

# ELI Touch Screen Calibration in Linux

## Linux Calibration Guide

### Summary:

This guide will show you how to calibrate your ELI touch screen in a Linux environment. This OS level touch screen calibration data will be saved on the Single Board Computer (SBC) or Host, so if the ELI unit is moved to another SBC or Host, the calibration will need to be redone.

This method has been tested and confirmed working on the following ELI units:

- ELI43-CP
- ELI70-CR
- ELI70-IPHW
- ELI101-CPW
- ELI121-CRW

### Target Device(s):

- ELI Device.....[Website](#)

### Required Software:

- Xinput-calibrator .....[Website](#)

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### 1. **Connecting to the Board**

1. Connect your HDMI source to the HDMI input on the ELI.
2. Connect your 12V power supply to the power input on the ELI.
3. Connect your USB to the mini USB touch output on the ELI.

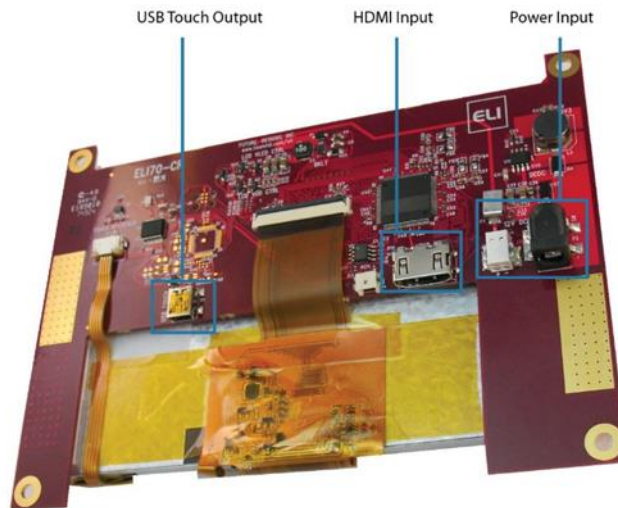


Figure 1. Connecting your ELI (example using ELI70-CR)

## 2. Using *xinput-calibrator*

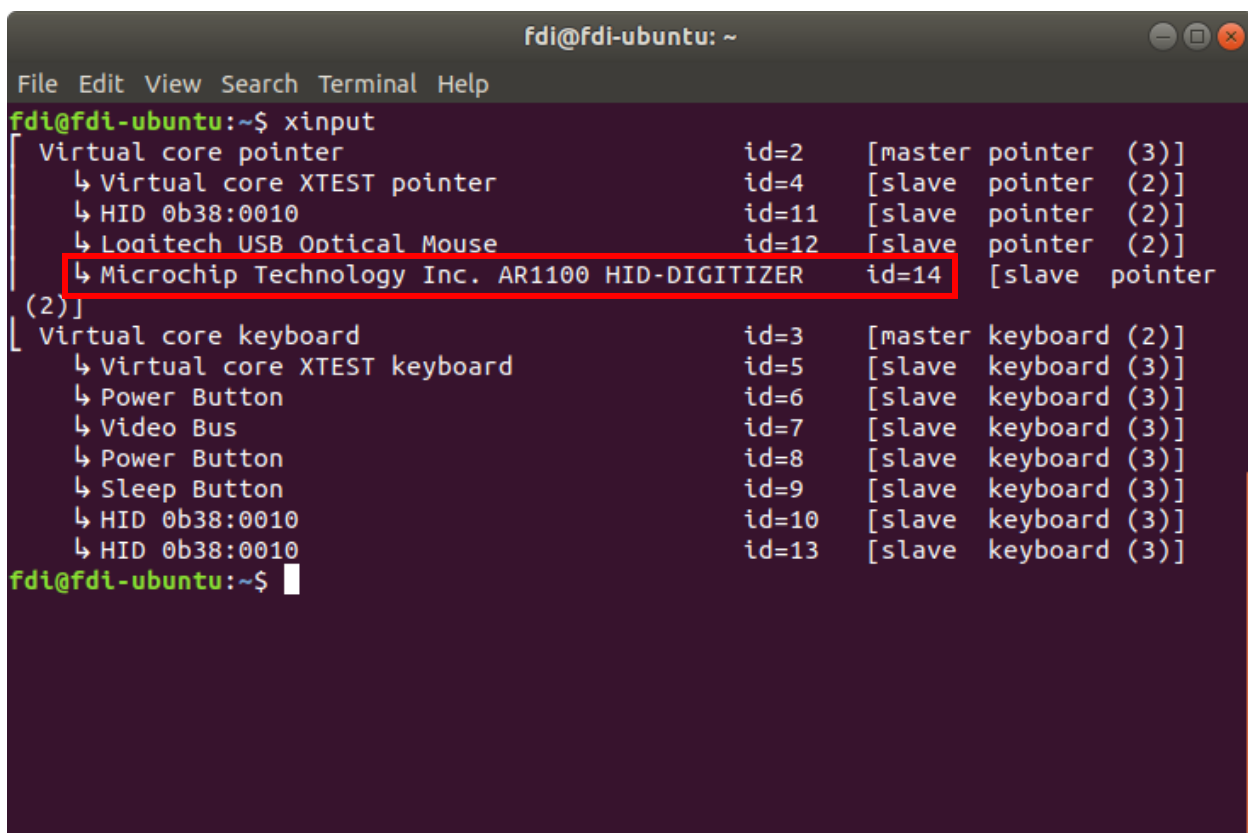
We will be using the tool called “xinput\_calibrator” to calibrate the touch screen. To install this utility, follow the steps below.

