Yocto Project Mega Manual . Yocto is famous for its solid documentation. You can find a neat "getting started" style section here , which is where this tutorial is based off of.

## Minimal requirements:

- x86-64 CPU with at least 4 cores
- Ubuntu 16.04.4 LTS (Xenial Xerus)
- at least 50GB of space at \$HOME

## Install Yocto dependencies:

```
$ sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc
```

## Clone Poky

```
$ cd ~  
$ git clone git://git.yoctoproject.org/poky
```

## Start build environment

```
cd poky
source oe-init-build-env build
```

## Edit conf/local.conf

- MACHINE ??= "qemux86-64"
- DL\_DIR ?= "\${TOPDIR}/downloads"
- PARALLEL\_MAKE = "-j4"
- BB\_NUMBER\_THREADS = "12"

Obs.: the optimal number of parallel make and BitBake tasks might vary, depending on your host hardware.

## Start BitBake

```
bitbake core-image-minimal
```

Obs.: this step might take from a few to several hours, depending on your host hardware.

## Start QEMU

```
runqemu qemux86-64 core-image-minimal nographic
```

Obs.: the nographic option is only required if you're accessing the build host remotely. If you're on a desktop environment, feel free to remove this option and watch QEMU emulate the video output.

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