

Build Your Own Ubuntu Img For Cubiescreen

— ybmaker.org

1. prepare

Ybmaker's host OS system is ubuntu64-12.04. if you use fedora or others, please replace the right instruction.

1.1. tools

If you have install git, please ignore this step directly to 1.2.

```
cubiescreen@ybmaker:~$ sudo apt-get update
cubiescreen@ybmaker:~$ sudo apt-get install git
```

1.2. sd-card

Please be sure sd-card storage is more than 2G byte.

2. download kernel ubuntu sdk and configure files

2.1. cd to work path, for example:

```
cubiescreen@ybmaker:~$
```

2.2. download linux-kernel and building tools using git

```
cubiescreen@ybmaker:~$ git clone https://github.com/linux-sunxi/linux-sunxi.git
```

2.3. download cubiescreen driver

File cubiescreen.tar.gz include the drivers and configure files.

```
cubiescreen@ybmaker:~$ wget http://ybmaker.org/wp-content/uploads/2014/09/
cubiescreen.tar.gz
cubiescreen@ybmaker:~$ tar zxvf cubiescreen.tar.gz
```

2.4. install driver

cp lcd and touch panel driver to kernel.

```
cubiescreen@ybmaker:~$ cp cubiescreen/driver/touchscreen/* linux-sunxi/drivers/
input/touchscreen/
cubiescreen@ybmaker:~$ cp cubiescreen/driver/video/disp/* linux-sunxi/drivers/video/
sunxi/disp/
cubiescreen@ybmaker:~$ cp cubiescreen/driver/video/lcd/* linux-sunxi/drivers/video/
sunxi/lcd/
cubiescreen@ybmaker:~$ cp cubiescreen/driver/ctp.h linux-sunxi/include/linux/
```

2.5. update board configure file

cubieboard2.fex is for cubieboard2 , while cubieboard.fex for cubieboard1.

For A10(cubieboard1):

```
cubiescreen@ybmaker:~$ cp cubiescreen/cubieboard.fex sunxi-boards/sys_config/a10/
```

For A20(cubieboard2):

```
cubiescreen@ybmaker:~$ cp cubiescreen/cubieboard2.fex sunxi-boards/sys_config/a20/
```

2.6. update kernel configure

For A10(cubieboard1):

There is no need to modify the default kernel configure file .

For A20(cubieboard2):

```
cubiescreen@ybmaker:~$ cp cubiescreen/sun7i_defconfig linux-sunxi/arch/arm/configs/
```

2.7. download ubuntu SDK 13.04

2.7.1. download SDK

Firstly please download the original ubuntu SDK tar file.

```
cubiescreen@ybmaker:~$ wget http://releases.linaro.org/13.04/ubuntu/quantal-images/alip/linaro-quantal-alip-20130422-342.tar.gz
```

Uncompress the ubuntu SDK tar file, we need to replace some SDK configure files to create the new customized ubuntu SDK.

```
cubiescreen@ybmaker:~$ tar zxvf linaro-quantal-alip-20130422-342.tar.gz
```

File binary will be created.

2.7.2. alternative

you also could download customized ubuntu SDK from ybmaker.org, then please go to step 3 to build ubuntu.

```
cubiescreen@ybmaker:~$ wget http://ybmaker.org/...
```

2.8. update SDK configure

2.8.1. update SDK configure

```
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/sources.list binary/etc/apt/
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/lightdm.conf binary/etc/lightdm/
cubiescreen@ybmaker:~$ echo "ft5x_ts" >> binary/etc/modules
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/10-evdev.conf binary/usr/share/X11/xorg.conf.d/
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/exynos.conf binary/usr/share/X11/xorg.conf.d/
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/xinput_calibrator binary/usr/bin/
cubiescreen@ybmaker:~$ cp cubiescreen/sdk_configure/xinput_calibrator.1.gz binary/usr/share/man/man1/
```

2.8.2. re-tar SDK

```
cubiescreen@ybmaker:~$ tar zcvf ubuntu_sdk.tar.gz binary
```

3. build ubuntu sd-card img

3.1. configure

For A10(cubieboard1)

```
cubiescreen@ybmaker:~$ ./configure cubieboard
```

For A20(cubieboard2)

```
cubiescreen@ybmaker:~$ ./configure cubieboard2
```

3.2. build hw packet

```
cubiescreen@ybmaker:~$ make
```

When finished, cubieboard2_hwpack.tar.bz2 will be created in folder output.

3.3. create sd-card img

First plug in your tf-card and identify the device of the card , if the card is connected via usb and the device may be recognized as /dev/sdx(please replace “sdx” with the real device index).

For A10(cubieboard1)

```
cubiescreen@ybmaker:~$ ./scripts/sunxi-media-create.sh /dev/sdb output/ubuntucubieboard_hwpack.tar.xz ubuntu_sdk.tar.gz
```

For A20(cubieboard2)

```
cubiescreen@ybmaker:~$ ./scripts/sunxi-media-create.sh /dev/sdb output/  
ubuntucubieboard2_hwpack.tar.xz ubuntu_sdk.tar.gz
```

3.4. boot

Now you should be able to unmount your sd-card filesystems, then boot your board, that's so easy!