1. Open a terminal window by pressing CTR+ALT+T on the keyboard or by using the search tool in the top left corner of Ubuntu. If using an ELI as the primary display, double clicking the top bar of the terminal will maximize the window for easiest use.
2. Enter the following command to install the calibration software:

```
sudo apt-get install xinput-calibrator
```

3. If using multiple monitors and touches are being registered on a different screen than the ELI, do the following:
  - a. Enter the following and find the touch input device and note the device id (14 in our example):

```
xinput
```

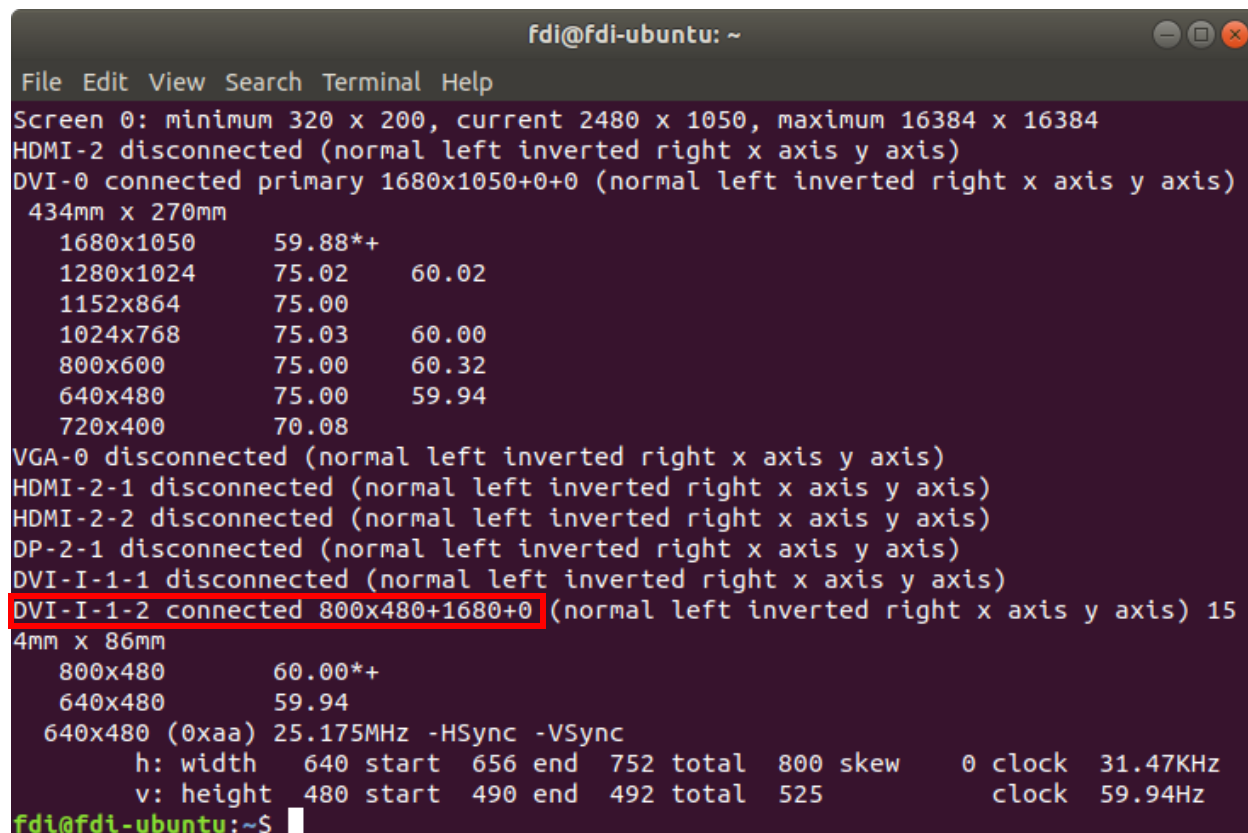


```
fdi@fdi-ubuntu: ~  
File Edit View Search Terminal Help  
fdi@fdi-ubuntu:~$ xinput  
Virtual core pointer          id=2    [master pointer (3)]  
↳ Virtual core XTEST pointer  id=4    [slave  pointer (2)]  
↳ HID 0b38:0010               id=11   [slave  pointer (2)]  
↳ Logitech USB Optical Mouse  id=12   [slave  pointer (2)]  
↳ Microchip Technology Inc. AR1100 HID-DIGITIZER id=14   [slave  pointer (2)]  
Virtual core keyboard         id=3    [master keyboard (2)]  
↳ Virtual core XTEST keyboard id=5    [slave  keyboard (3)]  
↳ Power Button                id=6    [slave  keyboard (3)]  
↳ Video Bus                   id=7    [slave  keyboard (3)]  
↳ Power Button                id=8    [slave  keyboard (3)]  
↳ Sleep Button                id=9    [slave  keyboard (3)]  
↳ HID 0b38:0010               id=10   [slave  keyboard (3)]  
↳ HID 0b38:0010               id=13   [slave  keyboard (3)]  
fdi@fdi-ubuntu:~$
```

Figure 2. Determining the ELI Touch Input ID

- b. Next, enter the following and locate the ELI display output and note the device (DVI-I-1-2 in our example):

```
xrandr
```

