POSTouch Open Source Driver (OSE) Installation Guide
2012/2/23

1. Confirm right driver before start

OSE driver version	x-window version request
V1.0.0.7	before v1.10
V1.0.0.8	v1.10 or above

If you are running Xorg server, type the following command for confirm version:

Xorg   -version

Distribution & version (# cat /etc/issue) (# cat /etc/*-release)		Kernel version (# uname -r)	x-window version (# Xorg -version)	OSE version	test result for USB touch	test result for RS232 touch	COM5 support method
Fedora	14			V1.0.0.7	OK		
Fedora	15			V1.0.0.8	OK		
Slax	6.1.2	2.6.27	1.4.2	V1.0.0.7	OK	OK	C
Ubuntu	11.04	2.6.38	1.11	V1.0.0.8		OK	A

COM5 support method:

A. Default support COM5 & COM6.

B. Use kernel option to enable COM5 & COM6. Detail check 5.2 chapter.

C. Cannot use kernel option to enable COM5 & COM6, verify for disable COM4 and use /dev/ttyS3.

2. Setup the compile environment

Make sure you have root permissions on the following process. Use one of below command to change if you are not use root account login:

su

sudo

sudo -i

Before compiling the driver, you need the library and packages below. Usually, you can use the package manager (apt-get /YaST2 /yum /urpmi) to find the necessary packages.

library and packages	Command example for apt-get
a. gcc	# apt-get install gcc
b. Xorg develop package	# apt-get install xorg-dev
c. Kernel headers	# apt-get install linux-headers-$(uname -r)
d. GTK2.0	# apt-get install libgtk2.0-dev
e. Tcl develop package	# apt-get install tcl-dev
f. Tk develop package	# apt-get install tk-dev
g. Ncurses develop package	# apt-get install ncurses-dev

P.S.:

1. Different OS or package managers may use different package names.

2. Maybe need add "sudo". Example the Ubuntu 11.04 for get gcc: sudo apt-get install gcc

3. Structure of the driver package

File/Folder name				Note	OSE
V1.0.0.X	Application	RS232	Calib	3 point calibration tool for serial port POS Touch.	
			FreeDraw	Test tool with touch and drawing.	
			Linear	5/9 point calibration tool for serial port POS Touch.	
		USB	Calib	3 point calibration tool for USB POS Touch.	
			FreeDraw	Test tool with touch and drawing.	
			Linear	5/9 point calibration tool for USB POS Touch.	
	Touch.calib			Configuration file for the calibration tool.	
	USB_Kernel	V2.6.x	Touch	USB POS Touch kernel driver.	
	Xorg	1.6x-1.9x	xdrv	Xorg V1.6.x~v1.9.x driver for POS Touch.	V1.0.0.7
		1.10.1	xdrv	Xorg v1.10.x+ driver for POS Touch.	V1.0.0.8

Target file after successful install

File	Function
/etc/touch.calib	configuration file
/usr/lib/xorg/modules/input/xfdrvtouch_drv.so or /usr/lib/xorg/modules/input/xfdrvtouch_drv.o	Xorg driver
/lib/modules/$(uname -r)/kernel/drivers/input/touchscreen/touch.ko	USB touch kernel driver
/usr/local/bin/Calib_3P232	Calibration tool for RS232
/usr/local/bin/Calib_3PUSB	Calibration tool for USB
/usr/local/bin/LinearUSB	Linear calibration tool for RS232
/usr/local/bin/Linear232	Linear calibration tool for USB
/usr/local/bin/FreeDraw	FreeDraw tool

4. Compiler and install the driver

After setting up the compile environment, we can start to compile the tool and the utility.

4.1. Extract the driver package.

#tar zxvf POSTouch_Linux_OpenSource_v1.0.0.x.tar.gz

4.2. touch.calib:

Copy the touch.calib file is a configuration file for the calibration tools. You must copy the file to the /etc folder.

#cp v1.0.0.x/touch.calib /etc/

4.3. Compile and install the Xorg driver

Step	Command	Note
1	#cd v1.0.0.x/Xorg/1.6.x-1.9.x/xdrv/ or #cd v1.0.0.x/Xorg/1.10.1/xdrv/	Use command # Xorg -version to confirm choose which directory.
2	#./configure --with-xlib=/usr/lib or #./configure --with-xlib=/usr/lib **LIBS="-lX11 -lXi"** ``` ------------------------------------ BUILD ENVIRONMENT: architecture - i686-linux-gnu linux kernel - yes module versioning - no kernel source - yes /lib/modules/2.6.35-22-generic/build XFree86 source - no Xorg SDK - yes /usr/include/xorg XSERVER64 - no dlloader - yes XLib - yes /usr/lib TCL - yes /usr/include/tcl TK - yes /usr/include/tcl ncurses - yes BUILD OPTIONS: xfdrvtouch_drv.so - yes /usr/lib/xorg/modules/input xfdrvtouch_drv.o - no ------------------------------------ ```	If you got error message from configuration (Example: Fedora), you need add the option **LIBS="-lX11 -lXi"** for configure.
3	#make	Compiler the driver
4	#make install	Install the driver
5	#ls /usr/lib/xorg/modules/input/xfdrvtouch_drv.*	Checking the driver (file xfdrvtouch_drv.so or xfdrvtouch_drv.o) is successful compiler and install
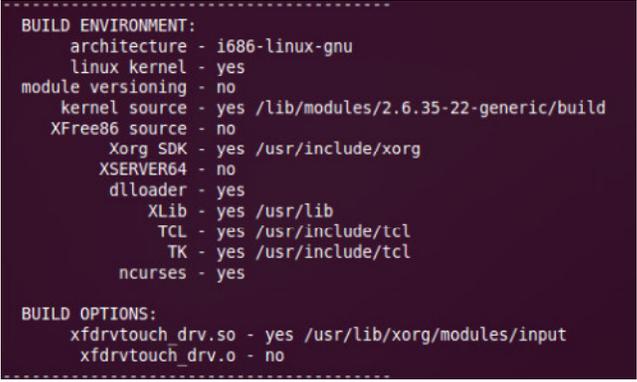
4.4. Compile and install USB Kernel driver