4. QA

4.1. How to update img to card

```
dd if=a20_ubuntu_cubiescreen.img if=/dev/sdx
```

Install Gesture Recognition For Cubiescreen

— ybmaker.org

1. prepare

If you will, you could install opens-client to copy files from any host to cubieboard, also you could use td-card or u-disk. First of all, be make sure cubieboard could connect to internet, Maybe you need to update DNS . Please replace the DNS.

```
cubiescreen@ybmaker:~$ echo "nameserver 8.8.8.8" > /etc/resolv.conf
cubiescreen@ybmaker:~$ service networking restart
```

1.1. update source

If you will, you could install opens-client to copy files from any host to cubieboard, also you could use td-card or u-disk.

```
cubiescreen@ybmaker:~$ sudo apt-get update
cubiescreen@ybmaker:~$ sudo apt-get install openssh-client
```

1.2. install essential build tools and libs

```
cubiescreen@ybmaker:~$ sudo apt-get update
cubiescreen@ybmaker:~$ sudo apt-get install build-essential
cubiescreen@ybmaker:~$ sudo apt-get install -f libxft-dev libxpm-dev libxtst-dev \
pkg-config
```

2. xstroke installation

2.1. download xstroke

```
cubiescreen@ybmaker:~$ wget http://ybmaker.org/wp-content/uploads/2014/09/
xstroke.tar.gz
cubiescreen@ybmaker:~$ tar xvf xstroke.tar.gz
cubiescreen@ybmaker:~$ cd xstroke
```

2.2. uncompress and cd to xstroke

```
cubiescreen@ybmaker:~$ tar xvf xstroke.tar.gz && cd xstroke-0.6
```

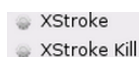
2.3. compile and install

```
cubiescreen@ybmaker:~$ ./configure
cubiescreen@ybmaker:~$ make
cubiescreen@ybmaker:~$ make install
```

2.4. menu shortcut

```
cubiescreen@ybmaker:~$ cd ~/xstroke
cubiescreen@ybmaker:~$ sudo cp xstrokekill.desktop xstroke.desktop /usr/share/
applications/
```

xstroke.desktop is used to start xstroke and xstrokekill.desktop to kill xstroke. After installation, you will see these two shortcut in the start menu as following.



After starting xstroke, an icon will appear on the task bar at the right. You will need to click on this icon to enable gesture recognition.



2.5. addition

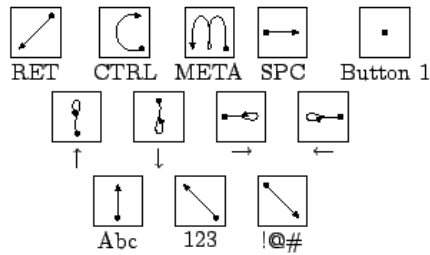
You could download all the source to host from ybmaker.org firstly, then copy to board .

Gursture Set

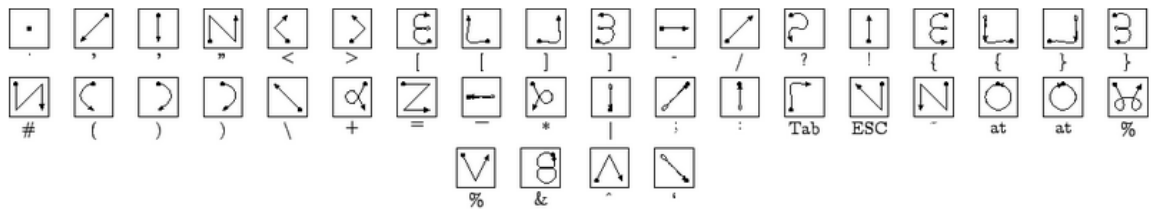
— ybmaker.org

Default Gesture Set

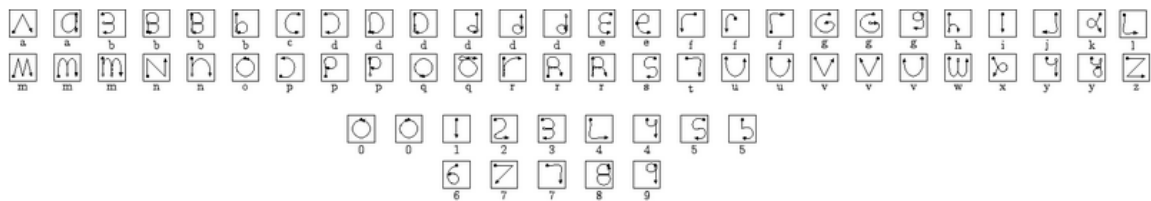
Global Gestures



Punctuation



Letter and Numbers



TouchScreen Calibrator

— ybmaker.org

1. install xinput calibrator

If you will, First of all, please check whether you have installed input calibrator. If not, please install it.