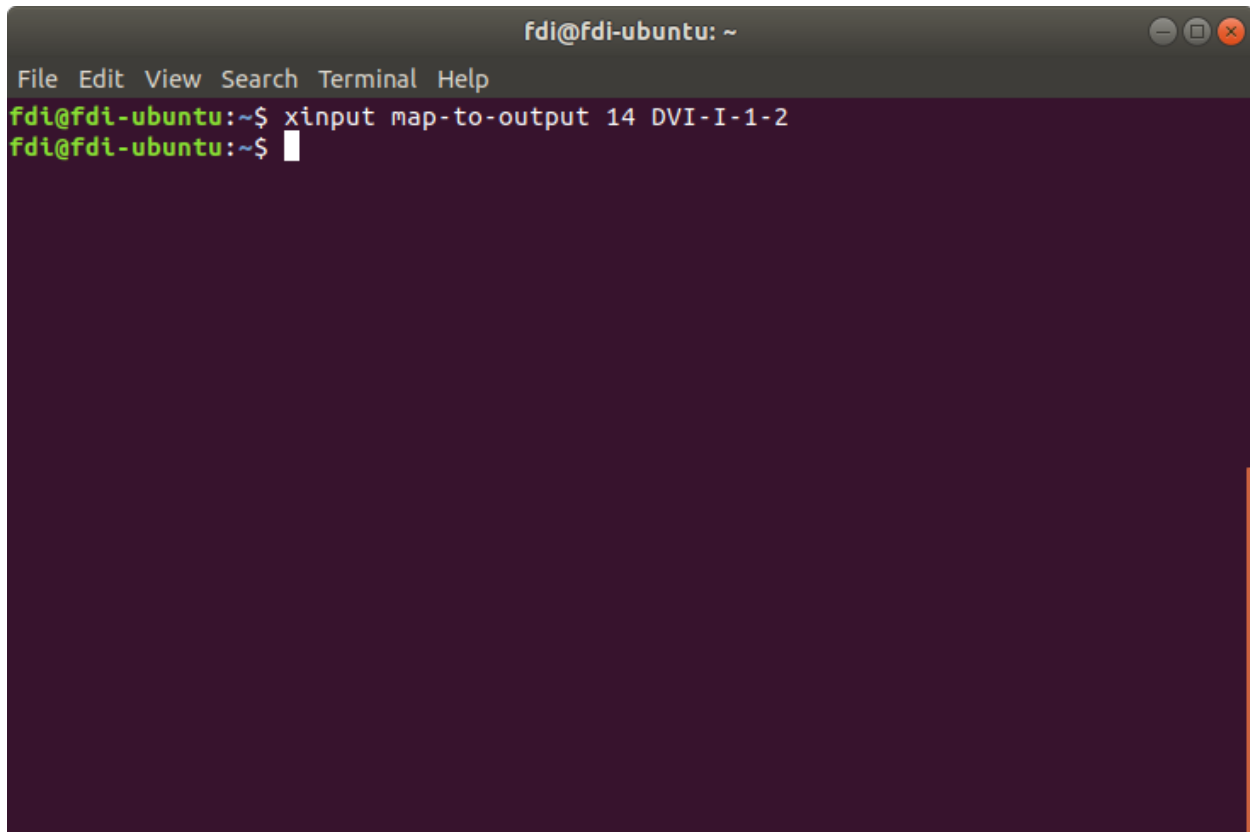


```
fdi@fdi-ubuntu: ~  
File Edit View Search Terminal Help  
Screen 0: minimum 320 x 200, current 2480 x 1050, maximum 16384 x 16384  
HDMI-2 disconnected (normal left inverted right x axis y axis)  
DVI-0 connected primary 1680x1050+0+0 (normal left inverted right x axis y axis)  
  434mm x 270mm  
    1680x1050    59.88*+  
    1280x1024    75.02    60.02  
    1152x864     75.00  
    1024x768     75.03    60.00  
    800x600      75.00    60.32  
    640x480      75.00    59.94  
    720x400      70.08  
VGA-0 disconnected (normal left inverted right x axis y axis)  
HDMI-2-1 disconnected (normal left inverted right x axis y axis)  
HDMI-2-2 disconnected (normal left inverted right x axis y axis)  
DP-2-1 disconnected (normal left inverted right x axis y axis)  
DVI-I-1-1 disconnected (normal left inverted right x axis y axis)  
DVI-I-1-2 connected 800x480+1680+0 (normal left inverted right x axis y axis) 15  
  4mm x 86mm  
    800x480      60.00*+  
    640x480      59.94  
    640x480 (0xaa) 25.175MHz -HSync -VSync  
      h: width   640 start  656 end   752 total   800 skew    0 clock   31.47KHz  
      v: height  480 start  490 end   492 total   525         clock   59.94Hz  
fdi@fdi-ubuntu:~$
```

Figure 3. Determining the ELI Output Device

- c. Finally, enter the last command to map the touch to the proper device using the device id found in step a. and the output device found in step b. for “device\_id” and “output\_device” respectively:

```
xinput map-to-output device_id output_device
```

