



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. The OS level touch screen calibration data will be saved within Linux so if the ELI unit is moved to another SBC or Host, the calibration will need to be redone.

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.

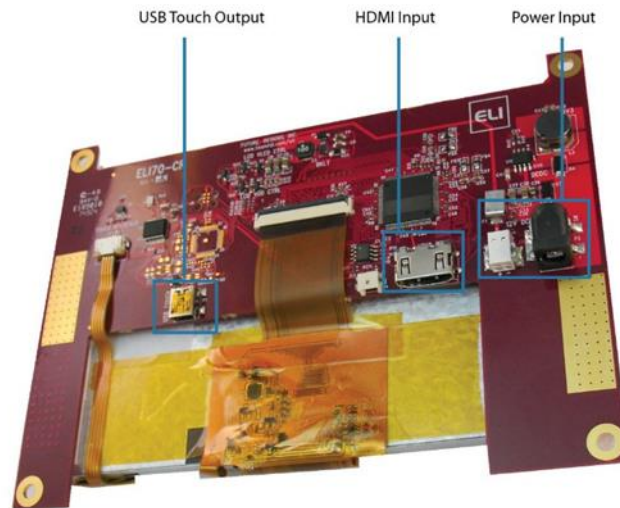


Figure 1. Connecting your ELI (example using ELI70-CR)

2. Using xinput-calibrator

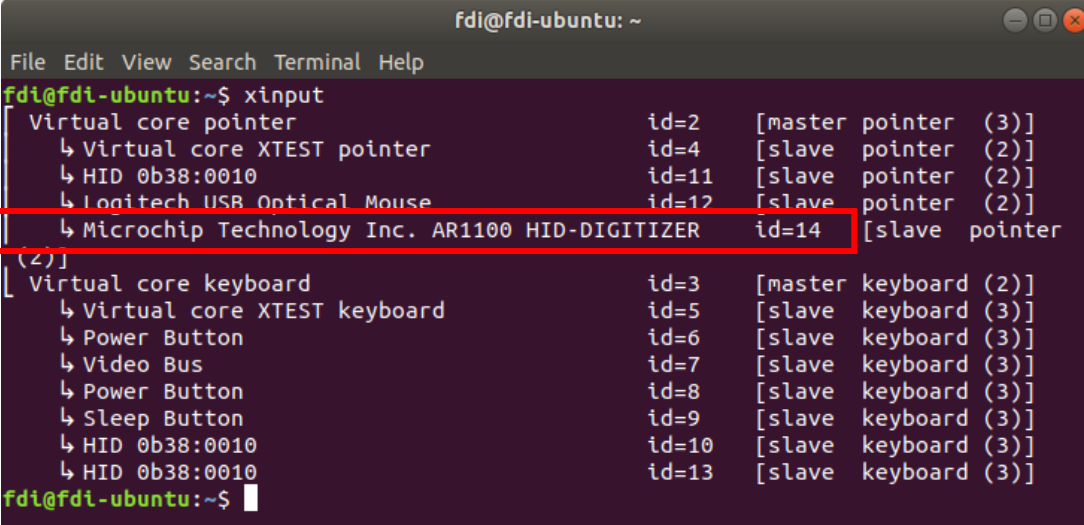
We will be using the tool called “xinput_calibrator” to calibrate the touch screen. To install this utility, follow the steps below.

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 “xinput” and find the ELI input device and note the <device_id> (14 in our example):

NOTE: ELI is displayed as “Microchip ...” or “Future Designs, Inc...”.