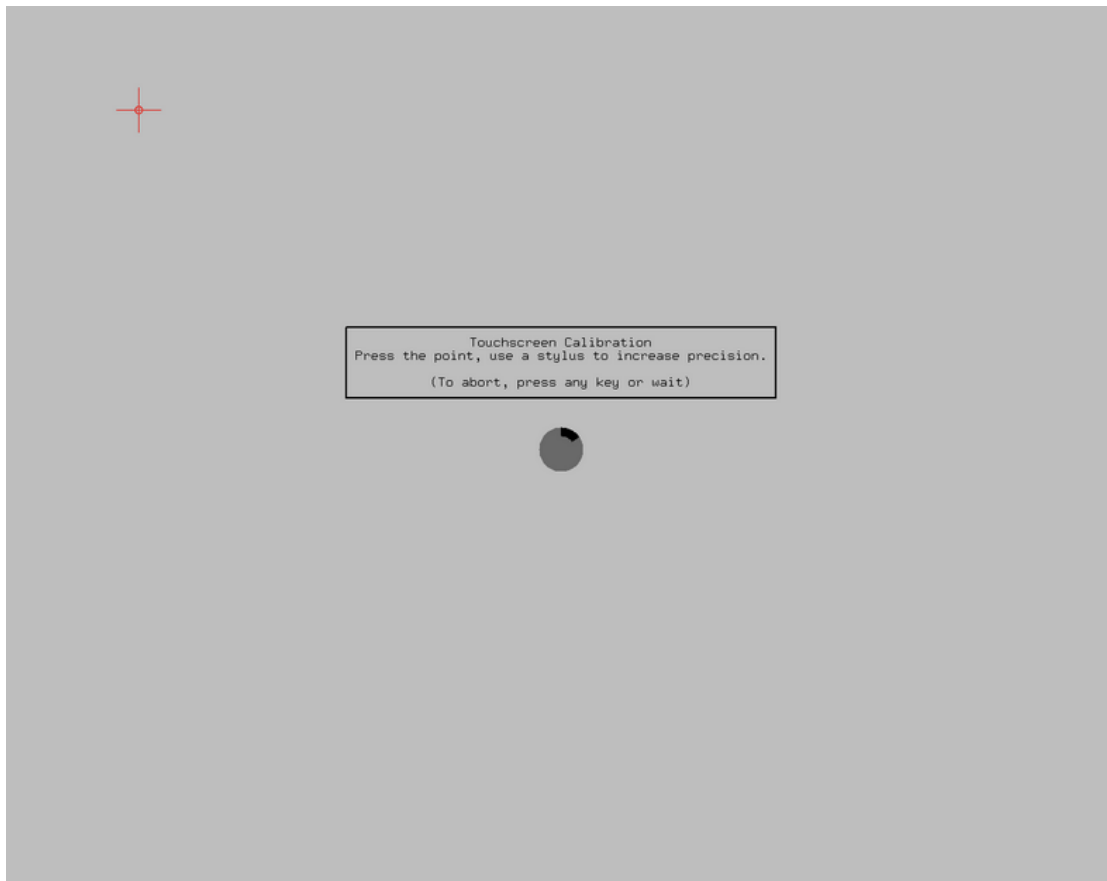
```
cubiescreen@ybmaker:~$ sudo apt-get install xinput_calibrator
```

2. xstroke installation

2.1. use input calibrator to determine the x and y co-ordinates

```
cubiescreen@ybmaker:~$ ./xinput_calibrator
```

Use a stylus to tap the four registration point indicated in red on screen by the program.



2.2. note the results from input calibrator

Use Make a note of the calibration data supplied by input calibrator, but ignore the instruction supplied regarding making the calibration permanent.

```
Calibrating EVDEV driver for "eGalax Inc. USB TouchController" id=15
current calibration values (from XInput): min_x=0, max_x=800 and min_y=0, max_y=480
Doing dynamic recalibration:
Setting new calibration data: 10, 812, -41, 459
--> Making the calibration permanent <--
copy the snippet below into '/etc/X11/xorg.conf.d/99-calibration.conf'
Section "InputClass"
Identifier "calibration"
MatchProduct "eGalax Inc. USB TouchController"
Option "Calibration" "10, 812, -41, 459"
EndSection
```

2.3. Update X11 evdev configuration

Replace the xMin, xMax, yMin and yMax values with your values obtained in step 2.2.

```
cubiescreen@ybmaker:~$ sudo gedit /usr/share/X11/xorg.conf.d/10-evdev.conf
```

Then replace calibration option settings.

```
Section "InputClass"
▶ Identifier "evdev touchscreen catchall"
  MatchIsTouchscreen "on"
  MatchDevicePath "/dev/input/event*"
  Driver "evdev"
  MatchProduct "ft5x_ts"
▶ Option "calibration" "14 807 18 490"
  Option "Mode" "Absolute"
EndSection
```

3. Logout to restart X11

Maybe you need to get more than one group calibrate data to get precise xMin, xMax, yMin, yMax, then restart x11.