If you are installing the driver for the serial touch, you can skip this step.

Step	Command	Note
1	#cd v1.0.0.x/USB_Kernel/v2.6.x/touch	
2	#make	Compiler the driver
3	#cd touch/	
4	#rm -f /lib/modules/$(uname -r)/kernel/drivers/input/touchscreen/usbtouchscreen*	
5	#install -o root -g root -m 666 touch.ko /lib/modules/$(uname -r)/kernel/drivers/input/touchscreen/	Install the driver
6	#depmod -a	

4.5. Compile and install the tools

Select the utilities you just need and compile them. For example, if your system needs a serial type touch driver, then you just need to compile the Linear/Calib applications in the RS232 folder. All the tools are based on GTK, so before you compile the driver, please ensure that you have the GTK dev package.

4.5.1. Into application source code directory

Application name	Interface	source code directory	Install target & file name	Run method
Calibration tool	RS232	#cd v1.0.0. x/AP/RS232/Calib	/usr/local/bin/Calib_3P232	# Calib_3P232
	USB	#cd v1.0.0. x/AP/USB/Calib	/usr/local/bin/Calib_3PUSB	# Calib_3PUSB
Linear calibration tool	RS232	#cd v1.0.0. x/AP/RS232/Linear	/usr/local/bin/LinearUSB	# LinearUSB
	USB	#cd v1.0.0. x/AP/USB/Linear	/usr/local/bin/Linear232	# Linear232
FreeDraw tool	RS232	#cd v1.0.0. x/AP/RS232/FreeDraw	/usr/local/bin/FreeDraw	# FreeDraw
	USB	#cd v1.0.0. x/AP/USB/FreeDraw	/usr/local/bin/FreeDraw	# FreeDraw

4.5.2. Into application source code directory Compiler and install the application

Step	Command	Note
1	#./configure or # ./configure **LIBS="-lX11 -lXi"**	If you got error message from configuration (Example: Fedora), you need add the option **LIBS="-lX11 -lXi"** for configure.
2	#make	Compiler the driver
3	#make install	Install the driver
4	#ls /usr/local/bin Calib_3P232 Calib_3PUSB FreeDraw Linear232 LinearUSB	Checking the tool is successful compiler and install

5. Modify the xorg.conf for enable touch

Recent versions of Linux may not include xorg.conf. You can use the X configure function to make the configuration file as shown below.

#X -configure :1

#cp /root/xorg.conf.new /etc/X11/xorg.conf

```
        mga
        ark
        s3virge
        fbdev
        vesa
(EE) Failed to load module "vmwgfx" (module does not exist, 0)
(EE) vmware: Please ignore the above warnings about not being able to to load mo
dule/driver vmwgfx
(++) Using config file: "/root/xorg.conf.new"
(==) Using system config directory "/usr/share/X11/xorg.conf.d"
(EE) intel(0): No kernel modesetting driver detected.

Xorg detected your mouse at device /dev/input/mice.
Please check your config if the mouse is still not
operational, as by default Xorg tries to autodetect
the protocol.

Your xorg.conf file is /root/xorg.conf.new

To test the server, run 'X -config /root/xorg.conf.new'

ddxSigGiveUp: Closing log
```

Now we can start to modify the xorg.conf file (/etc/X11/xorg.conf) and focus on the ServerLayout and InputDevice section.

```
Section "ServerLayout"
        Identifier          "X.org Configured"
        Screen          0   "Screen0" 0 0
        InputDevice     "Mouse0"    "CorePointer"
        InputDevice     "Keyboard0" "CoreKeyboard"

        InputDevice      "Touchscreen0" "SendCoreEvents"

EndSection

Section "InputDevice"
        Identifier          "Touchscreen0"
        Driver              "xfdrvtouch"
        Option              "Device"            "/dev/ttyS0"
        Option              "ScreenNo"          "0"
        Option              "Rotation"          "0"
        Option              "SwapY"             "0"
        Option              "DebugLevel"        "0"
        Option              "UpSound"           "1"
        Option              "DownSound"         "1"
        Option              "RightButtonON"     "1"
        Option              "XRandrSetting"     "1024x768+0+0
EndSection
```

5.1. Device Option

About the "Device" option on InputDevice section, you need to confirm to which serial port the touch controller is connected, or whether it is a USB port.