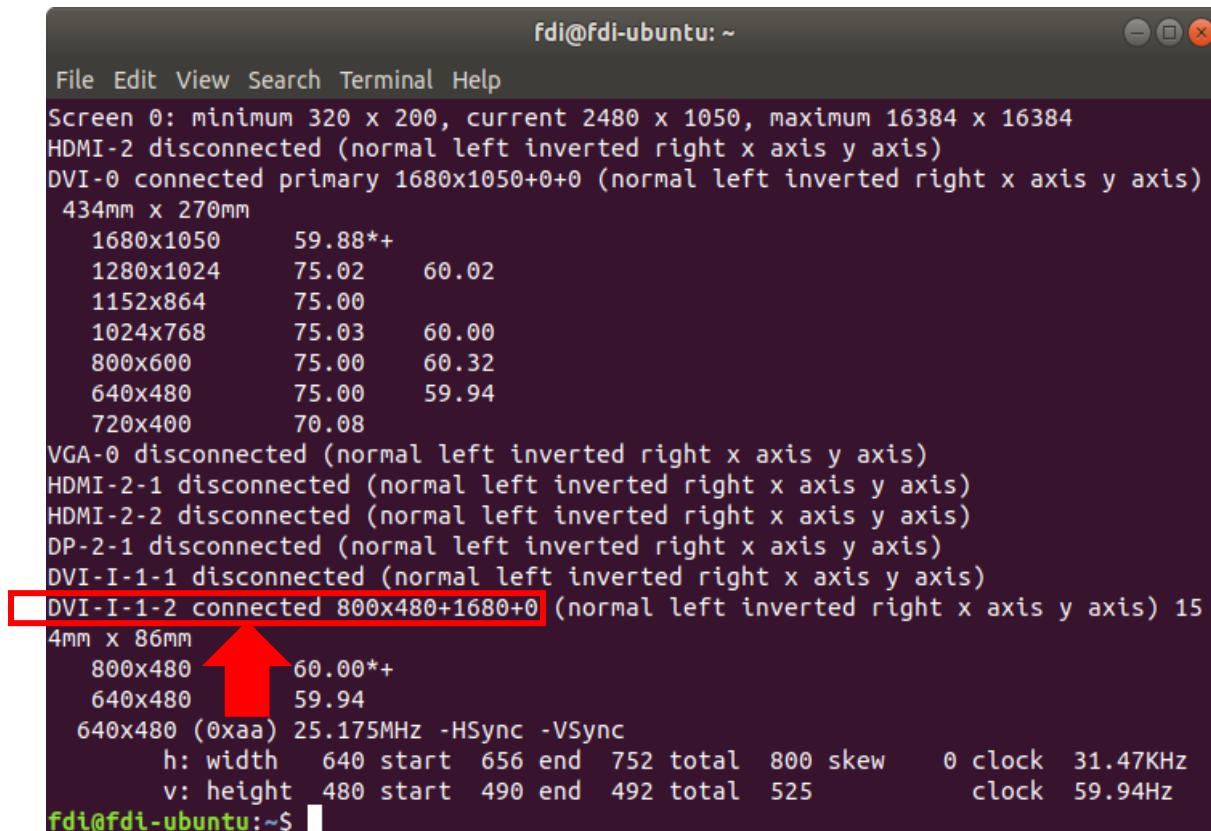


```
fdi@fdi-ubuntu: ~  
File Edit View Search Terminal Help  
fdi@fdi-ubuntu:~$ xinput  
Virtual core pointer          id=2  [master pointer (3)]  
↳ Virtual core XTEST pointer  id=4  [slave pointer (2)]  
↳ HID 0b38:0010                id=11 [slave pointer (2)]  
↳ Logitech USB Optical Mouse   id=12 [slave pointer (2)]  
↳ Microchip Technology Inc. AR1100 HID-DIGITIZER id=14 [slave pointer (2)]  
(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 “xrandr” and locate the ELI display output and note the <output_device> (DVI-I-1-2 in our example):

NOTE: Find ELI by looking for the word “connected” next to the possible display outputs. You should match the number of pixels with your ELI. In this case, we are connected to an ELI70-CR which is 800x480.

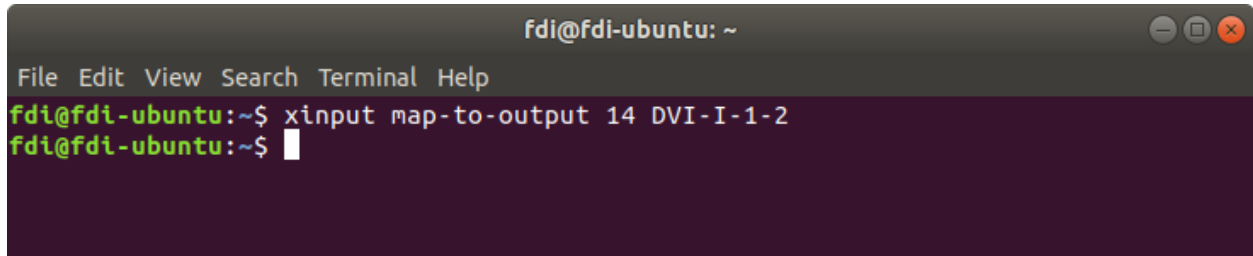