A terminal window titled 'fdi@fdi-ubuntu: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'xinput map-to-output 14 DVI-I-1-2' being entered and executed. The prompt 'fdi@fdi-ubuntu:~\$' is visible before and after the command.

```
fdi@fdi-ubuntu: ~  
File Edit View Search Terminal Help  
fdi@fdi-ubuntu:~$ xinput map-to-output 14 DVI-I-1-2  
fdi@fdi-ubuntu:~$
```

Figure 4. Mapping the Touch to the Output

4. Enter the following command to run the calibration software (NOTE: May need to make ELI only display temporarily for xinput\_calibrator to work properly):

```
xinput_calibrator
```

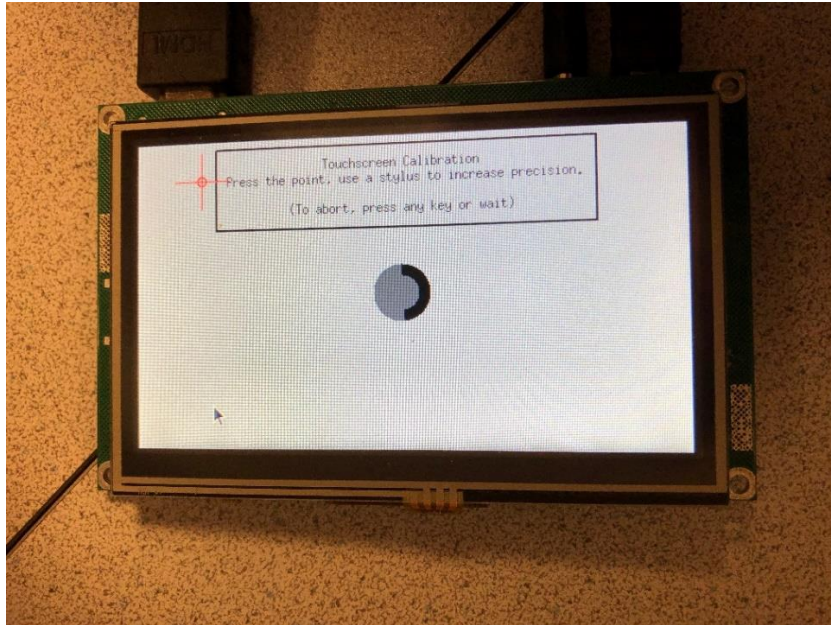


Figure 5. Calibration in progress (example using ELI43-CP)

5. After the calibration runs, it will output some code that needs to be added to `'/etc/X11/xorg.conf.d/99-calibration.conf'`

```
--> Making the calibration permanent <--
copy the snippet below into '/etc/X11/xorg.conf.d/99-calibration.conf'
Section "InputClass"
    Identifier      "calibration"
    MatchProduct    "Future Designs, Inc. ELI43-CR resistive touchscreen rev
ision 2.0"
    Option  "MinX"    "31562"
    Option  "MaxX"    "31562"
    Option  "MinY"    "64852"
    Option  "MaxY"    "955"
    Option  "SwapXY"   "1" # unless it was already set to 1
EndSection
```

Figure 6. Code to be added

6. To save the calibration data, copy the following section of text:

```
Section "InputClass"
    Identifier      "calibration"
    MatchProduct    "Future Designs, Inc. ELI43-CR resistive touchscreen rev
    Option  "MinX"    "31562"
    Option  "MaxX"    "31562"
    Option  "MinY"    "64852"
    Option  "MaxY"    "955"
    Option  "SwapXY"   "1" # unless it was already set to 1
EndSection
```

Figure 7. Using Nano to save changes

7. Enter the following command to open or create the file:

```
sudo nano /etc/X11/xorg.conf.d/99-calibration.conf
```

8. If the document already contains data, hold Delete key to clear the file before pasting.
9. Right-click to paste the data copied in Step 5 into the file. Your version of the text shown in Figure 7 should be the only text in the file when you finish.
10. Finally, press CTR+X to close the file, type 'y' to save changes, and hit enter to confirm the file name. Now the changes will be saved permanently.

### **3. Website and Support**

Support:

- FDI Support home page:.....<http://www.teamfdi.com/support>
- FDI Forums: ..... <http://www.teamfdi.com/forum>