Device type and location	"Device" Option on InputDevice section
USB	/dev/idtk0
	/dev/idtk1
	/dev/idtk2
RS232 on COM1	/dev/ttyS0
RS232 on COM2	/dev/ttyS1
RS232 on COM3	/dev/ttyS2
RS232 on COM4	/dev/ttyS3
RS232 on COM5	/dev/ttyS4
RS232 on COM6	/dev/ttyS5

5.2. RS232 notice

Please install the setserial package. Our devices use /dev/ttyS4 for touch.

#apt-get install setserial

Use the command to list the serial ports. You should find 6 serial ports..

#setserial -g /dev/ttyS?

However, by default the Linux kernel supports only 4 serial ports.

If you cannot find 6 serial ports with the setserial command, add the kernel option "**8250.nr_uarts=6**" on file **grub.cfg (/boot/grub/grub.cfg)** or **lilo.cfg** to enable 6 serial ports as shown in the example below.

```
### BEGIN /etc/grub.d/10_linux ###
menuentry 'Ubuntu, with Linux 2.6.35-22-generic' --class ubuntu --class gnu-linux --class gnu --class
os {
        recordfail
        insmod part_msdos
        insmod ext2
        set root='(hd0,msdos1)'
        search --no-floppy --fs-uuid --set eaa4ddef-dc68-40e9-a6cb-125d3f039967
        linux /boot/vmlinuz-2.6.35-22-generic root=UUID=eaa4ddef-dc68-40e9-a6cb-125d3f039967 ro
quiet splash 8250.nr_uarts=6
        initrd /boot/initrd.img-2.6.35-22-generic
}
```

After enabling the serial ports, we can using the command below to find on which serial port the touch can be found If you choose the correct serial port and click the panel few times, the command should return some data. Then please change the option device to which you detected (EX: /dev/ttyS4).

#od -x </dev/ttyS4

5.3. USB notice

After installing the kernel driver and using the depmod command to install the module and plug-in the USB touch controller. You can find the /dev/idtk0…etc. So modify the device option to /dev/idtk0.

XRandrSetting Option:

Before using this option please verify that your driver version is open driver v1.0.0.6 or above. If you have a dual display with Intel Linux driver and you want to setup the touch on a single monitor. This option can help you to define the position and resolution of the touch area.

#xrandr -q

```
root@root1-desktop:/home/root1# xrandr -q
Screen 0: minimum 320 x 200, current 1024 x 768, maximum 4096 x 4096
VGA1 connected 1024x768+0+0 (normal left inverted right x axis y axis) 410mm x 2
30mm
   1366x768      59.8 +
   1280x1024     75.0
   1280x960      60.0
   1280x800      59.8
   1152x864      75.0
   1280x720      60.0
   1024x768      70.1     60.0*
   800x600       72.2     75.0     60.3     56.2
   640x480       72.8     75.0     60.0
   720x400       70.1
LVDS1 connected 1024x768+0+0 (normal left inverted right x axis y axis) 0mm x 0m

   1024x768      60.0*+   85.0     75.0     70.1     60.0*
   832x624       74.6
   800x600       85.1     72.2     75.0     60.3     56.2
   640x480       85.0     72.8     75.0     59.9
   720x400       85.0
   640x400       85.1
   640x350       85.1
```

Just copy the resolution and position from command reply (1024x768+0+0) add to XRandrSetting Option.

6. Calibration

After installing the tools you can use the command below to start the calibration.

#Linear232 /dev/ttyS4 9   #Calib_3P232 /dev/ttyS4
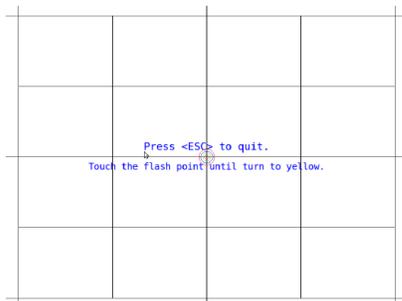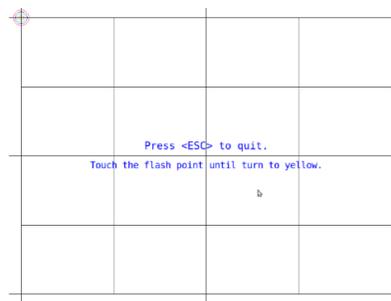
7. Uninstalling the driver

The simple way is to remove the xorg.conf section of the touch driver.

a. Modify the xorg.conf setting: remove the touch sections.

b. Remove the Calib_3P232, FreeDraw and Linear232 tools on /usr/local/bin folder.

c. Remove the xorg driver and kernel driver.

#rm /usr/lib/xorg/modules/input/xfdrvtouch_drv.*

#rm /lib/module/$(uname -r)/kernel/drivers/input/touchscreen/touch.ko