```
fdi@fdi-ubuntu: ~  
File Edit View Search Terminal Help  
Screen 0: minimum 320 x 200, current 2480 x 1050, maximum 16384 x 16384  
HDMI-2 disconnected (normal left inverted right x axis y axis)  
DVI-0 connected primary 1680x1050+0+0 (normal left inverted right x axis y axis)  
434mm x 270mm  
1680x1050 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 below command to map the touch to ELI using the <device_id> found in step a. and the <output_device> found in step b.

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



```
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

NOTE: Before the next step, you may need to make ELI only display, temporarily, for `xinput_calibrator` to work properly.

4. Enter the following command to run the calibration software

```
xinput_calibrator
```

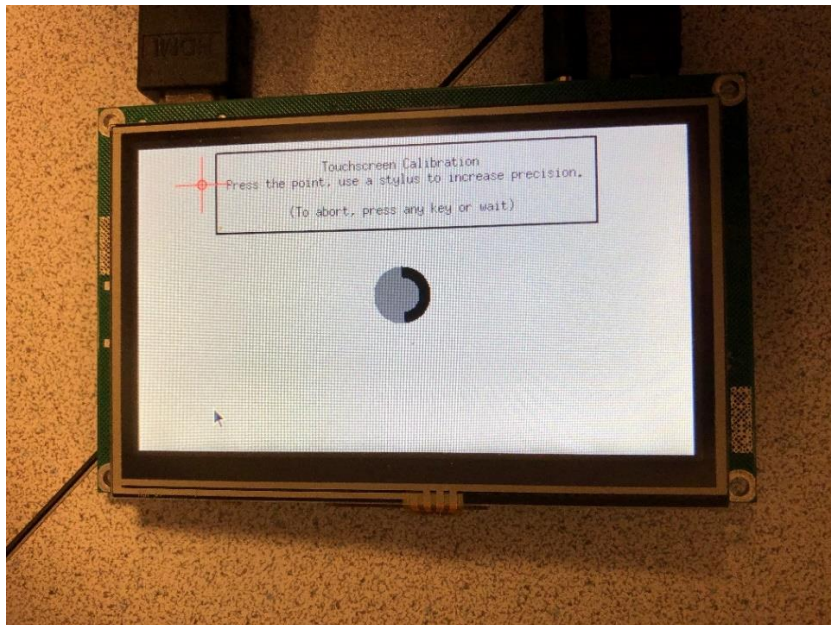


Figure 5. Calibration in progress (example using ELI43-CP)

5. After the calibration finishes, it will output text that looks like the following.

```
--> 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 make the calibration permanent, we need to place your calibration section into a specific file. Start by copying your calibration section, like the below.

```
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 7. Using Nano to save changes

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

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

8. If the document already contains data, hold the Delete key to clear the file before pasting.
9. Right-click and Paste the data copied in Step 6 into the file. When you finish, your version of the text shown in Figure 7 should be the only text in the file.
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 are permanent.

3. Website and Support

Support:

- FDI Support home page:..... <https://www.teamfdi.com/support>
- FDI Forums: <https://www.teamfdi.com/forums>